



Volume 38 Number 3 (Supplement 1)

July–September 2017

Tropical Gastroenterology



ISSN 0250-626X

<http://www.tropicalgastro.com>

Supplementary Issue

Tropical Gastroenterology

Volume 38 Issue 3 (Supplement 1) July–September 2017

Contents

List of abstracts S1

Abstracts

Award papers S17

Oesophagus S25

Stomach S42

Intestine S49

Colon and Rectum S59

Liver S72

Pancreas S95

Biliary Tract S122

Miscellaneous S146

Oral award papers

- OA1/3271 Novel prognostic model based on tumor biology and morphology to predict HCC recurrence after living donor liver transplantation.** Prashant Bhangui, Tarun Piplani, Narendra Chaudhary, Dheeraj Gautam, Sanjay Goja, Amit Rastogi, Neeraj Saraf, Sanjiv Saigal, AS Soini, Medanta Liver Institute, Gurugram
- OA2/3388 Donor Hepatectomy: How close to the edge of the cliff are we?** Madhu Srinivasan Durairaj, Anand C Patel, Ramachandran N Menon, Dinesh Balakrishnan, Unnikrishnan G, Sudhindran S, Amrita Institute of Medical Sciences & Research, Kochi
- OA3/3356 Bridging the gap after esophagogastrectomy for locally advanced type 2 GE junction tumors with esophago gastrostomy or esophago jejunostomy: Analysis of outcome.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Balakumaran Sathyamoorthy, Rajendran Vellaisamy, St Isabel Hospital, ESOINDIA, Kauvery Hospital, Madras Medical College, Chennai and Govt KAPV Trichy Medical College, Trichy
- OA4/3336 Assessment of the Quality of Randomized Controlled Trials in Surgical Gastroenterology from India using Jadad Score- A Retrospective Study.** Subair Mohsina, Ravichandran Niranjan, Datta Souraja, Gubbi Samanna Sreenath, Sathasivam Sureshkumar, Vikram Kate, JIPMER, Pondicherry
- OA5/3431 Diffusion Weighted Magnetic Resonance Imaging and Neutrophil Lymphocyte Ratio accurately predicts infection in suspected infected pancreatic necrosis.** Rommel Sandhyav, Nikhil Agrawal, Asit Arora, Yashwant Patidar, Tushar Kanti Chattopadhyay, Institute of Liver and Biliary Sciences, New Delhi
- OA6/3475 Molecular and Clinicopathological Characterization of Colorectal Cancer Samples Defined by Wnt and MSI Status.** Kishore Kumar Reddy, Sastry RA, Murali Dharan Bashyam, Satish Rao I, Krishna Institute of Medical Sciences, Secunderabad and CDFD, Hyderabad

Special Mention Posters

- SP1/3266 A Randomized Trial Comparing Combined Hepatic Artery And Portal Vein Flushing Versus Portal Vein Flushing Alone In Live Donor Liver Transplantation.** Johns Shaji Mathew, Sai Tarun Vasala, Sudhindran S, Amrita Institute of Medical Sciences, Kochi
- SP2/3195 Randomized controlled trial comparing perioperative outcomes after esophageal resection and substitution or esophageal bypass alone for corrosive strictures of the esophagus: An interim analysis.** Pradeep Krishna, NR Dash, Sujoy Pal, Peush Sahni, AIIMS, New Delhi, India
- SP3/3121 Restrictive vs Liberal transfusions strategy in patients with upper gastrointestinal bleeding- A randomized controlled trial.** Gautham Surya Tej Kola, Mohsina Subair, Suresh Kumar Sathasivam, Sreenath G S, Vikram Kate, Jawaharlal Institute of Post Graduate Medical Education and Research (JIPMER), Puducherry
- SP4/3214 Volumetric assessment of the liver using open source image processing software.** Varghese Yeldho, Shabeerali TU, Shiraz AR, Venugopal B, Manoj KS, KIMS, Trivandrum
- SP5/3278 Age No Bar In Living Donor Liver Transplant Results Of Long Term Outcome In Septuagenarians From A Single Centre.** Karthik Mathivanan, Rahul Roy, Sanjiv Saigal, Neeraj Saraf, Thiyagarajan Srinivasan, Prashant Bhangui, Amit Rastogi, Medanta Medicity, Gurugram
- SP6/3091 Regression Of Liver Fibrosis After Surgical Biliary Drainage In Benign Biliary Strictures: A Theoretical Feasibility Or A Practical Possibility?** Jayapal Rajendran, Thakur Deen Yadav, Vikas Gupta, Virendra Singh, Saroj Kumar Sinha, Anupam Lal, Post Graduate Institute of Medical Education and Research, Chandigarh

Award video

- AV1/3153 Total laparoscopic revision Roux-en-Y hepaticojejunostomy for anastomotic biliary stricture with Right hepatic duct stones in a post pancreatectomy patient: A video presentation.** Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai
- AV2/3160 Laparoscopic Right Hepatectomy.** Anush Mohan, Kerala Institute of Medical Sciences, Thiruvananthapuram
- AV3/3181 Right hepatectomy with complete caudate lobectomy for hilar cholangiocarcinoma, complicated by an atrophy hypertrophy complex.** Abhishek Yadav, Satinder Bains, H Ramesh, Lakeshore Hospital, Cochin
- AV4/3165 Laparoscopy Assisted Median Pancreatectomy.** Anush Mohan, Kerala Institute Of Medical Sciences, Thiruvananthapuram
- AV5/3237 Distal Pancreatectomy with En Bloc Coeliac Axis Resection for Locally Advanced pancreatic cancer (Modified Appleby's procedure).** Chinthakindi Madhusudhan, Vinod Kumar Jyothi prakasham, Moksha Prasuna Busineni, Osmania General Hospital And Maxcure Hospitals, Hyderabad
- AV6/3264 Laparoscopic Whipple's pancreaticoduodenectomy.** Prasanth R, Kamalesh NP, Kartik K, Prasanna R, Pramili K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin

Oral papers

Oesophagus and stomach

- ES1/3184** **Impact of corrosive injuries to the Upper Gastro Intestinal system: A 5 year referral centre experience.** Kaushik Subramanian, Bangalore Medical College and Research Institute, Bengaluru
- ES2/3212** **Feasibility and short term Outcomes of Minimally Invasive Surgery in Locally Advanced Esophagogastric Junctional Tumours after Preoperative Chemotherapy.** Samrat Vijaykumar Jankar, GEM Hospital, Coimbatore
- ES3/3242** **Complications following Mckeown's oesophagectomy for malignancy: An experience from a tertiary centre.** Abinaya R Nadarajan, CMC, Vellore
- ES4/3287** **Adult Esophago-respiratory fistula: Experience at a tertiary care centre in south India.** Rajeevan Philip, Birla Roy Gnananuthu, Gayatri Deshpande, Myla Yacob, Vijay Abraham, Inian Samarasam, Christian Medical college, Vellore
- ES5/3383** **Evaluation of long-term consequences of oesophagectomy in patients with carcinoma oesophagus.** Karthik Keshav Raichurkar, Rajesh Panwar, Sujoy Pal, Nihar Ranjan Dash, Peush Sahni, AIIMS, New Delhi.
- ES6/3147** **Predictors for lifelong adjuvant therapy in intermediate and high risk foregut gastrointestinal stromal tumor (GIST).** John Mathew Manipadam, Lekha V, Venugopal Ambady, Mahesh S, Jacob Mathew Kadampuzha, Abhishek Yadav, Ramesh H, VPS Lakeshore Hospital And Research Centre, Kochi

Intestine and Miscellaneous

- IM1/3084** **Impact of re-feeding in patients with proximal jejunostomy: An Indian perspective.** Anand Nagar, Siddharth Mehrotra, Amitabh Yadav, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi
- IM2/3307** **Scope induced type I duodenal perforations: Clip or Surgery?** Amol Dahale, Siddharth Srivastava, Sundeeep Singh Saluja, Sanjeev Sachdeva, Shivakumar Varakanahalli, GB Pant Institute of medical education and research, New Delhi
- IM3/3318** **Ileostomy closure: not always a simple procedure.** Amrit Pipara, Tshering Doma Bhutia, Prem Varghese Thambi, Manas Kumar Roy, Subir Sinha, Robin Thambudurai, V Sitaram, Sudeep Banerjee, Tata Medical Center, Kolkata, Sikkim Manipal Institute of Medical Sciences and Central Referral Hospital, Gangtok and University Hospital of North Tees Stockton, UK
- IM4/3387** **Risk factors for index surgery in Crohns disease in an Indian setup.** Prashant R Rao, Satheshh Iype, Kamalash NP, Mathew Philip, PVS Memorial Hospital, Kochi
- IM5/3506** **Surgery for Intestinal Fistulas: A 20 year Experience of a GI surgical unit.** Suresh Kumar, Aditya Manke, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Amitabh Yadav, Samiran Nundy, SGRH Delhi
- IM6/3200** **Comparison of CT portography and Color Doppler in Extrahepatic Portal Vein Obstruction.** Dhruv Jain, Peush Sahni, Nihar Dash, Sujoy Pal, Raju Sharma, Madhusudhan KS, AIIMS, New Delhi

Colorectal

- CR1/3076** **Identifying A Gene Expression Profile In Primary Colon Cancer Tissue That Could Predict Chemotherapy Response.** Aviral Jain, Guduru Venkat Rao, Sasikala Mitnala, Ravikanth VV, Steffie UA, Asian institute of gastroenterology, Hyderabad
- CR2/3104** **Effects of Preoperative Nutrition Intervention on Postoperative Outcomes in Colorectal Cancer With Modest Hypoalbuminemia- A Randomised Control Trial.** Siddhant Vijay Mathurvaishya, Pradeep Rebella, Guduru Venkat Rao, Navneet Tiwari, Asian Institute of Gastroenterology, Hyderabad
- CR3/3169** **Oestrogen receptor beta and their prognostic role in colorectal malignancy.** Lohith Umapathi, Yashoda Hospital, Hyderabad
- CR4/3238** **Surgical management of colonic diverticular disease in India: A single centre experience of 21 years.** Sunil Kumar Rawat, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi
- CR5/3314** **HER 2 positivity in patients with gastrointestinal tract malignancies: clinicopathological analysis in a prospective observational study.** Kamal Kishore Bishnoi, Bheerappa Nagari, Venu Madhav Thumma, Shantveer G Uppin, NIMS, Hyderabad
- CR6/3424** **Short Term Perioperative Outcomes of Robotic Versus Laparoscopic Anterior Resection- Our Initial Experience in Tertiary Care Centre.** Darshankumar Kantibhai Patel, Apollo Main Hospital

Liver

- L1/3029 Outcomes of acute liver failure in a dedicated liver intensive care unit with medical management and transplantation from India.** Gaurav Nitin Chaubal, Vaishali Solao, Vibhor Borkar, Somnath Chattopadhyay, Prashantha Rao, Samir Shah, Aakash Shukla, Ruhi Kohli, Sanjay Walke, Priya Shenoy, Mihir Vora, Mohamed Rela, Ravi Mohanka, Global Hospitals, Mumbai
- L2/3235 Antegrade arterial and portal flushing versus portal flushing only for right lobe live donor liver transplantation- A Randomized control trial.** Rommel Sandhyav, Viniyendra Pamecha, Piyush Kumar Sinha, Kishore GS Bharathy, Shridhar Sasturkar, Institute of Liver and Biliary Sciences, New Delhi and Sakra World Hospital, Bengaluru
- L3/3251 Management of complex biliary complications after live donor liver transplantation with combined percutaneous and endoscopic intervention- A large volume center experience.** Anisha Tiwari, Sanjiv Saigal, Neeraj Saraf, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Anubhav Khandelwal, Sanjay Saran Bajjal, Rajesh Puri, Randhir Sud, Arvinder Singh Soin, Medanta-institute of liver transplant and regenerative medicine, Gurugram
- L4/3258 Short term patency of neo middle hepatic vein in right lobe living donor liver transplantation.** Deeplaxmi Purushottam Borle, Viniyendra Pamecha, Kishore GS Bharathy, Yashwant Patidar, Binit Sureka, Shalini Thapar Laroia, Indian Institute of Biliary Sciences (ILBS), New Delhi
- L5/3288 A comparative evaluation of MRI and liver biopsy for liver fat estimation in liver transplant donors.** Ankush Golhar, Naimish Mehta, KR Vasudevan, Abhideep Chaudhary, Shailendra Lalwani, Sunita Bhalla, Sriram Rajan, Saumitra Rawat, Samiran Nundy, Sir Ganga Ram Hospital and Mahajan Imaging Center, New Delhi
- L6/3305 A Study Of Association Between Pathological Characteristics Of Splenic Vein And Shunt Thrombosis In Patients Undergoing Proximal Splenorenal Shunt For Non Cirrhotic Portal Hypertension.** Shahana Gupta, Kalayarasan R, Surendra K Verma, Biju Pottakkat, JIPMER, Puducherry
- L7/3312 Live donor liver transplant for adult acute liver failure.** Ankur Vagadiya, Piyush Sinha, Shridhar Sasturkar, Ashok Choudhury, Senthil Kumar, Viniyendra Pamecha, ILBS, New Delhi
- L8/3321 'Safe Optimization' of GRWR and Remnant Liver Volume in LDLT: Interlobar vascular plane is not a watershed.** Thiagarajan Srinivasan, Renu Kumar, Sanjay Goja, Amit Rastogi, Prashant Bhangui, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L9/3325 Short and long-term results of surgery for extra-hepatic portal venous obstruction.** Anand Nagar, Aneela T, Vivek Mangla, Siddharth Mehrotra, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi
- L10/3380 Is left donor hepatectomy safer than right donor hepatectomy: Experience from a high volume Living Donor Liver Transplant program.** Sanjay Yadav, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L11/3415 Worldwide survey of live liver donor selection policies: results from 19009 living donor liver transplants.** Arvinder Singh Soin, HIRAK PAHARI, Rohan Jagat Chaudhary, Elizabeth Pomfret, Medanta The Medicity, Gurugram
- L12/3428 99mTc-Mebrofenin Hepatobiliary Scintigraphy with SPECT CT for assessment of Total as well as Segmental Liver Function and its utility in estimation of Future Liver Remnant Functional Volume in patients undergoing Liver Resection.** Raghavendra Babu Yalakanti, Suneetha Batchu, Tarun Piplani, Dheeraj Gautam, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagarajan Sreenivasan, Vikram Raut, Arvinder Singh Soin, Medanta The Medicity, Gurugram

Pancreas

- P1/3055 Clinical profile and outcome of parathyroid adenoma associated pancreatitis.** Aviral Jain, Mohsin Aslam, Upender Rao, Guduru Venkat Rao, D Nageshwar Reddy, Asian Institute of Gastroenterology, Hyderabad
- P2/3088 Clinical Relevance of Day 3 amylase measurements in predicting outcomes following Pancreaticoduodenectomy.** Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteeswaran C, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupathi
- P3/3170 Outcomes following enhanced recovery after surgery (ERAS) program in patients undergoing pancreaticoduodenectomy.** Sri Aurobindo Prasad Das, Sujoy Pal, Nihar Ranjan Dash, Vimi Rewari, Peush Sahni, All India Institute Of Medical Sciences, New Delhi
- P4/3296 Clinicopathological Profile & Surgical Outcome of Pancreatic Neuroendocrine Tumours (PNET)- A single centre experience over 12 years.** Manikandan Kathirvel, Manoj Thillai, Pulkit Sethi, Puneet Dhar, Sudhindran S, Sudheer OV, Amrita institute of medical sciences, Kochi.

- P5/3316** **Pancreaticoduodenectomy for presumed malignancy– Is a preoperative biopsy a must?** Jacob Mathew, John Mathew Manipadam, Mahesh S, Abhishek Yadav, Lekha V, Venugopal Ambady, Ramesh Hariharan, VPS Lakeshore, Kochi
- P6/3411** **Long term outcomes following acute necrotising pancreatitis: An tertiary care experience.** Sundeeep Singh Saluja, Deepak Balachandra, Siddharth Srivastava, Phanikumar Nekarakanti, Pramod Mishra, GB Pant Institute of medical education and research, New Delhi

Biliary Tract

- B1/3134** **Long-term Results of Percutaneous Biliary Balloon Dilatation and Sequential upsizing of Silastic transanastomotic stents for Benign Hepaticojunostomy Strictures: A Tertiary care centre experience.** Yogesh Ashokkumar Bang, KN Nagabhushan, Jagadesh R Singh, R Pradeep, GV Rao, Asian Institute of Gastroenterology, Hyderabad
- B2/3196** **FLT PET CT scan can avoid radical surgery in masquerading pancreatobiliary lesions.** Gautham Krishnamurthy, PGIMER, Chandigarh
- B3/3310** **Surgical Management of Hilar Cholangiocarcinoma- A Case Series from a Tertiary Hospital.** Kumara Swamy, Viniyendra Pamecha, Senthil Kumar, Asit Arora, Nikhil Agarwal, Chattopadhyay TK, ILBS, New Delhi
- B4/3330** **Is surgery a better treatment for strictured Roux en Y Hepaticojunostomy?** Peeyush Varshney, Ajit Mishra, Abhishek Rajan, Anu Behari, R K Singh, Ashok Kumar, VK Kapoor, Rajan Saxena, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow
- B5/3350** **Outcome Of Patients Undergoing Biliary Repair In Post Cholecystectomy Bile Duct Injury.** Kavita Agrawal, Department of General Surgery, PGIMER, Chandigarh
- B6/3401** **Retrospective Analysis Of 70 Cases Of A Malignant Masquerade- Xanthogranulomatous Cholecystitis.** Rakesh Kumar Yadav, Saket Kumar, Amit Dangji, Vishal Gupta, Pradeep Joshi, Vivek Gupta, Abhijit Chandra, King George Medical University Lucknow

Oral video

- OV1/3441** **Laparoscopic Roux-en-Y hepaticojunostomy for post cholecystectomy benign biliary stricture with aberrant ductal anatomy.** Nikhil Agrawal, Ankur Vagadiya, Asit Arora, Tushar Kanti Chattopadhyay, Institute of Liver and Biliary Sciences, New Delhi
- OV2/3175** **Right posterior sectorectomy using the Glissonian pedicle technique: Tricks and pearls for a safe resection.** Abhishek Yadav, Jacob Mathew, H Ramesh, VPS Lakeshore Hospital, Cochin
- OV3/3504** **Porto caval shunt for BCS (Video).** Sharvari G, Pujari, Vinay Mahala, RY Prabhu, Chetan Kantharia, Seth GS Medical College and KEM hospital, Mumbai
- OV4/3433** **Spleen and pancreas in thorax!! Laparoscopic management.** Azaz Ahmed, Harshavardhan Majety, JKA Jameel, Apollo Hospitals, Chennai
- OV5/3113** **Laparoscopic Transgastric Necrosectomy.** Dhaval Odhavjibhai Mangukiya, SIDS Hospital & Research Center, Surat
- OV6/3491** **Totally laparoscopic Billroth I gastrectomy for Corrosive gastric stricture-Technical description.** Kapil Nagaraj Palanisamy, Kalayarasan Raja, Sandip Chandrasekar, G Senthil, Biju Pottakkat, JIPMER, Puducherry

Poster session

Oesophagus

- E1/3058** **Pediatric Achalasia: A rare differential for failure to thrive in a four year old child.** Dhananjay Pandey, Lokesh Yadav, Lakshmi Kumari Kona, Global hospital, Hyderabad.
- E2/3083** **Management of corrosive injuries of esophagus: Our experience.** Bharath Desu, Narayana Medical College, Nellore
- E3/3102** **Minimally invasive approach to a Symptomatic Giant Mid Esophageal Diverticulum.** Srinivasan Muthukrishnan, Villalan Ramasamy, Sivakumar K, Prabhakaran Raju, Amudhan Anbazhagan, Benet Duraisamy, Rajendran S, Naganath Babu Obla, Madras Medical College, Chennai
- E4/3106** **Surgical management of an impacted foreign body in esophagus with perforation- A case report.** Karthikeyan Mahalingam, Rajiv Gandhi Govt. General Hospital and Madras Medical College, Chennai
- E5/3226** **Difficulties faced with TransOral Orvil during Transabdominal Intrathoracic Esophageal anastomosis.** Madeswaran Chinnathambi, Chandramohan Servarayan, Kanagavel M, Madhusudhanan Devaprakasam, GKNM Hospital, Coimbatore and Isabel Hospital Post Graduate And Research Centre, Chennai

- E6/3298 Initial Experience of Thoracoscopic Assisted Robotic Esophagectomy.** Vivek Kaje, GEM Hospitals and Research Centre, Coimbatore
- E7/3339 Redundant Cologastric Anastomosis after Colon Reconstruction for Corrosive Esophageal Strictures.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Naresh Kumar Damerla, St Isabels hospital, Chennai and ESOINDIA - Center for Gastroesophageal Disorders.
- E8/3341 Missing/Lost Dentures– Found In Esophagus after Years– Experience with Seven Cases.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Kranthi Kumar Thogari, St Isabels Hospital, Chennai and ESOINDIA
- E9/3349 Esophagectomy for Achalasia Cardia.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Kannan Devy Gounder, Rajendran Vellaisamy, Balakumaran Sathyamoorthy, St Isabel Hospital, ESOINDIA, Kauvery Hospital, Madras Medical College, Chennai and Govt KAPV Trichy Medical College, Trichy
- E10/3351 Surgical management of esophageal leiomyoma.** Deeksha Kapoor, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta- The Medicity, Gurugram
- E11/3416 Esophageal duplication cyst– A case series and management controversies.** Raj Kumar, Sam Varghese George, Myla Jacob, Sudhakar Chandran, Vijay Abraham, Inian Samarasam, CMC, Vellore and Square Hospitals, Bangladesh
- E12/3485 Primary adenocarcinoma arising in an ileo-colic conduit 5 years after Gastroesophageal junction tumor resection– A case report and review of literature.** Hemendra Kumar Mangal, Pavneet Kohli, Kalayarasan Raja, Prasanth Penumadu, JIPMER, Puducherry
- E13/3496 Laparoscopic management of corrosive esophagogastric injury: A case series.** Satyaprakash Ray Choudhury, Raja Kalayarasan, Biju Pottakkat, Sandip Chandrasekar, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry
- E14/3038 Efficacy Of Camera Sleeve In Conveyance Of Conduits.** Jayant Kumar Banerjee, Ramanathan Saranga Bharathi, Bharati Vidyapeeth Medical College and Command Hospital (Southern Command) & Armed Forces Medical College, Pune
- E15/3037 Molecular biomarker microRNA-296 may prognosticate and help direct future therapies for squamous cell carcinoma oesophagus.** Vinay Samuel Gaikwad, Paras Hospital, Gurgaon
- E16/3072 The impact of Pyloroplasty on complications of Oesophagectomy: Single institution comparative study.** Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai
- E17/3073 End-to-end versus end-to-side esophagogastric resection after esophageal cancer resection: single institution comparative study.** Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai
- E18/3145 Quality of Life Before and After Laparoscopic Heller Myotomy with Partial Fundoplication— Single institution experience.** Sathasivam Subramani, Madras Medical College, Chennai
- E19/3176 Management of High Pharyngeal Corrosive Strictures: A Single Centre Experience.** Chandrabose Ambedkar, Prabhakaran Raju, Naganath Babu, Rajiv Gandhi Government General Hospital, Chennai
- E20/3308 Tales of a stent: Complications and outcomes of oesophageal stenting.** Aditya Benjamin, Anoop John, Sudipta Dhar Chowdhury, Vijay Abraham, Inian Samarasam, Christian Medical College, Vellore
- E21/3322 Achalasia cardia in surgical perspective: A single institution experience.** Jayaprasad Narayan, BMC&RI, Bengaluru
- E22/3347 Malignancy in gastric conduit after Trans Hiatal Esophagectomy for locally advanced carcinoma esophagus– Analysis of outcome.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Abdul Rehman, Kannan Devy Gounder, St Isabels Hospital, ESOINDIA, Madras Medical College, Kauvery Hospital, Chennai,
- E23/3352 A Comparative Study of MDCT, MRI, FDG PET and Diagnostic Laparoscopy in Assessing Gastroesophageal Junction Adenocarcinoma- A Prospective Study.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Sugaprakash Sankareswaran, Rajamani Emmanuel Gunaseelan, St Isabels Hospital, ESOINDIA, Madras Medical College, Bharat Scans, Chennai
- E24/3455 Role of laparoscopic gastric ischemic conditioning prior to esophagectomy and gastric pull through in patients of esophageal cancer: An interventional study.** Santhosh Anand, Kalayarasan Raja, Sandip Chandrasekar, Biju Pottakkat, Deepak Barathi, Debasis Gocchait, JIPMER, Puducherry
- E25/3382 Determinants for Pulmonary Complications After Esophagectomy For Esophageal Cancer.** Vivek Sharma, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta- The Medicity, Gurgaon
- E26/3362 Experience of CROSS protocol in carcinoma esophagus at a tertiary centre in Southern India.** Geet Midha, Sam Varghese George, Myla Jacob, Jonathan Sadhu, Vijay Abraham, B Sudhakar Chandran, Inian Samarasam, Christian Medical College, Vellore

- E27/3171** **Surgery for corrosive stricture esophagus: Assessment of complications, mental health and quality of life (QOL).** Sri Aurobindo Prasad Das, Nihar Ranjan Dash, Sujoy Pal, Pratap Sharan, KS Madhusudhan, Peush Sahni, All India Institute of Medical Sciences, New Delhi
- E28/3346** **Squamous Cell Carcinoma Esophagus After Corrosive Injury– Pattern of presentation and problems in management. Experience with 13 cases in 25 years.** Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Balakumaran Sathyamoorthy, St Isabel Hospital, Chennai, ESOINDIA and Govt KAPV Medical College, Triruchirapalli
- E29/3374** **CROSS protocol for operable oesophageal cancer: TMC experience.** Amrit Pipara, Robin Thambudurai, Sudeep Banerjee, Manas Kumar Roy, Tata Medical Center, Kolkata
- E30/3418** **Minimally invasive esophagectomy for carcinoma esophagus– Surgical outcome.** Vikram Trehan, Army Hospital (R & R) New Delhi
- E31/3486** **Pattern of recurrence following video-assisted thoracoscopic esophagectomy.** Monish Karunakaran, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram

Stomach

- S1/3039** **Post Gastrectomy Phytobezoar- A rare cause of Small Intestinal Obstruction.** Supreet Kaur Grewal, Rudra Prasad Doley. Rajeev Kapoor, Jaidev Wig, Arvind Sahni, AIIMS, New Delhi and Fortis Hospital, Mohali
- S2/3075** **A Case of Large GIST of the stomach infiltrating into left lobe of liver, successfully resected enbloc following a very effective Neoadjuvant Chemotherapy– Case report.** Aviral Jain, Upender Rao, Rohit Dama, Ranjith Rao, Guduru Venkat Rao, Asian Institute of Gastroenterology, Hyderabad
- S3/3090** **Acute Gastric Dilatation As An Initial Presentation Of Systemic Lupus Erythematosus - A Rare Case Report.** Lokesh Yadav, Ramalingam Trivikrman, Lakshmi Kumari Kona, Global hospitals, Hyderabad
- S4/3101** **Rare Presentation Of Gastric Tuberculosis.** Anil Sundaram, Jayan Stephan, RP Unnithan, Govt Medical College, Trivandrum
- S5/3108** **Synchronous Gastric Cancer And Renal Cell Carcinoma Resection- Case Report.** Madeswaran Chinnathambi, Venkatesh Senkottaiyan.K, Tamilselvi Subbaiyan, GKNMH, Coimbatore
- S6/3179** **Gastric Carcinoma in a patient with Chronic Lymphocytic Leukemia- coincidence or consequence?** Mangal Mayank, S Sudharsanan, TP Elamurugan, Sadasivam Jagdish, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry
- S7/3340** **Massive Gastric Dilatation In Carcinoma Stomach.** Subair Mohsina, Naik Debasis, Amaranathan Anandhi, Sathasivam Sureshkumar, Vikram Kate, JIPMER, Pondicherry
- S8/3345** **An unusual presentation of Emphysematous Cystitis in Carcinoma Stomach- A Case report.** Rajesh Srirama Reddy Bachavarlahalli, Shanmugam Dasarathan, Kadambari Dharanipragada, JIPMER, Puducherry
- S9/3392** **Endoscopy assisted laparoscopic transgastric resection of submucosal lesion at gastroesophageal junction: A novel technique.** Bidarahalli Krishna Prasanna, Pramil Kaniyarakkal, Mathew Philip, Shaji Ponnambathayil, Satheesh Ipye, PVS Memorial Hospital, Kochi
- S10/3031** **Palliative treatment of gastric cancer: An audit comparing primary surgery or chemotherapy.** Selvakumar Balakrishnan, SGP GIMS, Lucknow
- S11/3070** **Study on the effects of bariatric surgery on Nonalcoholic fatty liver disease (NAFLD) using MR Elastography.** Narendranath Nagoti, Lakshmi K, Global Hospital, Hyderabad
- S12/3130** **An analysis of 174 consecutive gastrectomy specimen reports for extent of lymphadenectomy and margin involvement- need for standardization.** Pranav Honnavara Srinivasan, Madras medical college, Chennai

Intestine

- IN1/3032** **Radio-guided surgery with intraoperative endoscopy may substitute Whipple resection in high operative risk patients with multiple low-grade neuroendocrine duodenopancreatic tumours.** Vinay Samuel Gaikwad, Paras Hospital, Gurgaon
- IN2/3074** **Varied presentation of delayed Ischemic Intestinal stricture following Blunt trauma Abdomen.** Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai
- IN3/3086** **Iliovesical fistula- 8 year after post radiation for uterine cancer post surgery.** Jignesh Maganbhai Patel, Mamta Hospital, Surat
- IN4/3099** **A Rare Case Diffuse Entero-Mesentric Lipomatosis With Intussusception.** Shrishail Sadashiv Hanagandi, Sanjeev Patil, Ranjit Rao, Aviral Jain, Prdeep R, Guduru Venkat Rao, D N Reddy, Asian Institute Of Gastroenterology, Hyderabad
- IN5/3119** **In Sequale of Chronic mesenteric ischaemia- Is Diagnostic Laparoscopy useful?** Livin Jose, Villalan Rex, Amudhan Anbalagan, Rajendran S, Naganath Babu OL, Madras Medical College, Chennai

- IN6/3146 CMUSE- A rare entity. Series of two cases causing obscure gastrointestinal bleed.** Siddhant Vijay Mathurvaishya, Navneet Tiwari, Guduru Venkat Rao, Pradeep Rebella, Asian Institute Of Gastroenterology, Hyderabad
- IN7/3161 Complicated Jejunal diverticulosis: A case series.** Satya Prakash Jindal, Adithya GK, Varun Madaan, Vachan S Hukkeri, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi
- IN8/3188 Typhoid Fever Masquerading Tubercular Ileal Perforation- A Rare Case Report.** Anusha Dudaka, Sudharshanan S, Elamurugan TP, Jagdish S, JIPMER, Pondicherry
- IN9/3262 Laparoscopy in obscure partial small bowel obstruction: An effective diagnostic and therapeutic tool.** Ameet Kumar, CK Jakhmola, Command Hospital Air Force, Bangalore and Base Hospital, Delhi Cantt.
- IN10/3476 Isolated drain site metastasis after open resection in ileal adenocarcinoma- An uncommon site.** Saheer N, Saheer Neduvancehry, Prasanth Penumadu, Sivasanker M, Suneel Kaushik, JIPMER, Puducherry
- IN11/3477 A rare case report of Actinomycosis causing intra-abdominal band and intestinal obstruction.** Byshtetty Rajendar, JIPMER, Pondicherry
- IN12/3478 Is Delayed Laparoscopic Appendectomy Better Than Prompt Open Appendectomy?** Ashwitha Shenoy, S Kumaravel, JIPMER, Pondicherry
- IN13/3078 Effect of seasonal variation on mesenteric ischaemia: Drought kills in more than one ways.** Suresh Babu, Navneet Ashok Tiwari, G V Rao, Pradeep R, Asian institute of Gastroenterology, Hyderabad
- IN14/3117 Evaluation of SMA thrombectomy in Acute Mesentric Arterial Ischaemia.** Dhaval Odhavjibhai Mangukiya, Keyur S Bhatt, SIDS Hospital & Research Center, Surat
- IN15/3186 Role of C-reactive protein, total and differential counts, bilirubin levels and imaging in the diagnosis of acute appendicitis as a cause of right iliac fossa pain: A descriptive study.** Chellappa Vijayakumar, Shetty Sushruth, Krishnamachari Srinivasan, Nagarajan Raj Kumar, Verma Surendra Kumar, A Ramesh, JIPMER, Pondicherry
- IN16/3187 Drop In Post-Operative Albumin As A Marker Of Clinical Outcome In Gastrointestinal Surgeries.** Anantha Krishna, Nagesh NS, Bangalore Medical College & Research Centre, Bengaluru
- IN17/3446 Duodenal perforation: Outcomes of surgical management at a tertiary care centre.** Ronak Atulbhai Malani, Samrat Ray, Shailendra Lalwani, Siddharth Mehrotra, Vivek Mangla, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi
- IN18/3370 Local Excision for Duodenal Tumours: A single centre experience.** Aditya Manke, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Samiran Nundy, SGRH, New Delhi
- IN19/3136 Isolated rupture of duodenum following blunt trauma: Report of a case of avulsion of pylorus.** Chellappa Vijayakumar, Inbasekaran Anbarasu, Gopal Balasubramaniam, Sundaramurthi Sudharsanan, Dhanapal Baskaran, JIPMER, Pondicherry

Colon and Rectum

- CR1/3498 Hirschprung's Disease: Paradigm Shift from Three Stage to Single Stage Scarless Surgery: Our Experience.** Ketaki Vivek Gharpure, Kumaravel S, Bibekanand Jindal, Krishnakumar Govindarajan, Bikash Kumar Naredi, JIPMER
- CR2/3068 Large Bowel Obstruction In Carcinoma Cervix-Post Treatment.** Madeswaran Chinnathambi, Karthika Sivaprakasam, GKNMH, Coimbatore
- CR3/3116 Surgery in Complicated Sigmoid Diverticulitis: Retrospective Analysis.** Dhaval Odhavjibhai Mangukiya, Keyur S Bhatt, Pankaj Desai, Rajiv Mehta, Subhash Nandwani, Mayank Kabrawala, Karsan Nandaniya, Divya Mulchandani, SIDS Hospital & Research Center, Surat
- CR4/3152 Mesh repair of abdominal wall defects during colostomy reversal surgery- A novel approach: Our experience.** Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Hitesh Mehta, Lilavati hospital and research centre, Mumbai
- CR5/3191 Pouchovaginal Fistula: Managing a Rare Complication in Patient with Ulcerative Colitis after Total Proctocolectomy and Ileal Pouch-Anal Anastomosis.** Sumesh Kaistha, Command Hospital Central Command, Lucknow
- CR6/3379 Endoscopic Ultrasound Guided Overlapping Anal Sphincteroplasty: The Way Forward?- A Preliminary Report.** Saket Kumar, Prabhu Singh, Rakesh Kumar Yadav, Abhijit Chandra, Vishal Gupta, Vivek Gupta, Pradeep Joshi, KGMU, Lucknow
- CR7/3277 Management of Rectal Foreign Body: A Rare Case Report.** Nirkhi R Shah
- CR8/3281 Lower GI bleed post complex colorectal surgery: Two rare case reports.** Manish Ahuja, Devendra Desai, Annirudha Kulkarni, Sudeep Shah, Vinod Chandiramani, Pd Hinduja Hospital & Research Centre, Mumbai
- CR9/3397 Neoanal Reconstruction Using Transposed Antro Pyloric Valve And Gluteus Muscle Wrap For End Stage Fecal Incontinence: A Preliminary Report.** Nikhil Chopra, Rakesh Kumar Yadav, Pavan Kumar, Abhijit Chandra, Vishal Gupta, Saket Kumar, Pradeep Joshi, Vivek Gupta, KGMU, Lucknow

- CR10/3427** **Robotic ventral rectopexy: Initial experience in an Indian tertiary health-care centre.** Amit BL, Apollo Main Hospital, Chennai
- CR11/3488** **Isolated metastases to multiple genital organs: A curious case of metachronous spread of carcinoma colon.** Pavneet Singh Kohli, JIPMER, Puducherry
- CR12/3495** **An unusual cause of chronic bleeding following modified Duhamel procedure.** Ketaki Vivek Gharpure, Bibekanand Jindal, Barath Jagadisan, Bikashkumar Naredi, JIPMER, Puducherry
- CR13/3063** **Higher preoperative serum Carcino embryonic antigen (CEA) level predicts poor histology in colorectal cancer patients- A prospective observational study.** Ishan Shah, Amitabh Yadav, Saumitra Rawat, Suresh Singhvi, Sir Gangaram Hospital, New Delhi
- CR14/3144** **Effect of perioperative high concentration oxygen supplementation on postoperative surgical site infection in patients undergoing elective colorectal surgery- A randomized controlled trial.** Mayank Mangal, Subair Mohsina, Sathasivam Suresh Kumar, Pankaj Kundra, Vikram Kate, Jawaharlal Institute of postgraduate Medical Education and Research (JIPMER), Puducherry
- CR15/3151** **Outcome analysis of laparoscopic management of sigmoid diverticulitis: A tertiary centre experience.** Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Dattaprasanna Kulkarni, Paresch Varty, Hitesh Mehta, Lilavati hospital and research centre, Mumbai
- CR16/3202** **Intra operative colonic lavage in left sided colorectal malignancy: Our experience.** Rajesh Muruges, Satinder Pal Bains, Jacob Mathew, John Mathew Manipadam, Ramesh Hariharan, VPS Lakeshore Hospital, Kochi
- CR17/3283** **Impact of Platelet Lymphocyte Ratio (Plr) on the Stage of Colorectal Carcinoma.** Sreejith S, Ramesh Rajan, Bonny Natesh P, Sindhu RS, Raviram S, Jacob Mathew, Government Medical College, Trivandrum
- CR18/3284** **Laparoscopic total proctocolectomy with ileal pouch–anal anastomosis for Familial Adenomatous Polyposis: Safety, Feasibility and Outcomes.** Amit Narendra Chopde, Subhash Mishra, Rajkumar Gupta, Rajesh Bhojwani, Santokhba Durlabhji Memorial Hospital, Jaipur
- CR19/3499** **Laparoscopic Resection Rectopexy for Complete Rectal Prolapse: Our Experience.** Suresh Kumar Saini, Subhash Mishra, Rajkumar Gupta, Rajesh Bhojwani, SIDSS, SDMHS, Jaipur
- CR20/3398** **Modified Stapling Technique for J-pouch construction in Restorative Proctocolectomy for Ulcerative Colitis.** Monish Karunakaran, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram
- CR21/3111** **Polidocanol versus phenol in oil injection sclerotherapy in treatment of internal hemorrhoids– A randomized controlled trial.** Sandeep Mishra, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry
- CR22/3154** **Comparison of Diclofenac Suppositories and Diltiazem Gel in Post-operative Pain Relief following Hemorrhoidectomy: A Randomized Control Trial.** Aneesh Suresh, Balamourougan Krishnaraj, Sarath Chandra Sistla, JIPMER, Puducherry
- CR23/3384** **“Diversion stoma versus no diversion” based on three intra-operative criteria in low anterior resection after neoadjuvant chemoradiation for carcinoma rectum: Pilot study.** Sindhu Radha Sadasivan Nair, Bonny P Natesh, Ramesh Rajan, Sreejith S, Antony Stanley, Govt. Medical College, Trivandrum

Liver

- L1/3062** **A rare case of Congenital portal vein stenosis.** Narendranath Nagoti, Manoj Shrivastav, Global Hospital, India
- L2/3080** **Primary Hepatic Tuberculosis: A Rare Occurrence.** Devayani M Niyogi, S Patkar, Rajesh S Shinde, M Goel, Tata Memorial Hospital, Mumbai
- L3/3140** **Management of Portal Biliopathy- needs individualized approach, an observational study.** Karthikeyan Mahalingam, Naganath Babu OL, Prabhakaran Raju, Rajiv Gandhi Govt.General Hospital, Chennai
- L4/3150** **Surgical management of fibrolamellar hepatocellular carcinoma: Our experience and literature review.** Namita Gangaram Chavan, Prasad Pande, Gunjan Desai, Hitesh Mehta, Prasad Wagle, Lilavati Hospital And Research Centre, Mumbai
- L5/3443** **Varied presentation of Abernethy malformation, its management and outcome: Our experience.** Swapnil Sharma, Kapildev Yadav, Seema Math, Shailesh Sable, Ashutosh Chouhan, Vibha Varma, Vinay Kumaran, Kokilaben Dhirubhai Ambani Hospital, Mumbai
- L6/3430** **Two to Tango- A case for Dual Lobe Liver Transplantation.** Naimish N Mehta, Siddharth Mehrotra, Shailendra Lalwani, Vivek Mangla, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi
- L7/3461** **Fibrolamellar hepatocellular carcinoma (FHCC) with biliary tumor thrombus is an unusual association.** Deep Lamichhane, Sudeep Banerjee, Manas Kumar Roy, Robin Thambudorai, Avidip De, Venkatramani Sitaram, Tata Medical Center, Kolkata

- L8/3122 Liver hydatid cyst in urban referral center– when do we need Biliary stenting?** Keyur Suresh Bhatt, Dhaval O Mangukiya, SIDS Hospital, Surat
- L9/3127 Management of Liver Trauma– Surgical Intervention still necessary? A single centre Observational Study.** Venkateshwara Mahadevan, Villalan Ramasamy, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Rajendran.S, Naganath Babu OL, Madras Medical College, Chennai
- L10/3182 Non hepatic surgery in patients with liver cirrhosis; is the nihilism warranted?** Satinder Bains, Abhishek Yadav, H Ramesh, Lakeshore Hospital, Cochin
- L11/3207 Extracapsular excision of hepatic hemangioma: A single centre experience.** Mahesh Goel, Shraddha Patkar, Shubham Garg, Amol Vijay Kanetkar, Tata Memorial Hospital, Mumbai
- L12/3221 Budd Chiari Syndrome– A Descriptive Analysis of 38 Cases from a Tertiary Care Centre.** K Sathish Kumar, Govt Stanley Medical College and Hospital, Chennai
- L13/3223 Living Donor Liver Transplant for Acute Liver Failure in Pediatric patients.** Rommel Sandhyav, Piyush Kumar Sinha, Shridhar Sasturkar, Vikrant Sood, Seema Alam, Viniyendra Pamecha, Institute of Liver and Biliary Sciences, New Delhi
- L14/3231 Glissonian Approach to Liver Resection: Our Experience.** Madhur Anand, Gouri Shankar Sharma, Vikas Kumar Singh, Sachin Jain, Mohammad Farhan Khan, Sundeep Jain, Fortis Escorts Hospital, Jaipur
- L15/3254 Duct to duct versus bilio-enteric anastomosis for biliary reconstruction in paediatric living donor liver transplantation.** Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Randhir Sud, Sanjay Baijal, Neelam Mohan, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L16/3259 Deceased donor liver transplant: Perspectives from a public sector hospital in India.** Deepalaxmi Purushottam Borle, Viniyendra Pamecha, Senthil Kumar, Kishore GS Bharathy, Piyush Kumar Sinha, Shridhar Vasant Rao Sasturkar, Chandra Kant Pandey, Vibuti Sharma, Shiv Kumar Sarin, Indian Institute of Biliary Sciences (ILBS), New Delhi
- L17/3434 ABO-i Living donor Liver Transplant: Early experience with simplified desensitization protocol.** Shailesh Anand Sable, Nidhi Mehta, Rajesh Sawant, Kapildev Yadav, Swapnil Sharma, Suneed Kumar, Ashutosh Chouhan, Sorabh Kapoor, Vibha Varma, Vinay Kumaran, Kokilaben Dhirubhai Ambani Hospital, Mumbai
- L18/3449 Psoas Index As A Nutrition Tool To Assess Outcomes After Live Donor Liver Transplantation.** Bharat Saranga Kumar, Krishnanunni Nair, Shweta Mallick, Manoj T, Dinesh Balakrishnan, Sudhindran S, AIMS Cochin
- L19/3324 Splenectomy versus proximal splenorenal shunt in non-bleeder patients with non-cirrhotic portal fibrosis: A prospective cohort study.** Hari Govind, Sundeep Singh Saluja, Ajay Kumar, Vaibhav Varshney, Pramod Mishra, GB Pant Institute of medical education and research, New Delhi
- L20/3303 Pattern and risk factors for recurrence of Hepatocellular carcinoma (HCC) following liver Transplantation.** Premanandh Elavarasan, Manikandan Kathirvel, Sudhindran S, Binoj ST, Puneet Dhar, Sudheer OV, Dinesh B, Unnikrishnan G, Ramachandran Menon N, Biju Chandran, Amritha medical college, Kochi
- L21/3289 Prevalence of non-alcoholic fatty liver disease and hypercholesterolemia in patients of gallstone disease undergoing laparoscopic cholecystectomy.** Kaptan Singh Bhaner, PGIMER, Chandigarh
- L22/3213 Study of outcomes of surgical resection of large hepatocellular carcinoma in cirrhotics and non-cirrhotics.** Pramod Jagannath, Manipal Hospitals, Bengaluru
- L23/3229 Outcome of live donor liver transplant in patients with co-existent or recently treated extrahepatic malignancies.** Anisha Tiwari, Sanjay Goja, Amit Rastogi, Prashant Bhangui, Thiagrajan Srinivasan, Neeraj Saraf, Sanjiv Saigal, Narendra Singh Choudhary, Neelam Mohan, Dheeraj Gautam, Arvinder Singh Soin, Medanta- Institute Of Liver Transplant And Regenerative Medicine, Gurugram
- L24/3253 Biliary complications and management in paediatric liver transplant: Outcomes from a high-volume living donor liver transplant centre.** Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Randhir Sud, Sanjay Baijal, Neelam Mohan, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L25/3268 Donor safety in Living Donor Liver transplantation at a Low volume center.** Aravind Kidambi Seshadri, Sumana Kolar Ramachandra, Subramanyam Mahankali, Karthik Rao, Amit Rastogi, Sanjay Goja, Vijay Vohra, Arvinder Soin, Columbia Asia referral hospital, Yeshwanthpur and Medanta Medicity, Gurugram
- L26/3270 Assessment of Fat Fraction on MRI as a Sensitive and Reliable Predictor of Sarcopenia in Liver Transplant Recipients.** Sunil Dayanand Shenvi, David J Taber, AD Hardie, JO Botstein, John McGillicuddy, Medical University of South Carolina, SC, USA
- L27/3319 Ischemia Reperfusion Injury in Deceased Donor Liver Transplantation and its Effect on Outcome.** Fadl H Veerankutty, Shiraz Ahamed Rather, Shabeer Ali TU, Varghese Yeldho, Bincy Zacharia, Venugopal B, Kerala Institute of Medical Sciences, Trivandrum

- L28/3373 Right lobe live liver donation, MHV or no MHV- Tailored approach.** Sanjay Yadav, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L29/3377 Chronic Non tumoural portal vein thrombosis does not adversely impact outcome after living donor liver transplantation.** Sanjay Yadav, Rahul Roy, Neeraj Saraf, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- L30/3391 Liver transplant in acute liver failure- looking back.** Shweta Mallick, Manoj Thillai, Pulkit Sethi, Sudhindran S, Amrita Institute of medical sciences and research, Kochi
- L31/3425 Evaluation Of HKLC Classification For HCC Patients Undergoing Surgery In Indian Contexts.** Sagar Ramesh Kurunkar, Tata Memorial Hospital, Mumbai
- L32/3447 Results From Live Donor Liver Transplants From Hepatitis B Core Antibody Positive Donors.** Visagh PU, Krishnanunni Nair, Shweta Mallick, Sudheer OV, Puneet Dhar, Sudhindran S, AIMS, Cochin
- L33/3459 Reasons for donor rejection prior to living donor liver transplantation.** Sujeet Kumar Saha, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan S, Sanjiv Saigal, Neeraj Saraf, Narendra Choudhary, Sanjay Yadav, Arvinder Singh Soin, Medanta Institute Of Liver Transplant, Gurugram
- L34/3460 Parenchymal preservation in right lobe liver tumors by optimal utilization of right posterior sectorectomy.** Srikanth Thummala, Thiagarajan Srinivasan, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Sanjeev Rohatgi, Arvinder Singh Soin, Medanta, Gurugram
- L35/3048 Health related quality of life in living donor liver transplant recipients: An Indian perspective.** Ankush Kalyan Golhar, Vinayak Nikam, Ushast Dhir, Saumitra Rawat, Suresh Singhvi, Sir Ganga Ram hospital, New Delhi

Pancreas

- P1/3047 Outcomes of pancreaticoduodenectomy in a tertiary care government hospital.** Ravindra Nidoni, Jagjivan Ram Railway Hospital, Mumbai
- P2/3061 A Complication That Does Not Kill but Definitely Cripples: Chyle Leak after Whipples.** Ramalingam Trivikraman, Dhananjay Pandey, Lakshmi Kumari Kona, Global Hospitals, Hyderabad
- P3/3100 Laparoscopic Cystogastrostomy a viable option between endotherapy and open surgery-Experience in a tertiary centre.** Livin Jose, Prabakaran Raju, Rajendran S, Naganath Babu OL, Madras Medical College, Chennai
- P4/3129 Laparoscopic Distal Pancreatectomy: Our Experience in Tertiary Center.** Mehul Vikani, Kartik Sutariya, CIGIS GASTROsurgery Center, Rajkot
- P5/3155 Superior Mesenteric Artery Thrombosis: A Rare complication after Pancreaticoduodenectomy.** Satya Prakash Jindal, Adithya GK, Varun Madaan, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi
- P6/3157 Pancreatic adenocarcinoma in a patient with Renal cell carcinoma: A Case Report.** Satya Prakash Jindal, Adithya GK, Varun Madaan, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi
- P7/3372 A rare case report of hemorrhagic Walled Off Pancreatic Necrosis (WOPN) spontaneously fistulizing into stomach.** Srinivas Bojanapu, Ushast Dhir, Saumitra Rawat, Ishan shah, Sir Gangaram Hospital, New Delhi
- P8/3234 Solid Pseudopapillary Neoplasm of Pancreas: Surgical Challenge.** Balram Goyal, Army Hospital (R&R), New Delhi
- P9/3260 Autoimmune Pancreatitis Masquerading As Pancreatic Malignancy.** Anmol Raj Gupta, Meenakshi Mission Hospital, Madurai
- P10/3275 Pancreatic Injury With Ductal Disruption Does Not Need Emergent Surgery.** Sri Krishna Nataraj Bollineni, Meenakshi Mission Hospital & Research Centre, Madurai
- P11/3291 Percutaneous drainage for pancreatic ascites in failed pancreatic duct stenting patients.** Suresh Kumar Sepuri, Osmania General Hospital, Hyderabad
- P12/3326 Central pancreatectomy: real clinical benefit.** Nirjhar Raj Rakesh, N Bheerappa, GSR Varma, Venu Madhav, N Kishore, Jagan Reddy, NIMS, Hyderabad
- P13/3366 Portal Annular Pancreas: Rare Variant And Its Importance In Pancreatic Surgery.** Anmol Raj Gupta, Meenakshi Mission Hospital, Madurai
- P14/3399 Rare Pancreatic Neoplasms: A Case Series.** Nikhitha D Shetty, Jayant Gul Mulchandani, Ashwinikumar D Kudari, Narayana Hrudayalaya Hospitals, Bangalore
- P15/3406 Biliary complications after pancreatic Necrosectomy.** Surya Ramachandra Varma Gunturi, Venu Madhav Thumma, Navakishore Kunduru, Jaganmohan Reddy Bathalapalli, Kamal Kishore Bishnoi, Nirjhar Raj Rakesh, Bheerappa Nagari, Nizams Institute Of Medical Sciences, Hyderabad

- P16/3440 Groove pancreatitis – an important differential diagnosis of pancreatic adenocarcinoma.** Praneeth Reddy
- P17/3493 A rare case of periampullary carcinoma with cystic atrophy of pancreas.** Neetesh Kumar Sinha, Saheer N, Sivasanker M, Prasanth Penumadu, JIPMER, Puducherry
- P18/3503 Metastatic Solid pseudopapillary epithelial neoplasm (SPEN) of the pancreas - Diagnostic Dilemma and challenge in surgical management.** Rajkumar Subramaniam, MMC, Chennai
- P19/3051 Factors predicting postoperative complications following salvage surgery for failed endoscopic management in chronic pancreatitis.** Gautham Krishnamurthy, Vikas Moond, Srinath Rathod, Rajesh Gupta, PGIMER, Chandigarh
- P20/3077 Effect of local factors and nutrition on outcome following surgical necrosectomy.** Suresh Babu D, G V Rao, Pradeep R, Upender Rao, Asian institute of Gastroenterology, Hyderabad
- P21/3118 Which approach is better for Pancreatic Necrosectomy– Comparing Our Own Data.** Keyur Suresh Bhatt, Dhaval O Mangukiya, SIDS hospital, Surat
- P22/3125 A Study To Assess The Clinical Predictors For Delayed Local Complications In Acute Pancreatitis.** Santosh C Gudimani, Mohan Narasimhan, Ramesh Ardhani, Meenakshi Mission Hospital, Madurai
- P23/3128 Factors Determining Outcome In Management Of High Grade Pancreatic Injuries-Single Center Experience.** Karthikeyan Ragupathi Ragavan, villalan Rex, Prabhakaran Raju, Naganath Babu, Rajiv Gandhi Government General Hospital Chennai
- P24/3132 Options In Management Of Complications In Chronic Calcific Pancreatitis – An Observational Study In Single Centre.** Prasanna Gopal, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Sivakumar, Rajendran.S, Naganath Babu OL, Madras Medical College, Chennai
- P25/3133 Laparoscopic Vs Open Cystogastrostomy – A Comparitive Study In A Tertiary Center.** Karthi.M, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Rajendran.S, Naganath Babu.O.L, Madras Medical College, Chennai
- P26/3135 Addition of a Braun entero-enterostomy decreases the frequency of postoperative pancreatic fistula and delayed gastric emptying after standard pancreaticoduodenectomy.** Nivas V, Satinder Pal Bains, Mahesh S, Venugopal A, Ramesh H, VPS lakeshore hospital and research center, Cochin
- P27/3143 Management of chronic pancreatitis with tail predominant disease – Single centre experience.** Bala murugan Srinivasan, RGGGH, Chennai
- P28/3183 Pancreatic Pleural Fistula - Surgery The Last Option.** Aravinda K N, Bangalore Medical College & Research Institute, Bengaluru
- P29/3201 Pancreaticogastrostomy: A technique revisited.** Varun Madaan, Satyaprakash Jindal, Adhya GK, Vachan s Hukkeri, Vivek Tandon, Deepak Govil, BML Kapur, Indraprastha Apollo Hospital, New Delhi
- P30/3208 Management of Postoperative Pancreatic Fistula.** Suhail Farooq, Seth GS Medical College and KEM Hospital, Mumbai
- P31/3209 Predictors of Malignancy in Chronic Calcific Pancreatitis with Head Mass.** Bhushan B Chittawadagi, Senthilnathan P, Sandeep C Sabnis, Nallankilli VP, Anandvijai N, Srivatsan Gurusurthy, Palanivelu C, GEM hospital & Research centre, Coimbatore
- P32/3300 Early and Late Post Operative Outcomes of Dunking Pancreatojejunostomy.** Shashikiran MS, Ramesh Rajan, Sindhu RS, Bonny Natesh, Raviram, Jacob Mathew, Medical College, Trivandrum
- P33/3317 Immediate post-operative complications after pancreaticoduodenectomy in relation to the percentage of acinar cells at the cut edge of pancreas - An observational study.** Fadl H Veerankutty, Anil Chacko, Sidarth Chacko, Vipin I Sreekumar, Prasad Krishnan, Deepak Varma, Prakash K, Aster Medcity, Kochi
- P34/3323 Effect of bacteribilia on the outcome of patients who underwent Whipple's Pancreaticoduodenectomy-A retrospective study.** Sree G Kumar, Manikandan Kathirvel, Puneet Dhar, Amrita Institute of Medical Sciences, Kochi.
- P35/3344 Delayed gastric emptying following pancreaticoduodenectomy: Prospective analysis of 120 consecutive patients.** Abhinav Sengar, Adarsh Chaudhary, Amanjeet Singh, Azhar Perwaiz, Dinesh Ramaswamy, Medanta - The Medicity, Gurgaon
- P36/3348 Prevalence of Sarcopenia in patients with Pancreatic and Periampullary Cancer.** Deeksha Kapoor, Dinesh Ramaswamy, Tarun Piplani, Adarsh Chaudhary, Medanta - The Medicity, Gurugram
- P37/3353 Referral Pattern in Acute Pancreatitis to Surgical unit and outcome.** Gopal Sharma, Rajesh Gupta, Surinder Rana, Mandeep Kang, Vishal Sharma, PGIMER, Chandigarh
- P38/3358 Step-up approach in the management of Acute Pancreatitis-Initial experience.** Rugved Vasant Kulkarni, Vishal Gupta, Pradeep Joshi, Vivek Gupta, Saket Kumar, Rakesh Yadav, Amit Dangji, Pavan Kumar G, Abhijit Chandra, King George's Medical University, Lucknow

- P39/3408 Drain amylase levels in the first postoperative day predict pancreatic fistula in chronic pancreatitis patients undergoing Frey procedure.** Vijayaraj Pavankumar, Raja Kalayarasan, A Sandip Chandrasekar, Pottakkat Biju, Gnanasekaran Senthil, JIPMER, Puducherry
- P40/3409 Management and Outcome of patients with Pancreatic injury- A tertiary center experience.** Harjeet Singh, Narendra Pandit, Gautham Krishnamurthy Rajesh Gupta, Ganga Ram Verma, Rajinder Singh, PGIMER, Chandigarh
- P41/3142 Early Intra Abdominal Hypertension- A Reliable Bedside Prognostic Marker For Acute Pancreatitis.** RN Naga Santhosh Irrinki, Post Graduate Institute of Medical Education And Research, Chandigarh
- P42/3172 Management of Pancreatic Injury- Single Institution Study.** Gautham SL, BMCRI, Bengaluru
- P43/3215 Pancreatic Attenuation Index as a Predictor of Postoperative Pancreatic fistula.** Bincy Merin Zacharia, Anandakumar M, Venugopal B, Shabeerali TU, Shiraz AR, KIMS, Trivandrum
- P44/3241 Role of main pancreatic duct diameter and remnant pancreatic volume in predicting pancreatic fistula after pancreato duodenectomy (PD).** Aditya Atul Kulkarni, Vijay Chetan Jha, G R Verma, Ajay Gulati, Lileshwar Kaman, Rakesh Kochhar, Rajinder Singh, PGIMER, Chandigarh
- P45/3368 Factors Affecting Outcome of Salvage Surgery Following Endoscopic Management for Chronic Pancreatitis.** Gautham Krishnamurthy, Vikash moond, Srinath Singh Rathod, Surinder Rana, Deepak Bhasin, Rajesh Gupta, PGIMER, Chandigarh
- P46/3390 Evaluation of the step-up approach for management of Acute Necrotizing Pancreatitis: A single tertiary centre experience.** Manish Ahuja, Gaurav Kulkarni, Sudeep Shah, Devendra Desai, Vinod Chandiramani, Philip Abraham, Tarun Gupta, PD Hinduja Hospital & Research Centre, Mumbai
- P47/3394 The Spectrum of Microbiological Infections in Acute Necrotizing Pancreatitis (ANP).** Manish Ahuja, Gaurav Kulkarni, Sudeep Shah, Vinod Chandiramani, Camilla Rodrigues, Anjali Shetty, PD Hinduja Hospital & Research Centre, Mumbai
- P48/3413 Fatty liver in chronic pancreatitis is it innocent bystander or red herring?** Sundeep Singh Saluja, Aravinda PS, Ajay Kumar, Pramod Mishra, Kshitij Sisodia, Ganesh Agrawal, GB Pant Institute of medical education and research, New Delhi
- P49/3293 Impact of treatment of bactibilia on postoperative outcomes after pancreaticoduodenectomy.** Pavankumar V, Vijaykumar Bada, Department of Surgical Gastroenterology, Gleneagles Global Hospitals and KIMS, Hitech City, Hyderabad
- P50/3354 Comparison of intra-operative bile culture-sensitivity with post-operative peritoneal fluid and blood culture-sensitivity in stented patients undergoing pancreatico-duodenectomy.** Avidip De, Sudeep Banerjee, Robin Thambudurai, Subir Sinha, Gaurav Goel, Manas Kumar Roy, Tata Medical Center, Kolkata

Biliary Tract

- B1/3056 Incidental Gall Bladder Cancer following Laparoscopic Cholecystectomy: A South Indian tertiary care center experience.** Ramalingam Trivikraman, Dhananjay Pandey, Lakshmi Kumari Kona, Global Hospitals, Hyderabad
- B2/3081 Definitive Treatment In Index Admission For Acute Cholangitis Following Non Operative Biliary Decompression.** Madeswaran Chinnathambi, Senthil Kumaran Sadhasivam, Tamil Selvi Subbaiyan, GKNMH, Coimbatore
- B3/3098 Spectrum of lymph node involvement after extended cholecystectomy and its correlation with pT Stage in carcinoma gall bladder patients.** B Madhu Narayana, T. D. Yadav, Vikas Gupta, Rajesh Gupta, Ashim Das, PGIMER, Chandigarh
- B4/3103 An interesting case of Mirizzi syndrome with bile duct anomaly.** Karthikeyan Mahalingam, Naganath Babu Babu OL, Rajiv Gandhi Govt. General Hospital, Chennai
- B5/3139 An Interesting Case Of External Biliary Fistula.** Prakashen OK, Madras Medical College & RGGGH, Chennai
- B6/3149 Spontaneous choledcho-choledochal fistula after T-tube choledochostomy for Strasberg E1 iatrogenic bile duct injury: A case report and literature review.** Namita Gangaram Chavan, Prasad Pande, Gunjan Desai, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai
- B7/3168 Incidence of extra abdominal site of metastasis at the time of presentation in a patient with Carcinoma Gall Bladder.** Jaya Agarwal, Thakur Deen Yadav, Post Graduate Institute of Medical Education (PGIMER), Chandigarh
- B8/3220 Spontaneous Perforation of Extrahepatic Biliary System- A Tertiary Centre Experience.** K Sathish Kumar, Govt Stanley Medical College and Hospital, Chennai
- B9/3224 Biliary Cystadenoma-A tertiary care institute experience; With special focus on Intraductal Biliary Cystadenomas causing obstructive jaundice- Revealing the mystery of an unrevealed cause of biliary obstruction.** Sugi Subramaniam, Govt. Stanley Medical College, Chennai

- B10/3386 Endoscopic management of bronchobiliary fistula.** Rakesh Kumar Yadav, Saket Kumar, Prabhu Singh, Vivek Gupta, Pradeep Joshi, Vishal Gupta, Abhijit Chandra, King George Medical University, Lucknow
- B11/3468 Choledochal cyst type VI-a diagnostic dilemma.** Kapil Nagaraj Palanisamy, Sandip Chandrasekar, G Senthil, Kalayarasan Raja, Biju Pottakkat, JIPMER, Puducherry
- B12/3480 Anomalous Pancreatic Biliary Ductal Junction– A case report.** Souvik Paul, Anirudh Goyal, Ravindra Vats, Deep Goel, VP Bhalla, BLK Superspeciality Hospital, New Delhi
- B13/3483 Laparoscopic Cholecystectomy in Extra Hepatic Portal Vein Obstruction and Cirrhotic Liver.** Vinay Shaw, VPS Rockland hospitals, New Delhi
- B14/3120 Bile duct injury after laparoscopic cholecystectomy: New classification and Novel approach for the management in emergency situations.** Keyur Suresh Bhatt, Dhaval O Mangukiya, SIDS Hospital & Research Center, Surat
- B15/3198 Surgical intervention for Benign Biliary diseases in the era of ERCP.** Amit Ganguly, Ravindra Kale, Chaitanya Prakash Kothari, CHL group of hospitals, Indore
- B16/3064 Analysis of a patients undergoing percutaneous cholecystostomy for acute calculous cholecystitis".** Arif Raza Ahmed, Asian Institute of Gastroenterology, Hyderabad
- B17/3079 Radiological diagnosis alone risks overtreatment of benign disease in Gall Bladder cancer: A word of caution in the era of Radical surgery.** Rajesh S Shinde, Shraddha Patkar, Devayani Niyogi, Mahesh Goel, Tata Memorial Hospital, Mumbai
- B18/3082 Preoperative prediction of choledocholithiasis in patients undergoing cholecystectomy.** Aviral Jain, Nitin Jagtap, Guduru Venkat Rao, Pradeep R, Sundeep Lakhtakia, Mohan J Ramchandani, Nageshwar Reddy, Asian Institute Of Gastroenterology, Hyderabad
- B19/3105 Immediate management of Post cholecystectomy Bile duct injuries– Tertiary care centre in South India.** Srinivasan Muthukrishnan, Villalan Ramasamy, Gnansekar M, Amudhan Anbazhagan, Prabhakaran Raju, Benet Duraisamy, Rajendran S, Naganath Babu Obla, Madras Medical College, Chennai
- B20/3109 Comparison between conventional and harmonic scalpel assisted laparoscopic cholecystectomy: Prospective non-randomized control trial.** Chellappa Vijayakumar, Kumar Rajnish, Sathasivam Suresh Kumar, S Manwar Ali, Sundaramurti Sudharsanan, Chinnakali Palanivel, JIPMER, Puducherry
- B21/3164 The role of chemotherapy and resection in post laparoscopic cholecystectomy port site metastasis (PSM)– Careful selection may improve outcomes.** Shraddha Patkar, Mahesh Goel, Vikas Ostwal, Anant Ramaswamy, Tata Memorial Hospital, Mumbai
- B22/3204 Cholecystoenteric fistulae- Our experience.** Adihtya GK, Vachan Hukkeri, Vivek Tandon, Satya Parkash Jindal, Deepak Govil, Apollo Hospitals, New Delhi
- B23/3236 Major Hepatectomy And Its Impact In Patients With Gall Bladder Malignancies: A Tertiary Care Centre's Experience.** Sugi Subramaniam, Govt. Stanley Medical College, Chennai
- B24/3248 Redo procedures after post cholecystectomy bilioenteric anastomotic strictures.** Bharath Kumar Bhat, Samrat Ray, Shailandra Lalwani, Siddart Mehrotra, Vivek Mangla, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi
- B25/3267 Adult Choledochal Cysts in Indian Population: Is It Different?** Saket Kumar, Abhijit Chandra, Nikhil Chopra, Vishal Gupta, Vivek Gupta, Pradeep Joshi, KGMU, Lucknow
- B26/3272 "Difficult Gallbladder": Incidence and management at subspecialty surgical gastroenterology unit.** Dhaivat Kalapirai Vaishnav, Tushar S Lakhia, Swasti Gastroenterology and Abdominal Surgery Centre, Elisebridge, Ahmedabad, Gujarat, India.
- B27/3292 Iatrogenic Biliary Injuries: A single center experience of 112 cases.** Sushruth Shetty, Premal R Desai, Mahendra S Bhavsar, Hasmukh B Vora, Laxman S Khiria, V S Hospital, Ahmedabad
- B28/3410 Outcome of aggressive management including hepatectomy in children with choledochal cysts at a dedicated hepatobiliary and liver transplant centre.** Pankaj Kumar Sonar, Neelam Mohan, Amit Nath Rastogi, Sanjay Goja, Arvinder Singh Soin, Medanta The Medicity, Gurgaon
- B29/3367 Comparison of ERC stenting and Percutaneous cholecystostomy as preoperative biliary drainage procedure in periampullary malignancies: A retrospective analysis.** Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteeswaran Chandrahasan, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati
- B30/3329 Post Cholecystectomy Bile Duct Injuries– Outcomes following Hepaticojejunostomy.** Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteeswaran Chandrahasan, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati
- B31/3375 Reasons affecting conversion to open surgery in patients undergoing laparoscopic cholecystectomy- Over 700 cases.** Smita Chauhan, RMLIMS, Lucknow

- B32/3360** **Blood loss using water-jet dissector for extended cholecystectomy in carcinoma gallbladder: Initial results from a tertiary care cancer hospital in eastern India.** Avidip D, Sudeep Banerjee, Robin Thambudorai, Manas Kumar Roy, Subir Sinha, Paromita Roy, Venkatramani Sitaram, Tata Medical Center, Kolkata
- B33/3400** **Biliary strictures: Experience at a Tertiary care center.** Srinivas Bojanapu, Aditya Manke, Siddarth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimesh Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi
- B34/3163** **Role Of Positive Peritoneal Lavage Cytology As An Independent Predictor Of Recurrence In Carcinoma Gall Bladder: A Report Of 51 Cases With Preoperative Diagnosis Of The Disease.** Aarathi V Shanker, Thakur Deen Yadav, Radhika Srinivasan, Ashim Das, Saroj K Sinha, Vikas Gupta, Irrinki Naga Santhosh, PGIMER, Chandigarh
- B35/3205** **Laparoscopic Intraoperative cholangiogram: Our experience.** Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi
- B36/3218** **Bile Duct Injuries - Outcome of Early And Delayed Repair at a Tertiary Care Centre.** Amit Singh, Army Hospital (Research & Referral), New Delhi
- B37/3279** **Diagnostic value of tumor markers in gall bladder cancer without jaundice.** Sundeep Singh Saluja, Ashish Sachan, Bhawana Mahajan, Shashi Kiran, Pramod Mishra, GB Pant Institute of Medical Education and Research, New Delhi
- B38/3297** **Choledochal cysts- A 21 year experience in a tertiary care centre.** Romil Jain, Ishan Shah, Shailendra Lalwani, Siddharth Mehrotra, Vivek Mangla, Naimish Mehta, Samiran Nundy, Sir Gangaram hospital, New Delhi
- B39/3331** **Prediction of residual disease in Unsuspected "Incidental" gallbladder cancer: Experience of a tertiary care hospital in northern India.** Aditya Atul Kulkarni, G R Verma, Harjeet, Gautham Krishnamurthy, Rajinder Singh, PGIMER, Chandigarh
- B40/3335** **A Randomized Controlled Study On Early Recovery Following Modified Epigastric Port Versus Standard Four Port Laparoscopic Cholecystectomy.** Abhimanyu Kar, The Calcutta Medical Research Institute, Kolkata
- B41/3357** **Carcinoma Gall Bladder in Endemic Regions has Problem of both Under- and Overdiagnosis.** Rajesh Gupta, Gautham Krishnamurthy, Surinder Rana, Ritambra Nada, Naveen Kalra, PGIMER, Chandigarh
- B42/3385** **Does lymph node positivity ratio correlate with survival following curative resection for gallbladder carcinoma: A prospective study.** Deep Lamichhane, Rohit Gaurav, Paromita Roy, Robin Thambudorai, Manas Kumar Roy, Sudeep Banerjee, Tata Medical Center, Kolkata and Cambridge university hospital, United Kingdom
- B43/3453** **Achieving margin negative resection– doing less is justified: Oncological outcomes of wedge excision of liver in surgery for gall bladder cancer.** Vijayraj S Patil, Shraddha Patkar, Mahesh Goel, Tata Memorial Hospital, Mumbai
- B44/3093** **Biliary and vascular complications in major liver trauma.** Yashwant Raj Sakarav, PGIMER Chandigarh
- B45/3456** **Outcome of porto-enterostomy for biliary atresia at a high volume pediatric hepatobiliary and liver transplant center.** Suhail Khuroo, Neelam Mohan, Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangu, Thiagrajan Srinivasan, Medanta Liver Institute, Gurugram
- B46/3402** **A Previously Unseen Variant Of The Hepatic Artery Anatomy- Accessory Common Hepatic Artery Arising From The SMA In A Case Of Distal Cholangiocarcinoma.** Shabana Jabbar, Harish Goutham Medapati, Raj Kumar Nagarajan, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry
- B47/3033** **Oxidative stress and nutrition in gallstone patients with and without Gallbladder cancer.** SatyaVati Rana, Aastha Malik, Rajesh Gupta, Vikas Gupta, Rajinder Singh, Post Graduate Institute of Medical Education and Research, Chandigarh

Miscellaneous

- M1/3484** **Neuroendocrine tumors of the gastrointestinal tract seen over 8 years in a single GI surgical unit.** Manish Harinarayan Upwanshi, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, Delhi
- M2/3426** **Recurrent flexural exanthema (SDRIFE or baboon syndrome) after administration of iodinated radio contrast media during cholangiogram.** Midha Karan, Gupta Shahana, Pottakkat Biju, Kumari Rashmi, Gupta Divya, JIPMER, Puducherry
- M3/3089** **First Case Of Visceral Basidiobolomycosis In Immunocompetent Patient From India.** Siddhant Vijay Mathurvaishya, Navneet Tiwari, Guduru Venkat Rao, Pradeep Rebella, Asian Institute of Gastroenterology, Hyderabad

- M4/3450 Laparoscopic Repair of Congenital Bilateral Morgagni-Larrey Diaphragmatic Hernia: A case report.** Ketaki Vivek Gharpure, Kumaravel S, JIPMER, Puducherry
- M5/3225 Delayed traumatic diaphragmatic hernia after lap splenectomy: Case Report.** Jignesh Patel, Hitesh Arora, Mamta Hospital, Surat, Gujarat
- M6/3301 Mixed Adenoneuroendocrine Carcinoma-Manec:A Case Report Of A Peculiar Presentation Of A Rare Tumour.** Baskaran Dhanapal, Gomathishankar V, Balamourougan Krishnaraj, Sarath Chandra Sistla, Susan Rajan, Aneesh Suresh, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry
- M7/3036 Paraduodenal neuroendocrine tumour with liver metastasis effectively managed by radioguided surgery and intraoperative radiofrequency ablation following 'neoadjuvant' peptide receptor radionuclide therapy.** Vinay Samuel Gaikwad, Paras Hospital, Gurgaon
- M8/3085 Morgagni Hernia: Laparoscopic Repair.** Jignesh Maganbhai Patel, Mamta Hospital, Surat
- M9/3095 Intrathoracic gastric perforation.** Varun Palnati, Narayana Medical College and Hospital, Nellore
- M10/3189 Incidental Peritoneal Tuberculosis-Case series.** Gautam Krishnamurthy, PGIMER, Chandigarh
- M11/3240 Angiomyolipoma masquerading as retroperitoneal liposarcoma.** Abinaya R Nadarajan, CMC, Vellore
- M12/3276 Autoimmune Peritonitis- A Rare Case Report.** Sri Krishna Nataraj Bollineni, Meenakshi Mission Hospital & Research Centre, Madurai
- M13/3280 Etiological spectrum of abdominal cocoon– A case series and literature review.** Titus DK, Abinaya RN, Beulah Roopavathana, Suchita Chase, Sukria Nayak, Christian Medical College, Vellore
- M14/3467 Rare Cause of Spleenomegaly.** Narayana Reddy Dumpa Venkata, Venkatarami Reddy, Sivarama Krishna, Chandramaliteesawaran C, Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati
- M15/3481 Laparoscopic repair of diaphragmatic eventration using endostaplers in adults– Technique.** Kapil Nagaraj Palanisamy, Kalayarasan Raja, Sandip Chandrasekar, G Senthil, Biju Pottakkat, JIPMER, Puducherry
- M16/3110 Varied Presentation of Diaphragmatic Hernia and eventration and operative result - A Case Series.** Aviral Jain, Rohit Dama, Sanjeev Patil, Pradeep R, Guduru Venkat Rao, Asian Institute Of Gastroenterology, Hyderabad
- M17/3396 Hollow viscus injury due to blunt abdominal trauma.** Gangadhar Rao Gondu, NIMS, Hyderabad
- M18/3040 Comparison of Comprehensive Complication Index and Clavien Dindo grading for measuring outcomes following Gastrointestinal (GI) surgery: A prospective observational study in 1000 patients.** Samrat Ray, Naimish N Mehta, Vivek Mangla, Shailendra Lalwani, Siddharth Mehrotra, Amitabh Yadav, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi
- M19/3311 Analysis of clinico-pathological and immunohistochemical parameters and correlation of outcomes in Gastrointestinal stromal tumors: A prospective cohort study.** Vaibhav Varshney, Rakesh Gupta, Vineeta Batra, Pramod Mishra, Sundeep Singh Saluja, GB Pant Institute of Medical Education and Research, New Delhi
- M20/3381 Ventral Hernia Repair: Not one size fits all.** Monish Karunakaran, Vikas Singhal, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram
- M21/3438 Laparoscopic splenectomy for Immune Thrombocytopenic Purpura (ITP) patients with very severe thrombocytopenia: A comparative study.** Shahana Gupta, Raja Kalayarasan, Sandeep Chandrasekar, Senthil Gnanasekaran, Biju Pottakkat, JIPMER, Puducherry
- M22/3457 Spectrum of suspected abdominal tuberculosis requiring surgery– A North Indian tertiary centre experience.** Harjeet Singh, Gautham Krishnamurthy, Jayapal Rajendran, Vishal Sharma, Rajinder Singh, PGIMER, Chandigarh
- M23/3269 Surgical Volume: how to negate its effect on outcome? Sumana Kolar Ramachandra, Aravind Kidambi Seshadri, Ravindra MN, Pradeep Rangappa, Amit Rastogi, Sanjay Goja, Vijay Vohra, Arvinder Sooin, Columbia Asia Referral hospital, Yeshwanthpur, Bangalore and Medanta Medicity, Gurugram**

E-video

- EV1/3286 Laparoscopic cholecystectomy for suspected Mirizzi syndrome.** Kamalesh NP, Prashant R, PVS Memorial Hospital, Cochin, Kerala
- EV2/3114 Laparoscopic Sigmoid Colectomy for diverticulitis.** Dhaval Odhavibhai Mangukiya, SIDS Hospital & Research Center, Surat
- EV3/3159 Robotic transhiatal enucleation of esophageal leiomyoma: Video presentation.** Aditya GK, Varun Madaan, Vachan S Hukkeri, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi
- EV4/3479 Median arcuate ligament release for MALS.** Brahmadata Pattnaik, Asit Arora, Nikhil Agrawal, Devi Singh Dhankhar, Institute of Liver and Biliary Sciences, New Delhi

- EV5/3124 Migrated metal stent with peritonitis treatment– following endoscopic necrosectomy of WOPN (Edited surgical video).** Keyur Suresh Bhatt, SIDS Hospital & Research Center, Surat
- EV6/3203 Pancreaticogastrostomy technique: Video Presentation.** Varun Madaan, Satya Prakash Jindal, Adithya GK, Vachhan S Hukkeri, Vivek Tandon, Deepak Govil, BML Kapur, Indraprastha Apollo Hospital, New Delhi
- EV7/3265 Laparoscopic Splenic vessel Distal pancreatectomy.** Prasanna R, Kamalesh NP, Kartik K, Prasanth R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin
- EV8/3432 Laparoscopic Management of large gastric GIST.** Azaz Ahmed, JKA Jameel, Apollo Hospitals, Chennai
- EV9/3148 Laparoscopic management of gall bladder torsion with hemoperitonuem: A video presentation.** Namita Gangaram Chavan, Gunjan Desai, Prasad Pande, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai
- EV10/3206 Laparoscopic remnant cholecystectomy with intraoperative cholangiogram.** Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi
- EV11/3216 Laparoscopic intraoperative cholangiogram.** Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi
- EV12/3405 Laparoscopic Total Pelvic Exenteration in a 26 Year Old Male for Adenocarcinoma of the Lower Rectum Infiltrating the Prostate and Seminal Vesicle following Neoadjuvant Chemoradiation Therapy.** Gigi Varghese, Christian Medical College Vellore
- EV13/3487 Robot Assisted Extra-Mesolectal Excision of a Retro-Rectal Tumour.** Subhankar Paul, Ajit Pai, Raghunath KJ, Apollo Hospitals, Chennai
- EV14/3489 Robot Assisted Intersphincteric Resection.** Devendra Ghanshyam Parikh, Department Of GI & HPG Division, HCG Cancer Centre, Ahmedabad
- EV15/3123 Laparoscopic left lateral hepatectomy for hepatocellular carcinoma (Edited surgical video).** Keyur Suresh Bhatt, SIDS Hospital & Research Center, Surat
- EV16/3505 Left hepatectomy with portal vein tumour thrombectomy for HCC with main and contralateral portal vein tumour thrombosis (Vp4).** Chinthakindi Madhusudhan, Osmania General Hospital, Hyderabad
- EV17/3320 Laparoscopic (subtotal) Assisted Right Lobe Donor Hepatectomy (Hybrid Procedure) – First Series from India.** Thiagarajan Srinivasan, Sanjay Goja, Amit Rastogi, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- EV18/3342 Ex-vivo Organ Perfusion Technique for Deceased Donor Liver Transplantation (DDLT).** Amit Rastogi, Rohan Jagat Chaudhari, Thiagrajan Srinivasan, Prashant Bhangui, Sanjay Goja, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram
- EV19/3166 Laparoscopic Partial Splenectomy.** Anush Mohan, Kerala Institute of Medical Sciences, Thiruvananthapuram
- EV20/3263 Laparoscopic Splenectomy for Massive Splenomegaly with Splenic artery aneurysm.** Kamalesh NP, Kartik K, Prasanth R, Prasanna R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin
- EV21/3131 Video Presentation On Laparoscopic Cystogastrostomy.** Mehul Vikani, Kartik Sutariya, CIGIS Gastroscopy Center, Rajkot
- EV22/3261 Laparoscopic Distal pancreatectomy with Splenectomy.** Kartik K, Kamalesh NP, Prasanth R, Prasanna R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin
- EV23/3285 Laparoscopic spleen preserving distal pancreatectomy.** Kamalesh NP, PVS Memorial Hospital, Cochin
- EV24/3185 Video abstract: laparoscopic sleeve gastrectomy- how do I do it?** Dr Ram Raksha Pal, Dr Deepak Mittal, Dr Perungo Thirumaraichelvan, Dr Rahul Jaiswal, Dr Sanjay Patolia, Dr Mahendra Narwaria
- EV25/3490 Video presentation: Laparoscopic D2 gastrectomy.** Deep Goel, Souvik Paul, Ravindra Vats, V P Bhalla, BLK superspeciality hospital, New Delhi

Oral award papers

OA1 3271

Novel prognostic model based on tumor biology and morphology to predict HCC recurrence after living donor liver transplantation. Prashant Bhangui, Tarun Piplani, Narendra Chaudhary, Dheeraj Gautam, Sanjay Goja, Amit Rastogi, Neeraj Saraf, Sanjiv Saigal, AS Soin, Medanta Liver Institute, Gurugram

Introduction: To define predictors of recurrence, and develop a prognostic model to determine post-LDLT (living donor liver transplantation) recurrence-free survival (RFS) in hepatocellular carcinoma (HCC) patients undergoing LDLT, using our expanded selection criteria. **Methods:** We accept medically fit HCC patients without extrahepatic disease or major vascular invasion, irrespective of tumour size and number for LDLT. Using the Cox regression model, prognostic factors for tumour recurrence post-LDLT, and their β coefficients were determined on multivariate analysis (MVA). By allotting points to these prognostic factors based on their β coefficients, a prognostic score was developed, the cut-off predicting recurrence was determined by c-statistics using the receiver operating characteristics (ROC) curve. **Results:** Of 385 HCC patients undergoing LDLT, 49% had tumours beyond Milan, and 40% beyond UCSF criteria. After a mean follow up of 48 months, 85% of patients were alive, 76% were alive without recurrence. Pre-LT AFP \geq 200 ng/ml, tumours beyond UCSF criteria, and FDG-18 PET avidity predicted recurrence on MVA, with respective β coefficients 2.2, 3.7, and 2.1. Accordingly, allotting 10, 18, and 10 points respectively to the above prognostic factors (maximum possible total score 38), a prognostic model was developed. The cut-off based on ROC curve analysis was found to be 19 (AUC 0.76). 5-yr overall (OS) and recurrence-free survival (RFS) were significantly better in patients with a score of $<$ 19 vs those \geq 19 (78% vs 44%, and 79% vs 40%, respectively, $p < 0.001$). Presence of any 2 poor prognostic factors predicted a 46% recurrence, (specificity 80%); whereas presence of all 3 predicted 55% recurrence (specificity 95%). **Conclusions:** Our prognostic score combining biological and morphological factors helps in prediction of HCC recurrence after LDLT. Patients with higher risk for recurrence could be candidates for pre-transplant neo-adjuvant or downstaging therapies.

OA2 3388

Donor Hepatectomy: How close to the edge of the cliff are we? Madhu Srinivasan Durairaj, Anand C Patel, Ramachandran N Menon, Dinesh Balakrishnan, Unnikrishnan G, Sudhindran S, Amrita Institute of Medical Sciences & Research, Kochi

Introduction: The incidence of morbidity and mortality after living donor liver transplantation (LDLT) is published in literature but potentially life-threatening near miss events (during which a donor's life may be in danger but after which there are no long-term sequelae) are rarely reported. Reporting such complications is necessary to improve upon the safety of the live donor. **Aim:** To analyze and determine the incidence of potential life threatening near miss events, in our center. **Methods:** We evaluated retrospectively collected and prospectively maintained database of Live liver donors from 2004 to 2015. We enrolled these patient's morbidity events according to Clavien-Dindo classification of complications. **Results:** Overall 392 patients underwent exploration for liver donor hepatectomies from 2004 to October 2015, out of which four patients had aborted hepatectomies due to the liver appearing nodular and were excluded from study group as the resection was deferred. Overall 228 complications were observed. At least one complication was noted in 45.3% ($n=176$) patients, however multiple complications were observed in 8.2% ($n=32$) patients.

Grade of morbidity	Morbidity events
I	39%
II	38.5%
IIIa	10%
IIIb	4.8%
IVa	6.5%
IVb	0.8%
V	0.4%

Donor mortality was 0.2%. Total 17 near-miss events occurred in 16 (4.1%) patients. Three patients with pulmonary embolism (PE) (0.7%) required mechanical ventilation and anticoagulation. Massive cardiac tamponade (0.2%) requiring urgent pericardio-centesis was observed in one patient on anticoagulation following PE. Vascular complication leading to life threatening bleed were observed in three patients (0.7%). They were- slipped vascular clamp from a hepatic vein, blow out from a right hepatic vein suture ligated stump and slipped IVC clip used for minor caudate branch veins. Delayed partial portal vein thrombosis leading to delayed liver function was observed in one patient. Left hepatic vein outflow obstruction noted in one patient requiring immediate patch repair. ARDS was observed in two patients (0.5%) on 2nd postoperative day requiring mechanical ventilation. Bile leak with severe sepsis occurred in three patients (0.7%) requiring multiple intervention ERCP, PCD and one required laparotomy for intraperitoneal sepsis. A marginal donor patient with peritoneovenous shunt developed sepsis leading to

meningitis, cholestasis, and small for size. Urgent coronary artery stent was required in a donor on post-operative day 2 following inferior wall MI. One patient had atrial fibrillation which was reversed with amiodarone. **Conclusions:** Most complications were of low grade severity but 4.1% patients had severe or life-threatening events. Availability of data is useful for counselling, risk stratification and taking preventive measures in a potential living liver donor.

OA3 3356

Bridging the gap after esophagogastrectomy for locally advanced type 2 GE junction tumors with esophago gastrostomy or esophago jejunostomy: Analysis of outcome. Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Balakumaran Sathyamoorthy, Rajendran Vellaisamy, St Isabel Hospital, ESOINDIA, Kauvery Hospital, Madras Medical College, Chennai and Govt KAPV Trichy Medical College, Trichy

Introduction: In the management of GE junction tumors type 1 and type 3 tumors are managed without any controversy. But the border issue arises in type 2 cancers especially when it is locally advanced. The Surgical options include esophago proximal gastrectomy and esophago gastrostomy, esophago total gastrectomy and esophago jejunostomy depending upon the extent of the tumor. However, the functional result after either of these procedures varies. Aim of the present study is to assess the feasibility and outcome of both types of resection and reconstruction after esophago gastrectomy for locally advanced Type 2 GE junction tumors. **Methods:** 148 consecutive patients who underwent surgery for GE junction tumors in the last 6 years were evaluated. Of them 62 locally advanced type 2 GE junction tumors were included in our study. 26 underwent esophago proximal gastrectomy and with esophago gastrostomy. 36 underwent esophago total gastrectomy with esophago jejunal anastomosis. Intra operative details like Operative time, blood loss, the distal margin, nodal clearance were analyzed. Short term outcome up to one year follow up was analyzed. **Results:** There is no significant difference in operating time, blood loss. Two patients with proximal gastrectomy had positive distal margin even though frozen section was negative. The average number of nodes harvested is higher with total gastrectomy group with jejunal anastomosis and it is statistically significant between 2 groups ($p < 0.05$). Reflux is more with gastric conduit when compared to Jejunal reconstruction. There is no statistically significant difference in weight gain, leak rate, pulmonary complications and dumping symptoms. **Conclusions:** The functional and oncological outcome was superior with jejunal reconstruction after esophago total gastrectomy when compared with gastric reconstruction after esophago proximal gastrectomy in the surgical management of locally advanced type 2 GEJ adenocarcinoma.

OA4 3336

Assessment of the Quality of Randomized Controlled Trials in Surgical Gastroenterology from India using Jadad Score- A Retrospective Study. Subair Mohsina, Ravichandran Niranjana, Datta Souraja, Gubbi Samanna Sreenath, Sathasivam Sureshkumar, Vikram Kate, JIPMER, Pondicherry

Introduction: This study was carried out to evaluate the quality of Randomized Controlled trials (RCTs) in surgical gastroenterology (SGE) from India published in various national and international journals when compared to other surgical sub-specialties and to identify factors determining quality. **Methods:** This study was a retrospective quality assessment of RCTs in various surgical subspecialties from India during 2011- 2015 published in various international and national journals. Pub Med search was carried out with the key words such as "randomized controlled trials", "random", "gastroenterology", "surgery" and "India". Studies were included based on PRISMA guidelines if they were truly randomized, human study and on surgical topics. Trials reported from allied specialties such as O&G, ENT, Ophthalmology and Anaesthesia were excluded. Full reports were retrieved for the studies which met the criteria or when there was inadequate information in the abstract. The primary objective was quantitative and qualitative assessment of trials based on sub-specialty and year of publication. Qualitative assessment was done using Jadad score which comprises points related to randomization, blinding and drop-out. The study was considered as high or low quality for total Jadad score of ≥ 3 and ≤ 2 respectively. The secondary objective was to identify factors affecting the quality of RCTs such as type of institution and regional division within the country. **Results:** Among the 813 trials identified on PubMed search, 712 were excluded as per exclusion criteria and 101 trials were included for analysis. Of the 101, a blinded design was not feasible in 48 trials. Among the published surgical trials, 60/101 (59%) were found to be of high quality; however, 66 % of the trials were found to be of high quality on analysing the studies in which blinding was feasible. Based on sub-specialty, maximum number of trials were reported from SGE (36%) followed by urology (29%), general surgery (22%), plastic (5%) and pediatric (5%) surgery. In terms of number of high quality trials reported, the specialties were ranked as: CTVS (1/1), General Surgery (17/22), urology (17/29), SGE (19/36) followed by other specialties, however this difference was not statistically significant ($p = 0.5$). There was no quantitative variation in the published articles in various subspecialties based on the year of publication. Though there was an increasing trend in the mean Jadad score, the improvement in quality in one year units was not statistically significant ($p = 0.06$). There was a significant variation in the quality of trials with regional variation within the country ($p = 0.02$). Though the maximum number

of trials were reported from North India (66%), the number of high quality trials were maximum from South (18/22) followed by North (30/66) and West (9/13) India. There was a slight increase in the number of high quality trials from Government institutions when compared with Private (61 % vs. 53%), but the difference was not significant ($p=0.5$).

Conclusions: Though there is an increase in the number of trials reported, overall reporting of SGE trials from India is sub-optimal when compared with other sub-specialties. Overall reporting quality was found to be higher in trials from South India.

OA5 3431

Diffusion Weighted Magnetic Resonance Imaging and Neutrophil Lymphocyte Ratio accurately predicts infection in suspected infected pancreatic necrosis.

Rommel Sandhyav, Nikhil Agrawal, Asit Arora, Yashwant Patidar, Tushar Kanti Chattopadhyay, Institute of Liver and Biliary Sciences, New Delhi

Introduction: Infected pancreatic necrosis (IPN) is the main risk factor for mortality in acute pancreatitis. Diagnosing IPN is challenging. The usual signs of infection such as extraluminal gas are not so common. Fine-needle aspiration is invasive, time consuming and has significant false negative and positive rate. Diagnosing IPN with accuracy noninvasively will help in prompt treatment and avoid unnecessary invasive interventions, resulting in improved patient outcome. We studied diffusion restriction on Diffusion Weighted Magnetic Resonance Imaging (DWMRI) and other predictors of infection in walled off necrosis (WON).

Methods: Patients with suspected IPN (beyond third week since onset) were prospectively evaluated and analyzed for predictors of infection, which included, clinical features, total count, % necrosis, CT severity index (CTSI), serum procalcitonin, serum C-reactive protein (CRP), diffusion restriction on DWMRI and neutrophil lymphocyte ratio (NLR). **Results:** Of 31 patients, 26 (83.8%) had moderately severe pancreatitis. These patients were divided into two groups; (i) documented infection after intervention ($n=17$) and (ii) negative culture after intervention or successfully managed conservatively ($n=14$). When the two groups were compared, patients with infection had fever ($p=0.028$), persistent unwellness ($p=0.032$), elevated neutrophil count ($p=0.008$), lymphocyte count ($p=0.014$), and NLR (0.001) and diffusion restriction (<0.001). On multivariate analysis, NLR ($p=0.03$) and presence of diffusion restriction ($p=0.001$) were significant predictors of harboring infection. DWMRI showed sensitivity of 94.1%, specificity of 78.6%, PPV of 84.21%, NPV of 91.66% and accuracy 87.1% in predicting infection. ROC of NLR was plotted, it had an AUC of 0.85 and best cut off obtained was >3.5 , which showed sensitivity of 70.6%, specificity of 78.6%, PPV of 80% and NPV of 68.7% in predicting infection. **Conclusions:** Diffusion restriction on DWMRI accurately and non-invasively predicts infection

in suspected IPN and could be a valuable tool in guiding need and timing of intervention, especially avoiding unnecessary intervention. NLR is second best option and can be monitored easily, economically and in those who cannot undergo DWMRI.

OA6 3475

Molecular and Clinicopathological Characterization of Colorectal Cancer Samples Defined by Wnt and MSI Status.

Kishore Kumar Reddy, Sastry RA, Murali Dharan Bhashyam, Satish Rao I, Krishna Institute of Medical Sciences, Secunderabad and CDFD, Hyderabad

Introduction: Colorectal cancer (CRC) in India appears to be different from the west in epidemiological, clinicopathological aspects. Our understanding of pathogenesis and biology of CRC is based on western studies and studies from India are scanty. Recent studies have highlighted the clinical implications of Microsatellite Instability (MSI) and Wnt pathways in prognostication and designing diagnostic and therapeutic algorithms. The current study was conducted to assess the status of CRC samples in terms of Wnt and MSI status and their correlation with clinicopathological characters in Indian patients. This data may guide us in designing population specific diagnostic and therapeutic protocols. **Methods:** This study is a retrospective and prospective, single-center, cross-sectional, observational study conducted on fresh and archived CRC samples ($N=122$) from our hospital between 2010 and 2017. The samples were analyzed for Wnt status through beta-catenin staining by immunohistochemistry (IHC) and MSI status by using a panel of five microsatellites that include two mononucleotide markers- BAT25 and BAT26 and three dinucleotide markers D5S346, D17S250 and D2S123, called NCI panel or Bethesda markers, using a PCR-based assay. Corresponding patient and disease specific characteristics were collected from hospital data base. These results were analyzed using statistical methods. **Results:** Majority of study population belonged to early onset colorectal cancer group (<50 yrs) and more than 70% of patients were less than 60 years. Compared to western population, proportion of Wnt positive cases was low (51% vs 85%; $p < 0.0001$) and MSI+ cases was high (43.4% vs 14%; $p < 0.0001$). Wnt activation was significantly less in the younger compared to older patients ($p=0.0417$), whereas MSI didn't correlate with age. No differences were observed in Wnt activation in terms of tumor location, whereas propensity towards proximal location was noticed in MSI+ tumors. Up to 25% of CRC samples in our study did not exhibit either of these two classical pathways. MSI positivity was significantly more in patients with stage II CRC compared to western population ($p=0.0210$). **Conclusion:** The CRC profile in India is significantly different from the West. Our study highlights the differences in CRC between Indian and Western population. 1) Majority of colorectal

cancers developed in younger age group patients. 2) Observed proportions of Wnt+ and MSI+ samples were significantly different from the West. 3) Absence of both classical pathways in a major portion of CRC patients (25%) supports existence of non-canonical pathways and necessitates further studies to identify novel tumorigenic pathways. Less proportion of Wnt+ in younger patients supports this further. 4) Though tumor location does not

correlate with Wnt status, propensity towards proximal colon is noticed in MSI+ tumors. 5) High proportion of MSI+ tumors in stage II CRC in study population may guide us in avoiding chemotherapy in this group as MSI+ tumors are resistant to 5FU. Understanding population specific molecular characteristics of CRC will help in the development of diagnostic and therapeutic algorithms for our population.

Special Mention Posters

SP1 3266

A Randomized Trial Comparing Combined Hepatic Artery And Portal Vein Flushing Versus Portal Vein Flushing Alone In Live Donor Liver Transplantation.

Johns Shaji Mathew, Sai Tarun Vasala, Sudhindran S, Amrita Institute of Medical Sciences, Kochi

Introduction: In live donor liver grafts, hepatic artery is not routinely perfused on the back table for fear of damaging the arterial intima. However as the hepatic artery supplies the biliary tree, we hypothesized that Hepatic Artery perfusion in addition to flushing the Portal Vein on the back table with HTK solution could reduce the incidence of post-operative biliary complications. **Methods:** All consenting & eligible adult patients undergoing LDLT were randomized to either a study arm (Hepatic artery and Portal vein flushing, n=28) or a control arm (Portal vein flushing alone, n=31) by block randomization. An atraumatic straight pediatric size cardioplegia catheter [14 F, DLP® Pediatric Aortic Root Cannulae, Medtronic, Ireland] was used for infusion of 350 ml of HTK preservative solution into the graft artery. Primary end point was the occurrence of biliary leak or biliary stricture. **Results:** Base line demographic variable were comparable between the two groups. The incidence of hepatic artery thrombosis was significantly lower in the study group (1.6 % vs. 9.83%, OR 0.84; 95%CI 0.72-0.99, P=0.05). On a median follow-up of 31.25 months, the incidence of biliary stricture was lower in the study group (6.77% vs. 19.6%, OR 0.22; 95%CI 0.04–1.14, P=0.03). There was no statistically significant difference in bile leak rates, post-op liver function, graft & patient survival rates or mortality between the groups. **Conclusions:** Hepatic arterial perfusion on the back table in live donor liver grafts may decrease the incidence of hepatic artery thrombosis and later biliary stricture.

SP2 3195

Randomized controlled trial comparing perioperative outcomes after esophageal resection and substitution or esophageal bypass alone for corrosive strictures of the esophagus: An interim analysis. Pradeep Krishna, NR Dash, Sujoy Pal, Peush Sahni, AIIMS, New Delhi, India

Introduction: Esophageal replacement surgery is done for corrosive esophageal stricture with good results. However, the need for resection of the native scarred esophagus has been debated. The perioperative risks of resection need to be weighed against the long term risk of the bypassed, retained, diseased esophagus. We initiated a randomized trial of esophageal resection and substitution versus bypass alone in corrosive esophageal strictures and compared the outcomes. **Methods:** We randomly assigned patients with corrosive esophageal stricture to either esophageal resection and substitution or esophageal bypass alone. The primary outcome was to compare the early post operative complications. Secondary outcomes included duration of surgery, time taken for mediastinal dissection, blood loss and intraoperative complications. **Results:** From September 2012 to December 2017, 58 patients were enrolled in the study. However, 8 patients were excluded (six with preoperative esophageal perforation, 1 with severe cardiac comorbidity, one patient had a failed bypass procedure). Twenty-one patients were allocated to esophageal resection and substitution (group 1) and 29 to esophageal bypass (group 2). There were 26 men and 24 women with a mean (SD) age of 25.5 (7.2) years. The mean time from corrosive ingestion to surgery was 20.8 months in group 1 and 23.7 months in group 2. Stomach was used as the conduit more frequently in group 1 (14/21) and the right colon based on the left colic artery in group 2 (21/29). One patient in group 1 had an intraoperative tracheal injury for which thoracotomy was required and one patient had recurrent laryngeal nerve injury. However, there was

no significant difference in the complication rate between the two groups ($p=0.68$). The mean duration of surgery, blood loss and transfusion requirements were comparable between the two groups. The mean mediastinal dissection time was 21.2 minutes in group 2 and 41.9 minutes in group 1 ($p=0.99$). Anastomotic leak and strictures were similar in both groups (4 vs 2 and 2 vs 3, respectively). Of the 5 patients with strictures, 3 responded to endoscopic dilatation while 2 patients had persistent dysphagia. Overall postoperative hospital stay and complications between the two groups were comparable with pulmonary complications being most common in both groups. One patient in the bypass group died of sepsis secondary to a colo-colic anastomotic leak. No pre-operative or intra-operative factors were found to be associated with the development of a leak or stricture. **Conclusions:** In an interim analysis we found no difference in patients with corrosive esophageal strictures undergoing esophageal resection or bypass in the immediate and short term complications.

SP3 3121

Restrictive vs Liberal transfusions strategy in patients with upper gastrointestinal bleeding- A randomized controlled trial. Gautham Surya Tej Kola, Mohsina Subair, SureshKumar Sathasivam, Sreenath G S, Vikram Kate, Jawaharlal Institute of Post Graduate Medical Education and Research (JIPMER), Puducherry

Introduction: The evidence in support of potential benefit of restrictive and liberal transfusions in patients with upper gastrointestinal (GI) bleeding is limited and controversial. Hence this study was conducted to assess whether restrictive strategy in patients with upper GI bleed will be as safe and effective as liberal transfusion strategy. **Methods:** This study was a single-center, prospective, open-labeled, parallel arm, non-inferiority randomized controlled trial carried out in a tertiary care hospital between January 2015 and May 2017. Patients who were diagnosed to have upper GI bleeding as per inclusion criteria were randomized in 1:1 ratio to either restrictive or liberal transfusions group. Patients presenting with massive exsanguinating bleeding, transfusion within 90 days and with a recent history of trauma or surgery were excluded from the study. A sample size of 112 in each group was calculated to detect a between-group difference in mortality of at least 5%, assuming 10% mortality in the liberal transfusion group. Patients in restrictive group and the liberal group had the hemoglobin (Hb) threshold for transfusion of $<7\text{g/dl}$ and $<8\text{gm/dl}$ with a target Hb of 9 gm/dl and 10gm/dl , respectively. In both the groups, 1 unit of packed cells was transfused, hemoglobin levels were assessed and additional units were transfused if the hemoglobin level was below the threshold value till the target value was achieved. The primary outcome was mortality rate within 45 days. Secondary outcomes were a number of days from admission to death, the cause of

death, Hb value before death, the number of rebleeding episodes, need for endoscopic intervention, the requirement of Sengstaken Blakemore (SB) tube placement and duration, the length of hospital stay. **Results:** A total of 224 patients were included in the study, 112 each in the restrictive transfusion and liberal transfusion group respectively. Both groups were comparable in terms of demographic and clinicopathological characteristics such as age, gender, the cause of bleeding, Hb at admission and Child-Pugh score. The mortality rate within 45 days was similar between the two groups (restrictive vs. liberal; $10/112$ vs. $12/112$; $p=0.326$). The mean number of days from admission to death (restrictive vs liberal 3.33 ± 1.86 vs 2.66 ± 1.5 , $p=0.097$), haemoglobin value (g/dL) before death (7.17 ± 0.76 vs 5.26 ± 2.70 $p=0.1864$), number of re-bleeding episodes ($13/112$ vs $13/112$, $p=1.000$), incidence of re-bleeding episodes (11.6% vs 12.5% ; $p=0.9$), need for endoscopic interventions ($37/112$ vs $39/112$, $p=0.594$) and need for SB tube insertion (3.57% vs 8.03% ; $p=0.293$) were similar between the two groups. The cause of death during hospital stay due to variceal and non-variceal causes in restrictive group ($5/6$ vs $1/6$) and liberal group ($6/6$ vs. $0/6$) were similar. The mean hospital stay (days) was similar in both the groups (restrictive vs liberal; 3.18 ± 2.80 vs 2.69 ± 2.21 , $p=0.097$). **Conclusions:** Restrictive transfusion strategy is as safe and effective as liberal transfusion strategy in patients with upper gastrointestinal bleeding due to variceal or non-variceal causes.

SP4 3214

Volumetric assessment of the liver using open source image processing software. Varghese Yeldho, Shabeerali TU, Shiraz AR, Venugopal B, Manoj KS, KIMS, Trivandrum

Introduction: Postoperative liver dysfunction is related to the functional liver remnant. Surgeons rely on preoperative measurement of liver volumes by specialized radiologists using CT linked commercially available softwares in planning liver resections. However now there are open source softwares using which CT volumetry of liver can be done even by surgeons on personal computers. **Aims:** The aim of the study is to assess the accuracy of OsiriX[®], an open source software in performing CT volumetry by surgeons using personal computers. **Methods:** It is a comparative study in a bidirectional cohort using two methods. All living donor liver transplants done in the department from June 2013 to December 2016 were included in the study. Portal venous phase series of images from the preoperative contrast enhanced CT scans was used for CT volumetry. CT liver volumetry was done by a dedicated liver radiologist using iNtuition[®] (TeraRecon, Houston, TX). iNtuition[®] is the standard commercially available image analysis software package used in our liver unit. Two surgical gastro residents performed CT volumetry using the same CT images with freely downloadable open source software OsiriX[®], each

resident calculating the volume twice. Total liver volume and resection volume were determined by using iNtuition® and OsiriX®. Actual resection weights obtained in the operating room were taken as the reference standard for CT volumetric resection measurements using both modalities.

Statistical analysis: Correlations between actual resection weights and volumes obtained with OsiriX® or iNtuition® were tested. The Bland Altman plot was used to test agreement between the two methods. Interobserver and intraobserver variability were also tested using the Bland Altman plots. Sample size was calculated to be 9 based on a previous study where correlation coefficient was 0.89. **Results:** A total of 24 patients were included in our study- 18 females and 6 males. Mean age was 37.8 +/- 8.7 years. The mean total liver volume (TLV) calculated by iNtuition® was 1131.1 +/- 228.6 cm³ while the mean TLV by using OsiriX® was 1132.6 +/- 227.6 cm³. Significant correlation was noted between the total liver volumes calculated by the two softwares with Pearsons coefficient being 0.998 (p=0.000). The mean resection volume calculated by iNtuition® was 592.6 cm³ while that by OsiriX® was 606.8 cm³. The mean actual resected weight was 592 gms. There was significant correlation between the volumes calculated by iNtuition® and OsiriX® to the actual weight of resected specimens. (R²=0.917, p=0.000 and R²=0.919, p=0.000 respectively). The Bland Altman plot showed good agreement between the two methods for both TLV and resection volumes. Intra and inter observer variability was also small as per the Bland Altman plot. **Conclusions:** The use of open software OsiriX® on personal computers for calculation of liver volumes by surgeons is comparable to that by iNtuition® on workstations by radiologists.

SP5 3278

Age No Bar In Living Donor Liver Transplant Results Of Long Term Outcome In Septuagenarians From A Single Centre. Karthik Mathivanan, Rahul Roy, Sanjiv Saigal, Neeraj Saraf, Thiyagarajan Srinivasan, Prashant Bhangui, Amit Rastogi, Medanta Medicity, Gurugram

Aim: To assess the long term outcome of Living Donor Liver Transplant (LDLT) in geriatric population. **Methods:** Prospectively collected data of 1783 consecutive primary adult LDLT cases since 2002 were retrospectively analyzed. Patients above 65yrs considered as the geriatric group and compared with the rest. The primary outcome was evaluation of patient survival and secondary outcome being assessment of postoperative morbidity. Statistical analyses of variables were done using Cox Proportional Hazards method and survival using Kaplan-Meier curves. **Results:** A total of 73 patients in the study group and 1714 in the control group. The mean age in the study group was 67 yrs and in the control group 48 yrs which was statistically significant (p <0.05). The study group had significant comorbidities in comparison to the control

group CAD (12.3%vs 0.9%, p<0.05), Diabetes Mellitus (37% vs 18.1%, p<0.05), Hypertension (26% vs 9.9%, p<0.05), CVA (2.7% vs 0.01%, p<0.05), Bronchial Asthma (4.1% vs 0.6%, p=0.001). The hospital stay and Intensive care unit stay were not statistically significant with a mean of (17 days vs 18, p=0.72) and ICU mean stay of (6 days in both, p=0.64) respectively. Postoperative complications: rejection rate was 4.1% in study group and 8.2 % in control group p value of 0.20, however sepsis rate and tracheostomy was significantly higher in geriatric group with 17.8% vs 5.1% p<0.05 and 12.35 vs 2.1% with a p of <0.05 respectively. The 1yr, 3yr and 5 yr survival rates in geriatric group were 88%, 86% and 82% vs 86%, 85% and 81% in control group respectively with a statistically non significant (p=0.48). **Conclusions:** The sepsis and tracheostomy complications were higher in the geriatric group but did not affect the overall hospital stay and ICU stay. Nevertheless the overall 5-year survival rates were as comparable to the normal adult population.

SP6 3091

Regression Of Liver Fibrosis After Surgical Biliary Drainage In Benign Biliary Strictures: A Theoretical Feasibility Or A Practical Possibility? Jayapal Rajendran, Thakur Deen Yadav, Vikas Gupta, Virendra Singh, Saroj Kumar Sinha, Anupam Lal, Post Graduate Institute of Medical Education and Research, Chandigarh

Introduction: Hepatic fibrosis, secondary biliary cirrhosis and portal hypertension can occur as a result of long standing benign biliary stricture (BBS). Reversibility of fibrosis after biliary enteric anastomosis is a matter of debate. Fibrosis in the setting of biliary stricture occurs secondary to cholestasis. Hence, decompression of biliary system should theoretically be able to reverse the fibrosis. This study was designed to assess the factors predicting the outcome of surgical biliary drainage in BBS on liver function and regression of fibrosis using Fibroscan. **Methods:** A prospective analysis of forty seven patients who underwent Roux-en-Y hepaticojejunostomy and intraoperative liver biopsy for benign biliary strictures from July 2014 to December 2015 was performed. All patients underwent Fibroscan, ultrasound, magnetic resonance cholangiopancreatography and LFT (liver function test) preoperatively and were reassessed after three months using Fibroscan and LFT. Pre-operative liver stiffness measurement (LSM) values derived using Fibroscan were compared with intraoperative liver biopsy. **Results:** High strictures (type III and IV) comprised of ~ 72.3% as compared to 27.7% low strictures (type I and II) following iatrogenic bile duct injury. The interval between biliary injury and surgical repair (range: 2 to 72 months) and duration of jaundice (range: 1 to 20 months) had significant impact on severity of fibrosis. Six (12.8%) patients had no fibrosis, 26 (55.3%) patients had stage 1 fibrosis, 11 (23.4%) patients

had stage 2 fibrosis, two (4.3%) patients had stage 3 fibrosis and one (2.1%) patient had stage 4 fibrosis in liver biopsy. Fibroscan scores done preoperatively and intraoperative liver biopsy had high correlation (Pearson and Spearman's rho correlation coefficient +0.648). Patients with early repair (6 weeks to 3 months) showed greater regression in fibrosis indicated by greater fall in mean LSM values as compared to patients who underwent late repairs (>3 months). Fall in mean level of parameters of LFT and LSM were found to

be statistically significant in stage 0, 1 and 2 fibrosis post surgery (P=0.03). Though there was a fall in liver enzymes and mean LSM values in stage 3 and 4 fibrosis, it was not statistically significant (P=0.3). **Conclusion:** Normal biliary function and regression of liver fibrosis can be achieved following timely bilio-enteric anastomosis in patients with BBS. Fibroscan is a novel modality to assess the grade of fibrosis in patients of BBS noninvasively thereby avoiding liver biopsy and its complications.

Award video

AV1 3153

Total laparoscopic revision Roux-en-Y hepaticojejunostomy for anastomotic biliary stricture with Right hepatic duct stones in a post pancreatotomy patient: A video presentation. Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai

Introduction: Laparoscopic hepatobiliary surgery is a complex and is performed at high volume centres by experienced laparoscopic surgeons. We present here a video of total laparoscopic revision Roux-en-Y hepaticojejunostomy in a complex case with steps that we follow to handle these cases. **The Cases:** A 52 year old gentleman had undergone an open Whipple procedure for a pancreatic head mass at a hospital following which he developed a pancreatico-jejunostomy leak that resulted in total pancreatotomy. 3 years down the line, he presented with obstructive jaundice and imaging showed anastomotic stricture with stones in the right hepatic duct. Total laparoscopic Roux-en-Y revision hepaticojejunostomy was done for the patient. The patient recovered uneventfully and is doing well at one and half year follow up. **Discussion:** Revision hepaticojejunostomy is a complex surgery due to presence of adhesions due to previous surgeries, precarious blood supply and altered anatomy. In such cases, laparoscopy is difficult, technically challenging and should be left to centres with experienced laparoscopic surgeons. However, if performed, the advantages of laparoscopy can be offered to these patients also. **Conclusion:** Total laparoscopic Roux-en-Y hepaticojejunostomy is a safe, feasible but, complex surgery requiring advanced laparoscopic skills.

AV2 3160

Laparoscopic Right Hepatectomy. Anush Mohan, Kerala Institute of Medical Sciences, Thiruvananthapuram

Introduction: Many surgeons prefer to employ the hand-assisted approach, but in this totally laparoscopic

demonstration the author uses the intrahepatic Glissonian approach without the Pringle maneuver. **Aim:** The objective of this study was to demonstrate the precision, safety and the feasibility of the Totally Laparoscopic Right Hepatectomy in this era of minimally invasive procedures. **The Procedure:** The video demonstrates a totally laparoscopic approach to right hemi-hepatectomy in a case of a Giant Hemangioma of right lobe of Liver. The video demonstrates the theatre setup, the patient position, port positions and the operative surgical procedure. The right portal pedicle is first identified with meticulous dissection and divided. The liver parenchyma is then divided with a combination of ultrasonic scalpel, Cavitron Ultrasound Surgical Aspirator (CUSA), bipolar cautery and clips. The right hepatic veins and the right branches of the middle hepatic vein are identified and divided with endoscopic stapler. The procedure starts with surgical exploration and laparoscopic evaluation of the liver. The harmonic scalpel divides the hepatic round and falciform ligaments. Then the suprahepatic inferior vena cava and right hepatic veins are visualise, then the hepatoduodenal ligament is explored. Then the right liver is mobilised as high as possible by transecting the right triangular ligament. Paying attention to the area of the adrenal gland, the gallbladder hilum is dissected, and both the cystic artery and duct are dissected. Then the hepatic hilar dissection is performed with an incision of the liver parenchyma. The procedure continues with transection of the right portal pedicle until the hepatic veins are encountered and tackled.

AV3 3181

Right hepatectomy with complete caudate lobectomy for hilar cholangiocarcinoma, complicated by an atrophy hypertrophy complex. Abhishek Yadav, Satinder Bains, H Ramesh, Lakeshore Hospital, Cochin

Introduction: Right hepatectomy with caudate lobectomy is the standard of care surgery for a Bismuth type III-a hilar cholangiocarcinoma. This resection can be further complicated in some patients by atrophy of the right

lobe of the liver and subsequent atrophy-hypertrophy complex, because of vascular involvement of the right lobe. An atrophic right lobe makes a right with caudate lobe resection difficult because of the following reasons: 1- Rotation of the hepatic hilum distorting the standard configuration of portal structures and displacing the right portal vein posterior and to the left, 2- The hypertrophied left lobe overhangs the hilum thus making hilar dissection a challenge, 3- The caudate lobe gets displaced further posterior and to the left thus making it difficult to isolate the caudate lobe and its inflow and outflow vessels, 4- the hypertrophied remnant left lobe after resection is floppy and without support, and fixation after resection has to be performed precisely in order to avoid catastrophic post-operative complications such as portal vein thrombosis. **The Case:** We demonstrate a right lobe with complete caudate lobe resection for type III-a hilar cholangiocarcinoma complicated by an atrophic right lobe. We describe our technique to deal with the above challenges, with special emphasis on isolating the right hepatic pedicle and the need to fix the remnant liver and the left portal pedicle after this resection to avoid deleterious consequences.

AV4 3165

Laparoscopy Assisted Median Pancreatectomy.
Anush Mohan, Kerala Institute Of Medical Sciences, Thiruvananthapuram

Conventional pancreatic resections may be unnecessary for mid body tumors of the pancreas that are benign or of low malignant potential. Laparoscopy assisted Median pancreatectomy is an option that has been upcoming in this era of minimally invasive surgery in the management of such tumors. Laparoscopic central pancreatectomy is a feasible and safe procedure which preserves the parenchymal function and better oncological clearance. The minimally invasive approach ensures an adequate treatment despite requiring the expertise of highly skilled laparoscopic surgeons. The video demonstrates a case of Meidan Pancreatectomy with open dunking technique through a small midline incision that helped in a very small scar in the patient compared to conventional open techniques and hence an early postop recovery.

AV5 3237

Distal Pancreatectomy with En Bloc Coeliac Axis Resection for Locally Advanced pancreatic cancer (Modified Appleby's procedure). Chinthakindi Madhusudhan, Vinod Kumar Jyothi prakasham, Moksha Prasuna Busineni, Osmania General Hospital And Maxcure Hospitals, Hyderabad

Introduction: Pancreatic cancer is biologically aggressive cancer and complete curative resection (R0) is the main stay of treatment option. Pancreatic body and

tail ductal adenocarcinomas are often diagnosed with local vascular invasion of the celiac axis (CA) and its various branches. With such involvement, these tumors have traditionally been considered unresectable. The Modified Appleby procedure (Distal pancreatectomy with en bloc splenectomy and CA resection) allows R0 resection of some such locally advanced tumors. and relies on the presence of collateral arterial circulation from SMA via an intact pancreaticoduodenal arcade and the gastroduodenal artery to maintain prograde hepatic and gastric perfusion. We here, present a video presentation on modified Appleby's procedure. **The Case:** A 60-yr male patient admitted with back pain and weight loss. Triphasic CT Abdomen reveals a 4-cm mass at body of the pancreas encasing coeliac trunk, common hepatic artery and splenic artery. CA 19-9 was 1177 u/ml. EUS Guided FNAC confirms as adenocarcinoma. PET CT Whole body reveals localised disease without distant metastasis. He underwent Distal pancreatectomy with en bloc splenectomy and CA resection (Modified Appleby's procedure). Total duration of surgery was 8 hours. He received 3 units of blood transfusion. He had grade A pancreatic leak, delayed gastric emptying and diarrhea responded with conservative medication. Patient received adjuvant chemo (gemcitabine+capecitabine) and radiation therapy. patient is alive and disease free during 1yr follow-up. **Conclusions:** DP-CAR is a reasonable treatment option for locally advanced pancreatic cancer of body/tail area. This provides high resect ability rate (R0) with good survival benefit and quality of life control. However, it is a complicated procedure with High risks should be performed by high experienced surgeons. Controversy still exists between upfront surgery vs neoadjuvant treatment followed by surgery.

AV6 3264

Laparoscopic Whipple's pancreaticoduodenectomy.
Prasanth R, Kamalesh NP, Kartik K, Prasanna R, Pramila K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin

A 52 year old presented with yellowish discoloration of sclera, high colored urine and generalized itching of 3 week's duration. On examination she was icteric and base line blood investigations revealed obstructive jaundice pattern. She was evaluated with a triphasic CT abdomen and endosonography, which revealed an obstructing ampullary neoplasm, with dilatation of both the pancreatic and biliary ducts, along with few significant periportal lymph nodes. A Whipple's pancreaticoduodenectomy was planned and she underwent a Laparoscopic Whipple's pancreaticoduodenectomy. We present a video, which details the port positions and technique involved. She made an uneventful recovery and was discharged on the seventh postoperative day.

Esophagus

Oral Papers

ES1 3184

Impact of corrosive injuries to the Upper Gastro Intestinal system: A 5 year referral centre experience.

Kaushik Subramanian, Bangalore Medical College and Research Institute, Bengaluru

Introduction: Corrosive injuries to the upper gastro intestinal tract are a common entity in a developing country such as ours where access to caustic and corrosive agents are easy to come by. The impact of such an injury is devastating and has long term implications in terms of quality of life, the morbidity and mortality of acute ingestion not withstanding. The surgical options for treating such injuries ranges from endoscopic dilatation to SEMS to esophageal replacement. We aim to review our experience of managing such injuries in a tertiary referral care centre with special emphasis on quality of life (QoL) pre and post management. **Aim:** To study the demographic profile and the injury pattern of corrosive ingestion. To study the socio economic and QoL impact of the injury and reconstruction.

Methods: A retrospective review of all corrosive injuries to the upper GI tract treated at our hospital from 2011-2017 was done. Time to initial endoscopy, findings at endoscopy and the time to definitive management was also noted. Case records and operative notes were re viewed. Patients were also assessed with respect to the loss of livelihood and the QoL before and after surgery based on a questionnaire (SF 36) and a disease specific questionnaire of the institution.

Results: Males outnumbered the females in a ratio of 3:2. The age group most commonly prone to corrosive injuries was 4th decade and the most common cited reason was accidental with suicidal intentions being a close second. The most frequently consumed corrosive was the toilet cleansing agent which was easily available in every domestic household. Most patients had a Zargar grading of II A 43% followed by II B 37%. The average number of endoscopic dilatations before surgery was 14 and the mean duration from consumption to surgery was 8.4 months. Colon was the preferred esophageal replacement conduit followed by stomach. Most patients reported a loss of livelihood to the tune of 50-80% citing frequent hospital visits and easy fatiguability as the most common reasons for abstaining from work. QoL was the lowest as perceived by the patient in the months leading up to definitive management especially those with cervical diversion esophagostomies. Patients perceived an improvement in the QoL after surgery despite intrinsic complications to surgery such as anastomotic leaks, need for swallow therapy, presence of an ileostomy and the need for yet

another surgical procedure (stoma reversal). **Conclusions:** Corrosive injuries can have devastating consequences on the socio economic and QoL of an individual harming his self esteem and his self worth. Prevention in the form of distinct containers, stricter legislation in terms of selling of corrosives and increase in general public awareness of storage can go a long way in avoiding these potential problems. Early referral to a centre of excellence, strict EGD protocol and timely surgical intervention are our means to redeem the patients' QoL.

ES2 3212

Feasibility and short term Outcomes of Minimally Invasive Surgery in Locally Advanced Esophagogastric Junctional Tumours after Preoperative Chemotherapy.

Samrat Vijaykumar Jankar, GEM Hospital, Coimbatore

Introduction: Management of locally advanced OGJ cancer still remains a controversial issue and there is lack of data in literature specifically concerning minimally invasive surgery (MIS) in these tumours. Rate of completion perioperative chemotherapy significantly impacts survival and local failure. Therefore, we carried out study to evaluate the feasibility of MIS in locally advanced EGJ cancer after pre-operative chemotherapy and also asses rate of completion of postoperative chemotherapy following MIS. **Methods:** Forty-two patients with locally advanced GEJ tumour (T3, T4 or any N+) during 2015-2017 were included in study. All patients had 3 cycles of ECX regimen (Epirubicin, Cisplatin and Capecitabine) pre-operatively followed by response assessment using RECIST version 1.0 and MIS later rest three cycles post-operatively. **Results:** Of total 42 cases 30 male and 12 were female, mean age of presentation 59.93±11.63 years and mean BMI 24.57±5.5 kg/m². Majority were Siewert's type I (47.61%) and most of cases belong to stage IIIC disease (42.9%). 3 patients had serious (grade 3 or 4) toxic effects, not tolerated preoperative chemotherapy underwent upfront surgery. Of 39 cases tolerated chemotherapy most of them had Partial Response (56.4%) and 4 cases had Complete Clinical Response (10.3%). 34 patients had undergone complete minimal invasive surgery (MIS). 5 cases MIS abandoned due to metastatic (2), unresectable (1) and conversion (2). Mean operating time was 375.9±108.3 minutes, mean ICU stay and hospital stay were 3.4±1.8 days and 10.8±3.3 days respectively. Mean blood loss was 203.0±81.2 ml and Blood transfusions were required in 3 patients. The most common pathological stage was stage IIB (n=11, 32.4%), mean number of harvested lymph nodes and number of positive lymph nodes was 21.8±9.4, 2.7±4.0 respectively. All 34 cases had negative resection margins.

Most them had moderate grade differentiation, and p2 (0-50%) tumour regression grading (52.9%). Complete pathological response was seen in 2 patients (5.88%). Postoperatively patients had complication according Clavien Dindo Grading Grade I / II / III / IV / V were 4 / 3 / 7 / 4 / 0 respectively and they were pneumonia (17.6%), ARDS (2.9%), anastomotic leak (5.9%), Anastomotic stricture (17.6%), Cardiac Arrhythmia (20.6%), Vagal injury (2.9%), Chylothorax (2.9%) and Conduit–Bronchial fistula (2.9%). In median follow up 6.9 months had 2 case had anastomotic recurrence, 1 had loco regional nodal recurrence and 1 had distant metastasis. Treatment completion rate is 73.80% only 3 patients not tolerated adjuvant chemotherapy. In our study on univariate and multivariate analysis of factors affect feasibility of MIS in locally advanced OGJ tumours only preoperative stage of disease is statistically significant. **Conclusions:** Preoperative chemotherapy in locally advanced EGJ tumour improves feasibility of minimally invasive surgery and help in complete resection of tumour, and MIS may aid in increased rate of completion of Post-operative chemotherapy. Preoperative stage of disease is main factor affecting feasibility of MIS.

ES3 3242

Complications following Mckeown's oesophagectomy for malignancy: An experience from a tertiary centre.

Abinaya R Nadarajan, CMC, Vellore

Introduction: Mckewon's oesophagectomy is associated with a number of complications, the most significant of which include anastomotic leaks, pulmonary complications, tracheal injury, thoracic duct injury and vocal cord paralysis. This case series consisting of more than a hundred operations looks at the incidence of these complications and in particular, the management of leaks. This series also looks at the trend of these complications, after the practice of Minimally invasive oesophagectomy, in our unit. **Aims:** To look at the incidence of complications following McKewon's oesophagectomy for malignancy and to analyse the predictors of anastomotic leaks. We also look in detail on the management of the leaks following this operation. **Methods:** This is a retrospective study. All patients who underwent Mckeown oesophagectomy for carcinoma oesophagus in the Upper GI surgical unit, CMCH Vellore, from 2008 to 2017 were included in this study. Most of these patients had advanced malignancy (stage 3 or above) and therefore had neoadjuvant chemoradiotherapy prior to surgery. **Results:** 108 patients who underwent Mckeown oesophagectomy were included. Out of 108 patients, 49 patients underwent minimally invasive esophagectomy and 59 underwent open esophagectomy. Complications noted in the study group were anastomotic leak (18, 16.6%), pneumonia (8, 7%), pleural effusion (7, 6.4%), vocal cord palsy (4, 3.7%), superficial wound infection (3, 2.7%), pneumothorax (3.2.7%), prolonged ventilation (2, 1.8%),

atrial fibrillation (1, 0.9%) and supraventricular tachycardia (1, 0.9%). Out of 18 patients who had anastomotic leak, only 5 had to undergo surgical intervention. Three patients had neck exploration with debridement. However, the other 2 patients presented with the leak tracking down to the right thorax, necessitating thoracoscopic decortication and endoscopic stent placement. The rate of pulmonary complications and prolonged hospitalisation or ventilation was more in open esophagectomy group when compared to minimally invasive group. Univariate analysis of the various factors such as age, gender, comorbidities like diabetes, obesity, albumin, haemoglobin, stage of the disease, neoadjuvant chemotherapy/radiotherapy, type of anastomosis, open vs minimally invasive approach did not show any statistical significance in the patients who had anastomotic leak when compared to patients who had no leak. **Conclusions:** The risk factors of anastomotic leak as described in the literature were not found to be significant in this study group. Most of the anastomotic leaks were managed non-surgically and rarely neck leaks can manifest with intra-thoracic collection. Overall morbidity and hospital stay was low in the patients who underwent minimally invasive esophagectomy.

ES4 3287

Adult Esophago-respiratory fistula: Experience at a tertiary care centre in south India.

Rajeevan Philip, Birla Roy Gnananuthu, Gayatri Deshpande, Myla Yacob, Vijay Abraham, Inian Samarasam, Christian Medical college, Vellore

Introduction: Adult esophago-respiratory fistula is a rare condition, which can be seen in malignancies or in benign conditions following trauma, infection or as a delayed presentation of congenital tracheo-esophageal fistula and poses technical challenge in stabilisation and management requiring multidisciplinary approach. **Methods:** In this retrospective study of 62 cases seen in ten year duration between January 2007 and December 2016 at a tertiary centre in south India, we aim to document and evaluate the causes, presentation and treatment modalities in the management of esophago-respiratory fistula. **Results:** There were a total of 62 cases of adult esophago-respiratory fistula seen at our institute in the study period which included 47 males and 15 females. A retrospective review of case records showed 34 of the cases to be of malignant aetiology and 28 of the cases to be of benign aetiology such as prolonged ventilation, tracheostomy, corrosive injury, infection, trauma or delayed presentation of congenital fistula. The mean age of presentation was 44.4 years (range 18 to 81 years of age). Dysphasia was the most common presentation followed by cough on swallowing liquids or solids. There were 35 tracheo-esophageal fistulae and 27 broncho-esophageal fistulae. Among the 34 patients with malignant aetiology, 8 patients underwent esophageal

stenting and 7 underwent tracheal stenting. 17 among the 28 patients with benign aetiology underwent definitive surgical intervention. Surgical repair involved approach through neck in 5 patients and thorax in 11 patients and one patient had both neck and thoracic incision. The esophageal end of the fistula was primarily closed and reinforced with pleural or intercostal muscle flap or a subtotal esophagectomy was performed. The respiratory end of the fistula was either primarily closed or with the help of a vascularized patch of the esophageal wall. The latter technique was used in four patients. 5 patients had esophageal leak managed conservatively, two had air leak settled spontaneously and one had anastomotic leak which was conservatively managed. Two patients had persistent tracheo-esophageal fistula. **Conclusions:** Early diagnosis, multidisciplinary approach including nutritional build up and early appropriate surgical intervention is the key to successful management of adult esophago-respiratory fistula. Surgical technique of neomembraneous trachea formation described in this case series can be used as one of the surgical options in the management of this difficult condition.

ES5 3383

Evaluation of long-term consequences of oesophagectomy in patients with carcinoma oesophagus. Karthik Keshav Raichurkar, Rajesh Panwar, Sujoy Pal, Nihar Ranjan Dash, Peush Sahni, AIIMS, New Delhi.

Introduction: Oesophagectomy is an extensive surgery which may have long lasting effects on the health and well being. While short-term outcomes following oesophagectomy are well documented, data regarding the long-term outcome, especially among the Indian

population are still lacking. In this study we have evaluated the quality of life (QoL) and long term complications in patients who had undergone a curative oesophagectomy for oesophageal cancer. **Methods:** The study was conducted in New Delhi. Patients who had completed two years of follow up after a curative oesophagectomy and had no evidence of disease recurrence were included as cases. Patients with chronic co-morbid illness which itself could affect the QoL and patients with psychiatric disorders were excluded. QoL was assessed using QLQC-30 and OES-18 questionnaires. Information regarding the specific long term complications of oesophagectomy was also recorded. The QoL scores of these cases were compared with age and gender matched healthy controls. **Results:** A total of 39 patients (25 Males; Mean Age=56+/-11 years) were included in the study. The oesophagectomy patients had a worse score for global, emotional, cognitive and social function domains as compared to the healthy controls (Table 1). The oesophagectomy group also had significantly higher incidence of fatigue, nausea, pain, insomnia, dyspnoea decreased appetite, and financial difficulties (Table 1). As assessed by the OES-18 questionnaire, the oesophagectomy group also had significantly higher scores for GI symptoms (expressed as Mean+/-SD) 17.6+/-17.2 vs 6.4+/-11.4, p=0.0001. Long-term complications were reflux in 28 (71%), dysphagia in 9 (23%), early dumping in 6 (15.3%), late dumping in 7 (17.9%) and aspiration in 4 (10.2%) patients. Majority [32 (82%)] of patients did not regain their pre-morbid weight and 10 (25.6%) patients had to either change their jobs or could not work at all. **Conclusions:** Oesophagectomy is associated with a number of long lasting complications and the quality of life does not normalize even two years after surgery.

Table 1: Comparison of the various domain and symptom scores among cases and controls as per the QLQC-30 questionnaire.

QoL parameter	Mean (SD) score of cases	Mean (SD) score of controls	P value
<i>Domains (Higher score is better)</i>			
Global	205.1 (80.7)	258.9 (61.9)	0.0001
Emotional	79.3 (21.3)	96.2 (10.2)	0.0001
Cognitive	83.3 (22.4)	96.7 (13.1)	0.002
Social	79.4 (31.8)	95.5 (12.6)	0.005
<i>Symptoms (Lower score is better)</i>			
Fatigue	24.1 (20.1)	11.9 (18.3)	0.007
Nausea	19.2 (18.7)	6.4 (1.6)	0.033
Pain	32.8 (11.9)	8.3 (5.4)	0.004
Insomnia	69.2 (40.9)	12 (17.7)	0.02
Dyspnoea	48.7 (43.1)	15.3 (19)	0.024
Decreased appetite	58.9 (62.6)	23 (10.9)	0.04
Financial difficulties	46.5 (40.9)	12.8 (17.7)	0.032

Poster session

E1 3058

Pediatric Achalasia: A rare differential for failure to thrive in a four year old child. Dhananjay Pandey, Lokesh Yadav, Lakshmi Kumari Kona, Global hospital, Hyderabad.

Introduction: Achalasia cardia is a primary motility disorder of esophagus, characterized by aperistalsis and defective lower esophageal relaxation. It is predominantly a disease of adults and the incidence in children is very rare, 0.11 in 100000. The presenting symptoms predominantly are dysphagia, vomiting, regurgitation & failure to thrive. The diagnosis is made by barium studies and esophageal manometry. POEM is a novel technique in adult population but its efficacy & safety in pediatric population is not known. Cardiomyotomy is the treatment of choice for childhood achalasia. **The Case:** A four year old boy presented to us with complaints of recurrent vomiting since 6 months of age and failure to thrive. He was vomiting immediately after ingestion of both solids and liquids. He had history of bronchopneumonia at around 1 year of age. He was malnourished and less than the 3rd percentile for his age. His barium oesophagogram showed persistent narrowing at the lower end of esophagus with proximal dilatation suggestive of achalasia. He was nutritionally rehabilitated and taken up for Laparoscopic Heller's Cardiomyotomy. Post-surgery he improved well and was able to tolerate both solids and liquids. On follow up, he has gained weight and is feeding normally. This case highlights the importance of recognizing that achalasia can also present in childhood. Diagnosis is usually delayed or misdiagnosed as GERD, Esophageal webs etc. Patients usually become extremely malnourished and developmental milestones are delayed. Hence, early diagnosis and treatment with cardiomyotomy is the key.

E2 3083

Management of corrosive injuries of esophagus: Our experience. Bharath Desu, Narayana Medical College, Nellore

Introduction: Corrosive injuries to the upper gastrointestinal tract are still a major concern in developing countries like India. The ingestion of corrosive substances has devastating effects on the upper gastrointestinal tract and present major problems in their management [1]. The management of such injuries is multidisciplinary, which involves reducing the morbidity and mortality by accurate early diagnosis, aggressive treatment of the life threatening complications and an attentive, long term follow up [2]. Caustic ingestion can cause severe injury to the oesophagus and the stomach. The severity and the extent of the oesophageal and the gastric damage which

results from a caustic ingestion depends upon multiple factors [3]. It has been said that strong alkalis "bite the oesophagus and lick the stomach" while strong acids "lick the oesophagus and bite the stomach" [4]. Early endoscopy has a crucial role in both diagnosing and managing the cases of corrosive injuries. **Methods:** A total of 6 patients admitted in department of surgical gastroenterology, Narayana Medical College, Nellore during January 2016-January 2017. Only patients who underwent surgery were included in the study. Children and those patients managed endoscopically were excluded. Surgeries include feeding jejunostomy, esophageal replacement. Patients are followed up till date. Management: Acute management-

Immediate treatment is usually conservative, as the definitive extent of the injury is determined within minutes after ingestion. Early surgery- Patients with clinical or radiological evidence of perforation require immediate laparotomy, usually followed by oesophagectomy, cervical oesophagostomy, frequently concomitant gastrectomy and even more extensive resections, and jejunostomy feeding[5]. Late surgery- Surgery for non-responding esophageal strictures: When esophageal dilatation is not possible or fails to provide an adequate esophageal caliber in the long-term, esophageal replacement by retrosternal stomach or, preferably, right colonic interposition should be considered. Mortality and morbidity are low in expert hands[6]. **Conclusions:** Timely and early surgery may be the only hope for patients with severe injuries, and a rather aggressive attitude should be considered in such patients. Bibliography: [1] Hughs TB, Kelly MD. Corrosive ingestion and the surgeon. *J Am Coll Surg* 1999; 50: 5-22. [2] Spiegel JR., Sataloff RT. Caustic injuries of the esophagus. In, Donald O. Castell, Joel E. Richter (ed). *The esophagus*, Fifth Edition, USA, Lippincott Williams and Wilkins, 2003; 659-69. [3] Goldman LP, Weigert JM. Corrosive substance ingestion: A review. *Am J Gastroenterol* 1984; 79: 85. [4] Muhletalen CA, Gerlock AJ, Desoto L, Halter SA. Acid corrosive esophagitis; radiographic findings. *AJR* 1980; 134: 1137-40. [5] Wu MH, Lai WW. Surgical management of extensive corrosive injuries of the alimentary tract. *Surg Gynecol Obstet* 1993; 177: 12-16 [PMID: 8322144]. [6] Chirica M, Veyrie N, Munoz-Bongrand N, Zohar S, HalimiB, Celerier M, Cattan P, Sarfati E. Late morbidity after colon interposition for corrosive esophageal injury: risk factors, management, and outcome. A 20-years experience. *Ann Surg* 2010; 252: 271-280 [PMID: 20622655 DOI: 10.1097/SLA.0b013e3181e8fd40].

E3 3102

Minimally invasive approach to a Symptomatic Giant Mid Esophageal Diverticulum. Srinivasan Muthukrishnan, Villalan Ramasamy, Sivakumar K, Prabhakaran Raju, Amudhan Anbazhagan, Benet Duraisamy, Rajendran S, Naganath Babu Obla, Madras Medical College, Chennai

Introduction: Mid thoracic esophageal diverticula defined as those occurring within 5 cms above or below the carina constitute about 15% of all esophageal diverticula. They commonly occur in the 6th to 7th decade with a male preponderance and most of them are of the pulsion variety and associated with an inherent motility disorder in 80 to 100% of cases. **The Case:** We report a 68 year old male who presented with symptoms of heartburn, regurgitation after food intake and halitosis for 8 months. An Upper GI endoscopy revealed a diverticulum arising from the esophagus on the right side at 30cms with food stasis. CECT chest confirmed a 3.5 x 3.5 x 5.5 cm diverticulum in the subcarinal, retrocardiac region on right side with contrast pooling and there was no evidence of any mediastinal lymphadenopathy. A manometry was done to rule out any motility disorder and was normal. A thoracoscopic resection was planned with the patient in prone position and using double lung ventilation. The esophagus was mobilized and diverticulum was identified and defined with the help of intraoperative endoscopy and peridiverticular dissection was done diverticulum transected using an endo GIA stapler under bougie guidance. The patient had an uneventful recovery and improved symptomatically. **Conclusions:** Treatment for esophageal diverticulum is reserved for symptomatic patients and surgery is the mainstay. The procedure of choice is diverticulectomy with or without concurrent esophagomyotomy and an antireflux procedure, if there is an associated motility disorder. Minimally invasive approach is more advantageous compared to open procedure with respect to morbidity, hospital stay and can be combined with intra op endoscopy.

E4 3106

Surgical management of an impacted foreign body in esophagus with perforation- A case report. Karthikeyan Mahalingam, Rajiv Gandhi Govt. General Hospital and Madras Medical College, Chennai

Introduction: Oesophageal perforation is quite uncommon, with controversy surrounding its optimal management. Our experience depicts the successful management of a case of Oesophageal perforation secondary to ingested denture. **The Case:** A 56 year old male had accidentally ingested a denture which was found to be impacted at 32 cm with a full thickness tear in the anterior wall of esophagus on OGD scopy done outside with a failed attempt at retrieval and was then referred to our centre. The patient at presentation had severe retrosternal pain and breathlessness. He had tachycardia, tachypnea and surgical emphysema over neck and chest with diminished breath sounds in both lung bases. Laboratory investigations revealed elevated counts and CECT chest revealed bilateral pneumothorax, pneumomediastinum and emphysema in the neck. Emergency thoracotomy

was done and found to have a 5cm perforation in the lower thoracic esophagus with the denture protruding through the Lt antero-lateral wall of the esophagus and minimal fluid collection around perforation site. Denture was removed carefully, Ryles tube inserted and perforation site closed primarily with 2-0 vicryl interrupted sutures. Bilateral ICDs inserted and feeding jejunostomy was done. A gastrograffin study on POD6 demonstrated a leak which was conservatively managed by continuing FJ feeds and Left ICD and the leak settled in 50 days. An OGD scopy at 2 months was also normal and patient started on oral feeds. **Conclusions:** Foreign body ingestion is a common event in childhood and 90% of all FBs pass spontaneously. 1% of patients require surgery for removal or complications like perforation. Our esophageal perforations are secondary to ingested bones or dentures. Primary repair within 24 hrs has a favorable outcome. Our patient had immediate prompt surgical management and patient had a post op leak which was managed conservatively.

E5 3226

Difficulties faced with TransOral Orvil during Transabdominal Intrathoracic Esophageal anastomosis. Madeswaran Chinnathambi, Chandramohan Servarayan, Kanagavel M, Madhusudhanan Devaprakasam, GKNM Hospital, Coimbatore and Isabel Hospital Post Graduate And Research Centre, Chennai

Introduction: En bloc resection with lymphadenectomy is the standard of care for Type 1& 2 OG Junction tumors, it usually involves Thoracotomy for patients who cannot tolerate Thoracotomy Transabdominal Intrathoracic Esophageal anastomosis using Transoral Orvil is the choice, which also has some difficulties. **Methods:** We analyse our experience in 6 patients when we encountered difficulty with orvil for Transabdominal Intra thoracic Esophageal anastomosis. **Results:** The study involving 6 patients of them 4 were men, of age group 49-69. In 3 patients orvil was stuck at mid-chest level retrieved by Right Thoracotomy and continuity restored with Oesophagojejunal anastomosis- completed in chest. In 2 patients orvil was stuck in Cricopharyngeal level, retrieved by Bougie and Endoscopy from the abdominal side and Oesophagojejunal anastomosis carried by hand sewn methods over orvil with purse string suture through left Thoracoabdominal approach. One patient had injury to esophagus recognised intraoperatively and repaired on table. **Conclusions:** Transabdominal intrathoracic Esophageal anastomosis with orvil is done in select situations to avoid morbidity of Thoracotomy in OG junction tumors. The advantages of totally stapled anastomosis with Orvil is well established. However one should be aware of the difficulties with this advice and it should be handled and treated appropriately. Recently Medtronic USA has come with modification of Orvil.

E6 3298

Initial Experience of Thoracoscopic Assisted Robotic Esophagectomy. Vivek Kaje, GEM Hospitals and Research Centre, Coimbatore

Introduction: Esophagectomy is the mainstay of therapy in appropriately selected patients with resectable malignant esophageal disease and refractory strictures of esophagus. However, esophagectomy remains a technically challenging procedure that has the potential for significant postoperative morbidity and mortality. Over the last 20 years, minimally invasive esophagectomy (MIE) has become increasingly adopted as a means to potentially decrease the perioperative morbidity of these operations. As high volume centre for thoracoscopic centre we share our experience of thoracoscopic assisted robotic esophagectomy. **Methods:** Data of 9 patients who underwent elective thoracoscopic assisted robotic esophagectomy from February 2017 to present was retrospectively analyzed. **Results:** Among the 9 patients analyzed, all the 6 patients were males and 3 were females. Mean age of the patients was 68 (+/-6.09) years. Average BMI was 22.13 (+/-2.29). Mean preoperative Hb 12.41 (+/-1.43) g/dl. Mean preoperative albumin 4.02 g/dl. Comorbidity in the form of diabetes was present in 3 patients and hypertension was present in 6 patients. 4 out of 9 patients were ASA 1 and 6 out of 4 patients belonged to ASA 2. 6 patients underwent Mc Keown's procedure with cervical anastomosis and 3 patients underwent Ivor Lewis esophagectomy with intra thoracic anastomosis. Mean duration of the surgery was 520.33 (+/-28.5) mins. Mean estimated blood loss during the surgery was 200.3 (+/-68.12) ml. All the cases were successfully completed by minimally invasive technique and no conversion was required. No intraoperative complications were seen. Mean postoperative ICU stay was 3.5 (+/-2) days. The mean postoperative hospital stay was 8.7 (+/-

1.73) days. There was no mortality, however 3 patients developed pneumonia, and none of them developed anastomotic leakage (cervical/thoracic) or mediastinitis. In the postoperative period 1 patient required one unit of packed red blood cell transfusion. No postoperative wound infection of specimen extraction site was seen in 2 patients. No patient required re exploration. Oral gastrograffin study was done in all the cases which showed no leak. The carcinoma esophagus was seen in 8 cases and refractory esophageal stricture was in 1 case. Average number of lymph nodes harvested during the surgery 28 (+/-4.29). R0 resection was achieved in all 8 cases of carcinoma esophagus. **Conclusions:** Thoracoscopic assisted robotic esophagectomy is safe and feasible in the hands of experienced thoracoscopic surgeons with minor technical modification in high volume centres for minimally invasive esophagectomy.

E7 3339

Redundant Cologastric Anastomosis after Colon Reconstruction for Corrosive Esophageal Strictures. Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Naresh Kumar Damerla, St Isabels hospital, Chennai and ESOINDIA - Center for Gastroesophageal Disorders.

Introduction: Colon is one of the preferred substitutes for managing pharyngo-esophageal caustic strictures. The route of reconstruction is usually in the retrosternum or subcutaneous planes as esophagectomy is not done in most of the situations. It can be right colon, mid colon or the left colon and iso or anti peristaltic. Depending upon the distal transection site and cologastric anastomosis, there can be redundancy which may become clinically symptomatic, warranting revision. **Methods:** We have analysed our experience and management on 6 patients seen by us between 1991 and 2011.

No	Age	Sex	First surgery	Presentation	Years	Route	Colon used	Management	Symptom relief
1	55	M	1967	1998	31	Subcutaneous antiperistaltic	Left	Unwilling for therapy	
2	39	F	1973	1991	18	Subcutaneous isoperistaltic	Mid	Cologastric anastomosis	Good
3	47	M	1981	2001	30	Subcutaneous antiperistaltic (with malignancy at neck anastomosis site)	Left	Colojejunostomy and chemoradiation	Good
4	41	F	1997	2003	6	Retrosternal antiperistaltic	Left	Colojejunostomy	Good
5	23	M	2002	2007	5	Subcutaneous antiperistaltic	Left	Colojejunostomy	Good
6	43	M	2003	2007	4	Retrosternal isoperistaltic	Right	Advancement coloplasty	Good

Results: There was no mortality in this series of 6 patients. One patient was unwilling for treatment. Colojejunostomy was done for 2 patients, colojejunostomy with chemoradiation, revision cologastric anastomosis and advancement coloplasty were done for 1 patient each.

Conclusions: Redundancy of cologastric anastomosis producing symptoms can present several years after primary reconstruction. Treatment has to be individualised.

E8 3341

Missing/Lost Dentures– Found In Esophagus after Years– Experience with Seven Cases. Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Kranthi Kumar Thogari, St Isabels Hospital, Chennai and ESOINDIA

Accidental ingestion of dentures is not uncommon in elderly individuals with ill-fitting dentures. It may happen without their awareness or in reduced awareness states. Most of them are removed on a priority basis. It is extremely rare to find the impacted dentures in oesophagus after several years. This is an analysis of seven patients who had impacted dentures managed by us from 1993 to 2015 in two institutions. Four were men. They aged between 33 to 69 years. The time gap varied from 15 months to 13 years. Symptomatology ranged from 3 to 24 months. The site of impaction were upper esophagus in one; mid in five and lower in one. Transthoracic extraction was done in three; transthoracic extraction and patch repair of esophagus and bronchus in two; feeding jejunostomy in one; transcervical removal in one and transabdominal removal with fundal wrap in one patient. There were no mortality. One patient had leak.

No	Age	Sex	Ingestion	Symptom	Site	Past	Management	Outcome
1	55	F	1yr 3m	3 months	Mid	Endo	TTE /repair	Good
2	65	M	1yr 4 m	6 months	Upper	Endo	TC intrathoracic removal	Good
3	63	F	2 yr	3 months	Lower	Endo/IOE	Endo/IOE/ TA excision/ fundoplication	Good
4	56	M	2 yr 8m	6 months	Mid	Endo/Susp ca	TTE	Leak
5	65	M	3 yr 6 m	1 month	Mid	Endo	TTE	Good
6	33	M	7 yr 6 m	24 month	Mid with EC fistula	Endo/Bronch/ IOE/IOB	TTE/Patch repair/FJ	Good
7	40	F	13 yr	6 months	Mid with perforation	Endo/IOE/ Susp ca	TTE/ Patch Repair	Good

Endo Endoscopy

IOE intraoperative endoscopy

Broncho bronchoscopy

TTE transthoracic excision

TA transabdominal

EC enterocutaneous

TC transcervical

Susp ca suspected cancer

IOB intraoperative bronchoscopy

Ingestion of dentures pose serious problem and present early. It is rare to present late as these patients feel their dentures are missing or lost. They present like obstructing lesions of the esophagus including carcinoma. They may develop contained perforation and internal fistulae. Diligent evaluation and safe removal with multi-disciplinary is mandatory.

E9 3349

Esophagectomy for Achalasia Cardia. Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Kannan Devy Gounder, Rajendran Vellaisamy, Balakumaran Sathyamoorthy, St Isabel Hospital, ESOINDIA, Kauvery Hospital, Madras Medical College, Chennai and Govt KAPV Trichy Medical College, Trichy

Introduction: In the era of per oral endoscopic myotomy, advancement in manometry and laparoscopy the treatment for achalasia cardia is well defined. Oesophagectomy has

only a limited role in rare patients with sigmoid esophagus, perforation during nonsurgical treatment and malignancy. This study is about the indications of esophagectomy for achalasia cardia from one of the high volume centers for upper gastrointestinal disorders in India. **Methods:** This study includes 10 patients (7 male, 3 female) between August 2010 and August 2016. They had symptoms like dyspnea, dysphagia, regurgitation, chest discomfort, weight loss and cough. The duration of symptoms range from 2-120 months. Seven patients underwent previous pneumatic dilatation, four underwent Laproscopic Hellers cardiomyotomy with fundoplication (Dor 3, Toupet 1) and one patient had both pneumatic dilatation and cardiomyotomy. The indications for esophagectomy were sigmoid esophagus, failed pneumatic dilatation and laproscopic hellers cardiomyotomy, perforation after pneumatic dilatation and malignancy. The procedures done were transhiatal esophagectomy with stomach pull-up in 8 patients, Transthoracic esophagectomy in one,

Esophagogastrectomy with transabdominal intrathoracic esophagojejunal anastomosis in one patient. The follow-up range between 2-72 months. During follow-up one patient developed hepatocellular carcinoma right lobe and died. **Conclusions:** In the era where nonresection treatment play a major role in the management of achalasia cardia, esophagectomy still has a role in select patients. The indications for esophagectomy in our series included failed endotherapy, failed Hellers cardiomyotomy, sigmoid esophagus and malignancy.

E10 3351

Surgical management of esophageal leiomyoma.

Deeksha Kapoor, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta- The Medicity, Gurugram

Introduction: Esophageal leiomyomas are rare, but most common benign tumour of esophagus. Surgical enucleation is the treatment of choice in most except in giant ELs (size>10 cm) where esophageal resection has been favoured as primary treatment in recent reports. We share our experience of ELs, managed surgically.

Methods: Retrospective analysis of prospectively maintained database from 2010 to 2017, Medanta- The Medicity, of 11 cases of ELs who underwent surgery. Preoperative workup included an upper GI endoscopy, endoscopic ultrasound and a contrast enhanced CT of the chest and upper abdomen, with on table oral contrast. Choice of procedure was decided depending on the size and location of lesion. **Results:** All patients underwent enucleation successfully. Of the 11 patients, one patient had a cervical lesion, who underwent enucleation via cervical approach. Three patients had lesions at the GE junction, 2 underwent laparoscopic enucleation and one underwent open enucleation in view of comorbidities. One patient underwent open thoracotomy in view of large size (~15 cm). 6 patients underwent video assisted thoracoscopic enucleation, with a mean size of 6 cm. No patient had a post-operative leak, or required blood transfusion. All cases were completed laparoscopically, except 2. One patient was planned as an open procedure in view of comorbidities, and the other patient has a giant lesion requiring thoracotomy. One patient had persistent pneumothorax for whom ICD was retained for 5 days. Mean day of discharge was post op day 4. **Conclusions:** Enucleation is feasible in all patients. Surgery needs to be planned on the basis of size and site of lesion.

E11 3416

Esophageal duplication cyst- A case series and management controversies.

Raj Kumar, Sam Varghese George, Myla Yacob, Sudhakar Chandran, Vijay Abraham, Inian Samarasam, CMC, Vellore and Square Hospitals, Bangladesh

Introduction: Gastrointestinal duplication cyst is a rare congenital anomaly with an estimated prevalence of 0.0122%. Esophageal duplication cyst can be classified under foregut duplication cyst which is due abnormal budding of the embryonic foregut. In our institution, we have managed three such patients in the past 5 years and we intend to present the cases along with the review of literature and management. **The Cases:** Out of the three patients, two were males and one was a female. Mean age was 39. Two of them were symptomatic and one was asymptomatic. Endoscopy was normal in two patients and abnormal in one patient. Endoscopic ultrasound was done in one patient. All of them had a CT thorax. Only one of them had a communication with the esophagus in barium swallow. All of them underwent excision of which two of them were by minimally invasive approach. Histopathology of all the patients was reported as esophageal duplication cysts. **Conclusions:** Esophageal duplication cyst is a rare entity with paucity of data in literature. Most of the present in infant or early childhood and they are quite uncommon in adults. Symptoms can be dysphagia or retrosternal pain. Contrast enhanced CT scan of the thorax is valuable in evaluation. Esophageal duplication cyst will not have cartilaginous material which is used to differentiate from a bronchogenic cyst. All symptomatic cysts are managed by excision. The management of asymptomatic cysts is controversial. There are few case reports where the asymptomatic cysts were managed non-operatively with surveillance with endoscopic ultrasonography. The decision to choose between operative vs non-operative management on asymptomatic patient is controversial as there is paucity of data in literature regarding the natural history of the problem and its potential for malignant transformation. Our approach has been to recommend excision of esophageal duplication cyst larger than 5 cms, by minimally invasive approach, even if asymptomatic.

E12 3485

Primary adenocarcinoma arising in an ileo-colic conduit 5 years after Gastroesophageal junction tumor resection- A case report and review of literature.

Hemendra Kumar Mangal, Pavneet Kohli, Kalayarasan Raja, Prasanth Penumadu, JIPMER, Puducherry

Primary adenocarcinoma arising in ileo-colic conduit is an extremely rare phenomenon. We herein report a case of adenocarcinoma of interposed ileo-colic segment (based on middle colic artery), arising 5 years after total esophagogastrectomy. Endoscopy detected a growth in interposed colon 40 cm from incisors. After ruling out distant metastases she was taken up for surgical resection. High intra-thoracic colo-jejunal anastomosis (jejuno-coloplasty) was done after resecting tumor with adequate margins via left thoraco-abdominal approach. Middle colic artery was ligated. Proximal part of previous conduit survived on collateral supply. The patient is on follow-up and without any recurrence since one year after the surgery.

E13 3496

Laparoscopic management of corrosive esophagogastric injury: A case series. Satyaprakash Ray Choudhury, Raja Kalayarasan, Biju Pottakkat, Sandip Chandrasekar, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry

Introduction: Corrosive strictures are the most common cause of benign esophageal stricture in India. Patients with these strictures are usually managed by endoscopic dilatations. Surgery is indicated in refractory cases; and either resection or bypass is offered by conventional open technique. However, morbidity following open surgery is significant with postoperative pain and respiratory distress. Recently total laparoscopic surgery has been performed in some studies with excellent results. We herein present our experience in corrosive esophagogastric stricture managed laparoscopically. **The Cases:** This series includes five patients with foregut corrosive strictures were managed by minimal invasive surgery. Three patients were having isolated esophageal strictures refractory to endoscopic dilations. Thoracoscopic esophagectomy was done in two of these cases and retrosternal bypass was performed in one patient. Gastric pull up was done in two patients and conduit of 4 cm diameter was used. In one patient stomach could not be assessed, and hence retrosternal colonic pull up was performed. We used modified left colonic artery based mid colonic conduit for colonic pull up. Abdominal procedures were performed laparoscopically. Isolated gastric strictures at antropyloric area were present in two patients. These patients were managed with laparoscopic Billroth I distal gastrectomy. There were no intraoperative adverse events. All patients had excellent postoperative recovery. There was no anastomotic leak. Follow up endoscopy at one month revealed no stricture or anastomotic narrowing. Two patients have completed six months of follow up without any symptoms. **Conclusions:** Laparoscopic management of corrosive esophagogastric stricture is safe and feasible. It provides good postoperative recovery with excellent cosmesis without increasing intraoperative complications. However, it should be performed by surgeons with high laparoscopic experience and high volume centers.

E14 3038

Efficacy Of Camera Sleeve In Conveyance Of Conduits. Jayant Kumar Banerjee, Ramanathan Saranga Bharathi, Bharati Vidyapeeth Medical College and Command Hospital (Southern Command) & Armed Forces Medical College, Pune

Introduction: Esophageal substitutes need conveyance from abdomen into the neck for restoration of alimentary continuity. Reports suggest that use of plastic camera sleeve may prove advantageous in the conveyance. This

study aims to evaluate the practicability of this approach, specifically, in laparoscopy assisted surgeries. **Methods:** Efficacy of camera sleeve in conduit transposition was prospectively evaluated over 3 years. The following parameters were assessed: success/ failure; time taken; blood loss; adequacy of length of the conduit delivered into the neck; conduit orientation; ease of procedure through different routes; conduit damage; complications and drawbacks. **Results:** The technique was used in 30 consecutive patients. Two ileo-colonic, 16 gastric and 12 colonic conduits were transposed. Posterior mediastinal, retro-sternal and ante-sternal routes were used in 18, 10 and 2 cases, respectively. There were no failures. The technique was easy to adopt. It added <10 minutes to the procedure. It entailed no additional blood loss. Adequate length of the conduit got transposed into the neck, atraumatically. Conduits maintained their orientation without effort. Although, no complications *per se* were associated with its use, extra length of conduit got transposed into the neck, twice, necessitating its trimming/ adjustment. Traction suture got avulsed from the conduit, midway in the tunnel, in one case. This could easily be remedied by pulling out the sleeve from the neck, which brought up the conduit along with it, as desired. **Conclusions:** Use of camera sleeve proves efficacious in interposition of esophageal substitutes.

E15 3037

Molecular biomarker microRNA-296 may prognosticate and help direct future therapies for squamous cell carcinoma oesophagus. Vinay Samuel Gaikwad, Paras Hospital, Gurgaon

Introduction: Squamous cell carcinoma (SCC) oesophagus is one of the most common and fatal cancers in India. The prognosis of affected patients remains unsatisfactory despite the advances in therapeutic options such as surgery, chemotherapy and radiation therapy. Consequently, there is a great need for molecular biomarkers to allow a tailored multimodal approach with increased efficacy. MicroRNAs are involved in biological and pathological processes. More specifically, microRNA-296 expression has been demonstrated in SCC oesophagus tissue samples and may be linked to the prognosis based on the level of expression. **Methods:** Paraffin-embedded biopsy blocks of patients diagnosed with SCC oesophagus from 1st November 2008 to 31st October 2011 were procured from the department of pathology, Christian Medical College and Hospital, Ludhiana. Following appropriate sample processing, the miScript SYBR Green PCR kit (Qiagen) was used for the first strand synthesis with PCR primers. This was followed by microRNA expression profiling using a real-time PCR machine (Rotor-Gene Q, Qiagen). Two variants of microRNA-296 expression were calculated: miR296-3p and miR296-5p. **Results:** There were a total of 30 patients included in

the study, out of which 29 were cases and one was control. Treatment modalities included surgery, chemoradiation, chemotherapy, and palliative care. The mean follow up period was 8.3 months. The majority of patients died within one year of diagnosis with a mean survival of 9.3 months. The patients with high expression of the miR296-5p marker experienced longer survival. In Stage IV disease, miR296-5p expression was low. On applying log rank test, the p value was 0.03, which was statistically significant. The results derived from the Kaplan-Meier survival curve of miR296-3p were not statistically significant. **Conclusions:** MicroRNA-296 may be a useful biomarker to prognosticate patients with SCC oesophagus. It can be postulated that by its downregulation, microRNA-296 shows promise as a potential target for intervention in this malignancy.

E16 3072

The impact of Pyloroplasty on complications of Oesophagectomy: Single institution comparative study. Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai

Aim: To compare the impact of pyloroplasty on the clinical outcome following Transhiatal Oesophagectomy for Oesophageal cancer in a retrospective manner in our institution. **Methods:** It is a retrospective study conducted among the patients who undergone THE for Oesophageal cancer in Rajiv Gandhi Government General Hospital, Chennai from May 2102 to Aug 2016. Data regarding the patient demography, disease nature, investigations, treatment retrieved prospectively from the hospital medical records were entered and tabled in the specially designed proforma. 130 patients were analysed to have Ca oesophagus including Ca OGJ. Out of which 58 patients underwent THE for cancer oesophagus with gastric tube reconstruction with or without Pyloroplasty. Factors analysed were anastomotic leak, respiratory complications and in hospital stay. Results were analysed using Chi-square test and Paired T test. **Results:** 31 patients (53.44%) and 27 patients (46.55%) underwent esophagectomy and gastric tube reconstruction with or without pyloroplasty respectively. Out of 58 patients underwent THE, 16 patients (27.58%) developed cervical leak. Out of 31 patients in pyloroplasty group, 5 developed cervical leak and among 27 patients without pyloroplasty group, 11 developed cervical leak (16.1% vs 40.7%, $P=0.04$), had less respiratory complications with pyloroplasty group (16.12% vs 44.44%, $P=0.02$) and had no significant difference in hospital stay between these two groups (15 days vs 15.3 days). **Conclusions:** The effect of pyloric drainage in THE for Oesophageal cancer in our study clearly had significant advantages like less anastomotic cervical leak, less respiratory complications but no difference in hospital stay.

E17 3073

End-to-end versus end-to-side esophagogastronomy after esophageal cancer resection: single institution comparative study. Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai

Aim: To compare single-layered hand-sewn cervical end-to-end (ETE) anastomosis with end-to-side (ETS) anastomosis in Transhiatal Oesophagectomy for Oesophageal cancer in a retrospective manner in our institution. **Methods:** It is a retrospective study conducted among the patients who undergone THE in Rajiv Gandhi Government General Hospital, Chennai from May 2102 to Aug 2016. Data regarding the patient demography, disease nature, investigations, treatment retrieved prospectively from the hospital medical records were entered and tabled in the specially designed proforma. 130 patients were analysed to have Ca oesophagus including Ca OGJ. Out of which 58 patients underwent THE for cancer with gastric tube reconstruction with ETE or ETS anastomosis. Factors analysed were anastomotic leak, respiratory complications and in hospital stay. Results were analysed using Chi-square test and Paired T test. **Results:** 30 patients (51.72%) and 28 patients (48.27%) underwent esophagectomy and gastric tube reconstruction with ETE and ETS anastomosis respectively. Out of 58 patients underwent THE, 16 patients developed cervical leak. Out of 16 patients developed leak, 4 patients are in ETE group and 12 patients in ETS group. (13.3% ETE vs 42.8% ETS, $P=0.01$), ETE anastomosis suffered less respiratory complications than ETS anastomosis (16.6% ETE vs 42.8% ETS, $P=0.04$) and had no significant difference in hospital stay between ETE and ETS group. (ETE-15.1 days vs ETS-15.5 days). **Conclusions:** ETE anastomosis is associated with a lower anastomotic leak rate and had less respiratory complications compared to ETS anastomosis but had no significant difference in hospital stay between these two groups in our centre.

E18 3145

Quality of Life Before and After Laparoscopic Heller Myotomy with Partial Fundoplication— Single institution experience. Sathasivam Subramani, Madras Medical College, Chennai

Introduction: Achalasia cardia is a primary esophageal motility disorder characterized by the absence of esophageal peristalsis and impaired relaxation of the lower esophageal sphincter (LES) in response to swallowing. It has varied treatment options in current scenario. The mainstays of treatment are pneumatic dilation, endoscopic botulinum toxin injections, peroral endoscopic myotomy (POEM) and surgical myotomy of the gastro esophageal junction. Laparoscopic Heller myotomy and fundoplication is the current surgical standard of care. Aim of this study

is to assess improvement in symptoms and quality of life score in patients who had undergone lap hellers myotomy in our institution. **Methods:** This is a retrospective study of prospectively collected data from patients who had undergone lap hellers myotomy in our institution. Total of 30 patients who has undergone lap hellers myotomy from May 2012 to May 21, 2017 were analyzed. Quality of life was recorded through SF 36 scoring system questionnaire. The RAND 36-Item Health Survey (Version 1.0) taps eight health concepts: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. Disease specific symptoms were analyzed using Eckardt score. Patients were called for follow-up and values were recorded through the questionnaire. Patient's present sf36 and Eckardt score were recorded. Patient's sf36 scores and Eckardt scores at the time of admission for their surgery was collected retrospectively for comparison. Difference in the scores analyzed statistically. **Results:** Among the 30 patients, 13 were male and 17 were female with a median age of 43 years (range 18–72 years). All of them had undergone laparoscopic hellers myotomy with Dor fundoplication except two. The mean operative time was 93.3 min (range 150–50 min), the mean operative blood loss was 50 ml (range 40–200 ml), the median time to oral feeding was 4 days and the median hospital stay was 5 days (4–7 days). Intraoperative mucosal perforation was encountered in two patients and was repaired in one of them by laparoscopic suture. There was one conversion to open surgery as perforation extended into hiatus. SF score comparison showed significant improvement in QOL, especially in emotional wellbeing and energy levels. Eckardt score showed drastic reduction in symptoms. **Conclusions:** Achalasia cardia is a benign disease which restricts food intake resulting in significant impairment in quality of life. Lap hellers myotomy has resulted in simple, single stage, relatively complication free treatment option which provides dramatic improvement in patients quality of life and symptoms. Though treatment options for achalasia are labelled palliative due to nature of disease, lap hellers myotomy results in drastic improvement in patient's condition which makes them feel they are comparable in health to normal population. Thus, laparoscopic hellers myotomy is a safe procedure which gives results equal to a curative procedure for any other disease and must be considered standard of care.

E19 3176

Management of High Pharyngeal Corrosive Strictures: A Single Centre Experience. Chandrabose Ambedkar, Prabhakaran Raju, Naganath Babu, Rajiv Gandhi Government General Hospital, Chennai

Introduction: The management of high pharyngeal corrosive strictures is complex and time consuming. It requires sound clinical judgement, pragmatic decision making both in the acute and later stages followed by a committed postoperative rehabilitative course in order to prevent death and major disability. The site of the stricture, presence of associated laryngeal injury, concomitant distal esophageal strictures and the nutritional status of the patient plays a significant role in the outcome after surgical management. We present our experience in the management of corrosive strictures with pharyngeal component with or without involvement of the other distal parts of the upper gastrointestinal tract. **Methods:** 121 patients with upper gastrointestinal corrosive injury were treated in our centre between 2013 and 2017. The prospectively collected data of 22 patients out of this 121 with high pharyngeal strictures were retrospectively evaluated and analysed. Patients with isolated esophageal or gastric antral strictures or both were excluded. Majority of these patients were managed elsewhere initially and were referred to us for definitive management. Tracheostomy was performed liberally in patients with strictures above the cricopharynx. Vocal cord involvement mandated a permanent tracheostomy whereas temporary tracheostomy is preferable if vocal cords are uninvolved. Depending upon the previous therapeutic interventions patients were categorized into one of several groups viz. dilatation alone, dilatation followed by esophagocoloplasty, pharyngocoloplasty with tracheostomy, Redo anastomosis was performed in 3 patients and intra operative retrograde dilatation was done in 2 patients and antegrade dilatation in 2 patients. Data with regard to conduit failure and pulmonary complications were analysed. **Results:** Satisfactory swallowing was restored in 13 out of 22 (60%) patients and 3 patients had poor dysphagia scores with near complete obstruction while the rest (6) had acceptable dysphagia scores attributable to the individual variation in successfully learning swallowing by rehabilitation. In one patient swallowing could not be restored due to lack of suitable anatomical conduit. There were two deaths and six patients had temporary cervical salivary fistula and all of them were successfully managed conservatively. 4 patients had conduit failure and 5 patients had pulmonary complications, out of which one patient died. None of our patients had abdominal complications. **Conclusions:** The choice of procedure depends on the site of stricture, its relation to the laryngeal inlet, time of presentation after corrosive ingestion, status of the larynx, presence or absence of strictures further downstream and the nutritional status of the patient. Meticulous followup and dilatation at the earliest possible opportunity supplanted with redo surgery if needed are necessary for good outcomes. With this study showing an acceptable mortality rate and overall minimal morbidity. Outcomes can be improved with more emphasis

on individualized treatment. Successful outcomes after surgical management of corrosive strictures, particularly those involving the pharynx requires patient cooperation, family support and lengthy rehabilitation course.

E20 3308

Tales of a stent: Complications and outcomes of oesophageal stenting. Aditya Benjamin, Anoop John, Sudipta Dhar Chowdhury, Vijay Abraham, Inian Samarasam, Christian Medical College, Vellore

Introduction: The minimally invasive management of benign and malignant oesophageal stricture and perforation with oesophageal stenting has been on the rise over the past decade. The complications this procedure are distinct from that of surgery and need to be anticipated constantly. We looked at our institutional experience of oesophageal stenting over 5 years with focus on complications and comparisons with open surgical management. We also present in detail a unique complication of stent migration into the thorax causing a pseudo-aneurysm of the left subclavian artery. **Aims:** To analyse data on oesophageal stenting with regards to indications, complications and outcomes at a tertiary care centre. **Methods:** Data on all oesophageal stenting done from May 2012 to Feb 2017 was collected and analysed for demographic data, indications, complications and outcome. **Results:** There were a total of 36 cases, with 28 stentings done for benign aetiology and 8 stentings done for malignancy. Fully covered stents were used in 24 cases and partially covered stents were used in 12 cases. The main indications were post-operative anastomotic leak (14), oesophageo-bronchial fistula (6), malignant stricture (5), oesophageal perforation (4), oesophageal tumour overgrowth (3), trachea-oesophageal fistula (2), and Boerhaave's syndrome (2). Stent migration was seen in 4 patients. One patient had unsuccessful stent removal and needed a covered stent placement. There were three instances where the stent became embedded into the oesophageal mucosa and required surgery for excision; of these, 2 patients required oesophagectomy. One patient, who underwent oesophageal stenting for anastomotic leak following McKeown's oesophagectomy, had stent migration into the thoracic cavity causing a left subclavian artery pseudo-aneurysm. This required dissection and primary repair of left subclavian artery through a cervical approach along with resection of the stent with its fistulous tract. **Conclusions:** Oesophageal stenting is invaluable in management of strictures and perforation in contemporary medical practice. It decreases morbidity associated with thoracotomy or thoracoscopic surgery, and is an effective tool for palliation. However the complications of stent migration and re-insertion cannot be overlooked. Stent embedding complicates safe removal and may require oesophagectomy in select cases. More serious complications of vascular injury are rarely reported but need to be considered in stented patients presenting with shock or bleeding.

E21 3322

Achalasia cardia in surgical perspective: A single institution experience. Jayaprasad Narayan, BMC&RI, Bengaluru

Introduction: Achalasia cardia though a relatively rare disease with an estimated prevalence of new cases of 0.5 to 1 per 100000 population in a year is one of the major spastic disorder of esophagus. Laparoscopic Hellers Myotomy (LHM) was accepted as the standard of surgical management for achalasia. Most important outcome for patient is relief of dysphagia. Diagnostic tools for achalasia include contrast esophagram, esophageal manometry and esophago gastro duodenoscopy (EGD). The Eckardt score (maximum score, 12) is the sum of the symptom scores for dysphagia, regurgitation, and chest pain (0, absent; 1, occasional; 2, daily; and 3, each meal), and weight loss (0, no weight loss; 1, <5 kg; 2, 5–10 kg; and 3, >10 kg). Objective of the study is to evaluate clinical, endoscopic and manometric findings with respect to different types of achalasia and to study the outcome of surgery in view of different types of achalasia cardia. Study was conducted in the Surgical Gastroenterology unit of BMC & RI, Bengaluru. **Methods:** Descriptive study of all patients with confirmed diagnosis of achalasia cardia treated after January 2015 to March 2017 were included. **Results:** Total 26 patients were studied. 11 were female and 15 were male. 10 patients diagnosed to have type I, 15-type II and 1-type III Achalasia cardia. 6 patients treated with Laparoscopic Hellers Myotomy (LHM), 19 with LHM with Dors fundoplication and one conservatively. 3 patients had intra-op mucosal breach which was repaired primarily. The Eckardt score of each patient at the time of admission and 3 months after operation compared. Success rate was better with type II achalasia.

E22 3347

Malignancy in gastric conduit after Trans Hiatal Esophagectomy for locally advanced carcinoma esophagus– Analysis of outcome. Kanagavel Manickavasagam, Chandra mohan Servarayan Murugesan, Abdul Rehman, Kannan Devy Gounder, St Isabels Hospital, ESOINDIA, Madras Medical College, Kauvery Hospital, Chennai,

Introduction: En bloc esophagectomy and lymphadenectomy is the standard of care for locally advanced carcinoma esophagus. After the introduction of neo adjuvant chemo RT (CXRT), in a subset of patients whose performance status is poor who cannot withstand extensive lymphadenectomy THE remains a viable option. Malignancy in the gastric conduit after esophageal resection is a rare occurrence with worst outcome. We present our experience in managing conduit malignancy and its outcome. **Methods:** 21 cases of gastric conduit

malignancy admitted in our institution between 1995 and 2015 were included in this study. Indication for surgery, Demographic profile, Interval between occurrence and primary disease, type, site and stage of malignancy, route of the conduit, post operative therapy and prognosis were analysed. **Results:** Mean age at presentation was 44.3 years. Males: female ratio was 1:1.1. All surgeries were done for squamous cell cancer. Differentiation of tumor was Well, moderate and poor in 4, 7, 10 patients. Stage of tumor was T2, T3, T4 in 5, 7, 9 patients. Original site of malignancy was mid esophagus in 8 patients and 13 patients in lower esophagus. The mean interval between primary esophageal malignancy and conduit cancer was 7.3 months (6-42 months). Recurrence was second primary in 1, anastomotic site recurrence in 2 and bed recurrence in 8 and 10 were advanced malignancy with distal metastasis. No treatment in 6, RT only in 6, CRT in 7 only pain relief in 2 patients were done. Median overall survival was 6.2 months (range 4-11 months). **Conclusions:** Malignancy in gastric conduit can develop after esophagectomy for locally advanced tumors. If CXRT is not possible placement of conduit in the substernal route is a viable alternative. Postoperative surveillance program is needed to diagnose early cases for better results.

E23 3352

A Comparative Study of MDCT, MRI, FDG PET and Diagnostic Laparoscopy in Assessing Gastroesophageal Junction Adenocarcinoma- A Prospective Study.

Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Sugaprakash Sankareswaran, Rajamani Emmanuel Gunaseelan, St Isabels Hospital, ESOINDIA, Madras Medical College, Bharat Scans, Chennai

Aim: The aim of this study is to assess the efficacy of MDCT, MRI and FDG PET in Potentially Resectable GEJ Adenocarcinoma. The findings were correlated with Diagnostic Laparoscopy, Intraoperative findings and Postoperative Histopathology. **Methods:** The study is between December 2014 to August 2016 which includes 30 patients (M 16: F 14) (mean age 57.03 years) with potentially resectable GEJ adenocarcinoma and Good performance status were included. Evidence of metastasis by clinical examination, x ray chest and ultrasound abdomen was excluded.. All 30 patients were subjected to MDCT, MRI of neck, chest, abdomen and Whole body FDG PET scan. After the above imaging, all patients underwent diagnostic laparoscopy followed by surgery if resectable. The findings were correlated with postop HPE report. Biopsy of the metastatic sites except pulmonary nodules were taken for confirmation. **Results:** There was no statistically significant difference between MRI and CT both in terms of length (p -0.648) and thickness (p -0.572). There is good agreement between CT and MRI in tumor staging (0.556) (Kappa statistics) (p <0.001). There was a discordant finding in 8

cases, wherein the MRI has upstaged. CT staged 7 cases as T3 whereas MRI it was staged as T4a and in one case CT was staged as T2 and MRI staged as T3. When compared to HPE (gold standard)- CT and MRI were 100% sensitive (ie- all nodes identified by CT and MRI were positive) but less specific (ie missed out nodes) for nodes. Whereas PET was more specific (50%) as well as sensitive (80%) in detecting nodes. With regards to metastasis, PET was 100% specific (ie all cases which turned out to be negative with PET were truly negative) and 75% sensitive. Combined sensitivity by doing MRI and PET parallelly is 97.11% and specificity is 90.91%. Two patients had isoechoic liver metastasis which were missed by ultrasound. **Conclusions:** The efficacy of MDCT and MRI in terms of assessment of depth and length remain the same but to assess the adjacent organ involvement, MRI scores over MDCT. PET is more specific than CT and MRI in detecting nodes. Though PET CT is 100 percent specific for distant metastasis, it can be false positive especially in country like India. Diagnostic laparoscopy continue to play a role in diagnosing small peritoneal metastasis of less than 6 mm despite having all imaging modalities, since the PET scan may miss lesions less than 6 mm. This study has to be continued in a large scale to findout the cost effectiveness and efficacy, especially in differentiating a metastatic node from inflammatory node and metastatic nodule from pulmonary parenchymal nodules due to granulomatous disease which is a concern for countries like India. Currently our study includes PET MRI fusion as additional staging tool and the results of which will be published later.

E24 3455

Role of laparoscopic gastric ischemic conditioning prior to esophagectomy and gastric pull through in patients of esophageal cancer: An interventional study.

Santhosh Anand, Kalayarasan Raja, Sandip Chandrasekar, Biju Pottakkat, Deepak Barathi, Debasis Gocchait, JIPMER, Puducherry

Introduction: Esophagectomy and gastric pull through is the most common surgery done for resectable esophageal carcinoma. Viability of the gastric conduit after ligating major blood vessels of stomach depends on adequacy of the gastroepiploic arcade and intramural vascular anastomoses. Gastric conduit failure may result from poor perfusion of conduit. Preconditioning of gastric tube to ischemia was found to have controversial results in human studies. However prolonged preconditioning period has not been evaluated so far. **Methods:** A prospective interventional study was conducted including all consecutive patients with thoracic esophageal cancer between June 2015 and April 2017, who were planned for neoadjuvant chemoradiotherapy followed by minimally invasive esophagectomy and gastric pull through. The effect of gastric ischemic preconditioning

was assessed objectively by radiological and pathological Methods. Preconditioning was done laparoscopically by dividing left and short gastric vessels during the feeding jejunostomy procedure. The caliber of right gastro epiploic artery was measured in CT angiography before and after preconditioning. Immunohistochemical analysis of baseline and post preconditioning fundal mucosal biopsies for evidence of neoangiogenesis were done using VEGF, Ki-67 and HIF-1alpha expression. **Results:** Totally 22 patients with esophageal carcinoma were subjected to laparoscopic ischemic preconditioning. However, only 11 patients were able to undergo esophagectomy following neoadjuvant therapy. Out of 11 patients, 9 of them were females. They had predominantly lower thoracic and squamous cell carcinoma. Most of them received NACTRT as per CROSS protocol. There was a marginal rise in caliber of RGEA from 2.18 mm to 2.25 mm after preconditioning, though was not statistically significant. The expression of VEGF and Ki-67 in fundal mucosal biopsy were poor and only HIF-1 alpha was expressed adequately. The anastomotic integrity was not found to be modified by improvement in RGEA caliber or HIF 1 alpha index. The presence of type 2 koskas epiploic arcade anatomy, Tumor involvement of gastro esophageal junction and excess intraoperative blood loss were found to significantly influence the anastomotic dehiscence. However, duration of surgery, and intra-abdominal adhesions because of preconditioning were not found to influence the occurrence of gastric conduit failure. **Conclusions:** Gastric ischemic preconditioning for prolonged interval before esophagectomy and gastric pull through results in decreased anastomotic complications, however it was not objectively evident by immunohistochemical analysis of neovascularization. Mechanisms other than neoangiogenesis may be involved in the improvement in perfusion of preconditioned gastric conduit.

E25 3382

Determinants for Pulmonary Complications After Esophagectomy For Esophageal Cancer. Vivek Sharma, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta- The Medicity, Gurgaon

Introduction: Pulmonary complications after esophagectomy are still most common and are a major cause of morbidity and mortality. Reported incidence of pulmonary complication in different studies is upto 67%. The aim of this study was to identify the determinant risk factors for the occurrence of pulmonary complications after esophagectomy. **Methods:** The clinical courses of 82 patients who underwent elective esophagectomy (2014-2017) with lymph node dissection for esophageal cancer were retrospectively analyzed. Group I included patients who had pulmonary complications (28), and group II included patients who did not (n=54). The clinicopathological

factors like habit of smoking alcohol intake, comorbidities, ASA score, NACTRT, S. albumin and surgical results were compared between the groups. Univariate analysis and multivariate logistic regression analysis was performed to assess relationship between factors and outcomes. **Results:** Mean age in study population (total 82 patients) was 57.75±11.8 years. 63.5% (52) patients were male while 36.5% (30) were female. Out of 82 patients 43 patients underwent minimal invasive (VATS) esophagectomy while 39 patients underwent transhiatal esophagectomy (THE). The frequency of pulmonary complication in our study was 34.1% (n=28), including pneumonia (n=12; 14.6%). The results of the univariate analysis showed that smoking, COPD, diabetes mellitus, perioperative requirement of inotropes and increased hospital stay were the factors associated with pulmonary complication. On multivariate logistic regression analysis COPD (p- 0.013; Confidence Interval (CI)- 1.852 to 183.9; odds ratio- 18.32) and perioperative requirement of inotropes (p- 0.043; CI- 1.055 to 24.623; odds ratio 5.10) were found to be statistically significant for pulmonary complications. **Conclusions:** Pulmonary complications after esophagectomy remains common despite advances in perioperative management. Patients with a history of smoking, COPD, and requirement of inotropes perioperatively, needs more careful postoperative pulmonary care.

E26 3362

Experience of CROSS protocol in carcinoma esophagus at a tertiary centre in Southern India. Geet Midha, Sam Varghese George, Myla Yacob, Jonathan Sadhu, Vijay Abraham, B Sudhakar Chandran, Inian Samarasam, Christian Medical College, Vellore

Aim: To study the use of neoadjuvant chemoradiotherapy in resectable carcinoma esophagus. To assess the tolerance, side effect profile and impact on surgical resection as well as the tumor itself. Literature review: Esophageal carcinoma is the 7th most common cause of death due to cancer worldwide. Surgical resection is the primary modality of treatment but it has been associated with very poor 5 year survival rate, even for locally advanced disease. Use of neoadjuvant chemoradiotherapy in esophageal cancers has been shown to be associated with decreased disease stage, better loco-regional control, and provides an opportunity for negative margin resection. It has not been shown to effect quality of life when combined with esophagectomy. Inclusion criteria: All patients with resectable carcinoma esophagus who were discussed in the multidisciplinary tumor board meeting from January 2015 to December 2016 and planned for neoadjuvant chemoradiotherapy followed by reassessment. **Methods:** Patient planned for neoadjuvant chemoradiotherapy were studied retrospectively with the help of designed proformas to study the chemotherapy and the radiotherapy regimens

that were used, the side effect profile and tolerance of the regimen used as well as the effect of the regimen on tumor and the surgery planned. The data collected was analyzed with SPSS 17.0. **Results:** A total of 62 patients were planned for neoadjuvant chemoradiotherapy. Most of the patients received 41.4 to 45Gy of radiation and either of the two concurrent chemotherapy regimens, 5-Fluorouracil with Cisplatin or Carboplatin with Paclitaxel. Most of the patients completed the planned radiation therapy, while only 15% of patients were able to complete the planned chemotherapy regimen. The most common cause of omission of concurrent chemotherapy was neutropenia. 71% of patients underwent the planned esophagectomy after the neoadjuvant treatment. Post operative pulmonary and cardiac complication were seen in 30% of patients and anastomotic leak in 7%. Complete pathological response was seen in 35% of patients. **Bibliography:** 1. Xiao-Feng Duan, Peng Tang, and Zhen-Tao Yu; Neoadjuvant chemoradiotherapy for resectable esophageal cancer: an in-depth study of randomized controlled trials and literature review; *Cancer Biol Med.* 2014 Sep; 11 (3):191–201. 2. Shapiro J, van Lanschot JJ, Hulshof MC, van Hagen P, van Berge Henegouwen MI; Neoadjuvant chemoradiotherapy plus surgery versus surgery alone for oesophageal or junctional cancer (CROSS): long-term results of a randomised controlled trial; *Lancet Oncol.* 2015 Sep; 16 (9):1090-8. doi:10.1016/S1470-2045 (15) 00040-6. Epub 2015 Aug 5.

E27 3171

Surgery for corrosive stricture esophagus: Assessment of complications, mental health and quality of life (QOL). Sri Aurobindo Prasad Das, Nihar Ranjan Dash, Sujoy Pal, Pratap Sharan, KS Madhusudhan, Peush Sahni, All India Institute of Medical Sciences, New Delhi

Introduction: Management with corrosive ingestion have long term impairment in swallowing food, suffer from poor weight gain and body image. Either a gastric or colon pull up with either resection or bypass of the scarred esophagus is usually done. Although studies have assessed the functional outcome and complications of different form of esophageal replacement, none have assessed the quality of life or mental health status in these patients. We assessed all patients who had undergone or will undergo a definitive procedure for esophageal stricture with respect to complications, mental health status and quality of life. **Methods:** The study was done in the Department of GI Surgery AIIMS. Data were extracted from the department records or collected prospectively when the patient was admitted for surgery. We had 5 different groups of patients in the study: Preoperative group (PO), Colon resection (CR), Colon bypass (CB), Gastric resection (GR) and Gastric bypass (GB). Complaints like dysphagia, regurgitation, aspiration and dumping were asked for taken. All patients

who were symptomatic were further evaluated with upper gastrointestinal endoscopy (UGIE) in the resection group. Patients who had a bypass and were symptomatic in addition to UGIE a contrast enhanced computed tomography of neck, chest and abdomen with oral contrast (CECT) was done. All recruited patients were administered three questionnaires: Dysphagia questionnaire (MDADI), quality of life questionnaire (WHO QoL BREF) and general health questionnaire (GHQ 12). **Results:** We had 53 patients divided into five group as follows: 10 in PO group, 9 in CR group, 16 patients in CB group, 12 in GR group and six patients in GB group. The median duration from corrosive ingestion till definitive surgery was 13 months. Stomach was used as conduit in 18 patients and colon in 25 patients. At the present visit a total of 24 patients were symptomatic, 23 of whom complained of dysphagia. Even though the number was higher in the CB group compared to others, the difference was not significant. Even the incidence of regurgitation ($p=0.48$), aspiration ($p=0.34$) and dumping ($p=1.0$) was comparable between the groups. UGIE revealed 3 patients to have stricture requiring dilatation. CECT showed presence of mucocele in 3 patients. The MDADI score was better in all groups when compared to PO group. Patients in the GB group had significantly better dysphagia score when compared to CR and CB group. The WHO QOL BREF score was significantly better in the GB and GR group when compared to others. Even the GHQ 12 scores were significantly better in GB and GR group. **Conclusions:** Patients with colon as conduit had a higher incidence of complications on follow up and a majority were symptomatic on follow up. Patients with gastric conduit both after resection and bypass had better dysphagia associated QOL and overall QOL. Even these patients had better mental health when compared to patients with colon conduit. Therefore, stomach should be preferred as a conduit wherever possible.

E28 3346

Squamous Cell Carcinoma Esophagus After Corrosive Injury– Pattern of presentation and problems in management. Experience with 13 cases in 25 years. Kanagavel Manickavasagam, Chandramohan Servarayan Murugesan, Balakumaran Sathyamoorthy, St Isabel Hospital, Chennai, ESOINDIA and Govt KAPV Medical College, Triruchirapalli

Introduction: Many authors have described the development of malignancy in esophagus after corrosive injury. Though the theoretical possibility of malignancy developing in a corrosive esophagus is expected to be around 1000 fold, no team has managed large numbers. The aim of this study is to analyse the pattern, presentation and problems encountered in the management. **Methods:** Thirteen patients with malignancy after corrosive injury to esophagus between 1991 and 2016 were included in

this study. Patients demographic profile, incidence, time interval between ingestion of corrosive to occurrence of malignancy, site of malignancy, symptoms at presentation, stage, management and survival were analysed. **Results:** There were 10 males and 3 females. The age at presentation was between 35-52 years. The time taken between ingestion to presentation with cancer was between 13-29 years. The commonest presentation was dysphagia in 11, TEF in 1, UGI bleed in 1 patient. Most common site of malignancy was upper cervical esophagus (53.8%) (either at the anastomotic site after coloplasty or at post cricoid region) followed by middle (30.7%), lower third esophagus (7.75%) and OG junction (7.75%). Six of them underwent definitive chemoradiation. Three underwent THE with gastric pull up and three patients were not willing for any management. One patient died within 24 hours due to aorto-enteric fistula. Only 7 out of 9 patients were on regular follow-up. The survival was 3.8, 5.5 and 7 years in 3 patients who underwent THE. The survival was between 3 to 15 months in patients who underwent chemoradiation. **Conclusions:** Squamous cell carcinoma developing after corrosive injury to esophagus is a rare entity. Majority of them were presenting at advanced stage when curative treatment was not possible. Survival in resectable post corrosive malignancy is good when compared to malignancy in the native esophagus.

E29 3374

CROSS protocol for operable oesophageal cancer: TMC experience. Amrit Pipara, Robin Thambudurai, Sudeep Banerjee, Manas Kumar Roy, Tata Medical Center, Kolkata

Introduction: Neo-adjuvant chemoradiotherapy (NACTRT) has been shown to improve survival in carcinoma oesophagus patients as per the CROSS trial. **Methods:** This is a retrospective analysis from a prospectively maintained database. The data was analysed from the Electronic Medical Records and REDCap database maintained on the hospital server. All patients with squamous cell carcinoma of the oesophagus from Jan 2012 to Dec 2016 were included in this study. **Results:** Nine-one patients were enrolled for the study out of which 62 got neo-adjuvant chemoradiotherapy (NACTRT) at our institution, while 19 received the same at another centre. Twenty-three patients refused surgery after NACTRT. The data for NACTRT morbidity was available for patients treated at our institution. NACTRT-associated morbidity included anaemia in 24 (38.7%) patients, neutropenia in 31 (50%) patients, thrombocytopenia in 18 (29%) patients, grade 3/4 radiotherapy (RT) induced dysphagia in 1 (1.6%) patient and grade 3/4 nausea/vomiting in 3 (4.8%) patients. Two (3.2%) patients required chemotherapy dose reduction. Sixty-eight patients underwent surgery after NACTRT. Fifty-nine (87%) patients underwent Tran-thoracic oesophagectomy with 2 field lymphadenectomy after

NACTRT. The overall morbidity post-operatively was noted in 30 (44%) patients while the mortality was noted in 4 (5.9%) patients. The morbidities noted were pulmonary in 14 (20.6%) patients, anastomotic leak in 4 (5.9%) patients, chyle leak in 5 (7.4%) patients and vocal cord palsy in 4 (5.9%) patients. Sixty-one (61/68, 90%) patients had R0 resection and the median lymph node harvest was 21 (range 4-52). Pathological complete response was noted in 30 (44%) patients. Till December 2016, 5 (7.4%) patients were noted to have recurrence and 28 (41%) patients were lost to follow up. Rest of the patients (51.5%) were disease free. **Conclusions:** These results indicate the feasibility of pre-operative chemoradiotherapy followed by surgery in appropriately selected patients in the Indian context. Operative outcomes are consistent with published reports.

E30 3418

Minimally invasive esophagectomy for carcinoma esophagus– Surgical outcome. Vikram Trehan, Army Hospital (R & R) New Delhi

Introduction: Minimally invasive esophagectomy (MIE) has shown an increasing trend, specially in the last decade in the management of esophageal malignancy. **Aim:** To present a cohort of patients underwent surgery between 2008 to 2016 at a single tertiary care centre. **Methods:** A total of 103 esophagectomies were performed for esophageal malignancy which includes 69 patients by minimally invasive technique. The procedure was performed by thoracoscopic mobilization of esophagus initially followed by reconstruction part done by either minilaparotomy or by laparoscopic approach- total thoracoscopic esophagectomy (TLE). **Results:** The MIE was successfully completed in 65 (94.2%) patients. Operation time ranged from 275 to 420 min (average 356 min). The number of dissected lymph nodes were 5-15 (9 on average). The postoperative course was uneventful- without any complications in 36 (52.17%) patients. The most common postoperative complications were respiratory complications which were observed in 22 (31.88%) patients. Other complications included postoperative bowel obstruction (1 patient), anastomotic leak (4 patients), and necrosis of the gastroplasty (1 patient). One patient had chyle leak while cardiac complication were seen in three cases. The overall morbidity of patients operated on by MIE was 47.8%. Thirty-day mortality was 5.79%. **Conclusions:** Esophagectomy performed by a minimal invasive technique is widely accepted surgical procedure for patients with middle and lower esophageal malignancy. The biggest benefit of MIE is avoidance of thoracotomy/ laparotomy associated postoperative pain subsequently decrease in morbidity.

E31 3486

Pattern of recurrence following video-assisted thoracoscopic esophagectomy. Monish Karunakaran, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram

Introduction: Despite refinements in the surgical techniques, increased use of radical surgery & multi-modality approach, esophageal cancer continues to be plagued by disturbingly high recurrence rates following curative resection. We undertook this study to examine the pattern of recurrence following video-assisted thoracoscopic esophagectomy. **Methods:** 58 patients who underwent thoracoscopic esophagectomy between January 2012 to June 2016 were included in the study. The minimum follow up period was 12 months. **Results:** 26 patients (45%) developed proven recurrence. The median time to recurrence was 12.0 (range, 6–102) months. The pattern of recurrence was local in 12%, regional in 20%, and distant in 22%, respectively. The overall pattern of dissemination was significantly different according to the tumor stage. **Conclusions:** Depth of tumor invasion & nodal disease should be used to identify patients at-risk to develop early recurrences, so that these patients may be either entered into trials of multimodality treatment or offered nonsurgical palliation.

E-video**EV3 3159**

Robotic transhiatal enucleation of esophageal leiomyoma: Video presentation. Aditya GK, Varun Madaan, Vachan S Hukkeri, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi

Benign tumors of esophagus are uncommon and represent approximately 1% of esophageal neoplasm. Leiomyomas are most common benign tumor of esophagus and constitute nearly 60% of all benign lesions arising from esophagus. Although, leiomyoma can affect any part of esophagus, but distal esophagus is most commonly

affected. Approximately 60% of leiomyomas occur in distal esophagus, 30% in middle esophagus and 10% in upper esophagus. Clinical features of leiomyomas are nonspecific and half of them are asymptomatic. Most common symptom is dysphagia, followed by symptoms of reflux, heartburn, heaviness in chest. Overlying mucosa is usually normal so enucleation is recommended for any symptomatic lesion or asymptomatic lesion of more than 5cm in size. Traditionally, these lesions are treated via laparotomy or thoracotomy, depending on location of lesion. However, minimal invasive approach is being increasingly used in management of these lesions with less morbidity and postoperative complications. Robotic surgery may be more suited for the treatment of these lesions than standard laparoscopic or thoracoscopic techniques due to the increased range of motion and 3-dimensional visualization that robotic surgery permits. Our patient was a 29 years old male, presented with history of reflux symptoms for three years. On evaluation he found to have an esophageal leiomyoma of size 5cm at lower end and extending to gastroesophageal junction. Da Vinci robotic surgery system was used with three robotic ports of 8mm, one camera port of 12mm. One additional 5mm port was used for liver retraction and one assistant port was used for retraction and suction. Transhiatal enucleation of esophageal leiomyoma was done along with closure of defect and anterior fundoplication. Oral Gastrograffin study was done on POD6 for assessment of leak and after ensuring no leakage of dye, oral diet was started. Patient resumed normal diet on POD10 with complete resolution of his symptoms. Histopathology revealed Leiomyoma with no nuclear atypia, positive for SMA and negative for S-100. The minimally invasive surgery has shown significant advantages of decreased hospital length of stay and postoperative pain. Robotic approach is better than routine laparoscopic surgery in difficult areas such as esophagus and hiatus. Use of the robot provides advantages of three-dimensional vision, increase range of hand movement, natural eye-hand coordination, motion scaling, and tremor filtration.

Oral papers**ES6 3147**

Predictors for lifelong adjuvant therapy in intermediate and high risk foregut gastrointestinal stromal tumor (GIST). John Mathew Manipadam, Lekha V, Venugopal Ambady, Mahesh S, Jacob Mathew Kadamapuzha, Abhishek Yadav, Ramesh H, VPS Lakeshore Hospital And Research Centre, Kochi

Introduction: Postoperative adjuvant therapy with Imatinib for the treatment of intermediate to high risk gastrointestinal stromal tumor (GIST) has been clearly shown to have benefit in terms of survival. However, there are many unclear areas. Some patients develop recurrence after cessation of adjuvant therapy. Whether more than 3 years and lifelong adjuvant treatment for GIST would increase benefit in patients at higher risk is debatable. This is the research question of more than one Randomised controlled trial at present and the results will take a good number of years to come. Our objective was to retrospectively analyse patients operated at our centre for GIST stomach and duodenum and to identify factors that predict recurrence after completion of adjuvant therapy so that we can consider such patients with these risk factors upfront for longer or lifelong adjuvant imatinib.

Methods: Retrospective analysis of patients operated for GIST stomach and duodenum in the last 10 years at our centre and their follow up for recurrence and survival.

Results: Out of 88 patients operated for GIST at our centre in the last 10 years, 66 belonged to the intermediate and high risk category. Of these, the distribution of the organ of origin was as follows, Stomach-35, Duodenum-8, Colon and Rectum-5, Jejunum and Ileum-9, other locations-9. 24/ 35 in stomach category were identified to have either completed adjuvant therapy after excision or have not taken any adjuvant therapy, and are on follow up. None of these patients were recorded to have any tumor rupture intraoperatively. In GIST duodenum, 5/8 patients were identified who completed adjuvant therapy after operation and were on follow up. Of the 24 patients with GIST stomach on follow up 5 developed recurrence and 19 were free of disease. Mean recurrence free survival was 131.4 months. An ROC curve analysis in predicting recurrence was performed with size of the initial tumor and mitotic count as the parameters. Size had an AUC of 0.928 (P-0.0001) with a Youden index of 0.894. Size >12 had a 100% sensitivity and 89.5 % specificity in predicting recurrence despite adjuvant therapy. Mitosis had an AUC of 0.987 (P-0.0001) with a Youden index of 0.947. Mitosis

>9/50 high power field (hpf) had a 100% sensitivity and 94.7% specificity in predicting recurrence despite adjuvant therapy. Of the 5 patients with GIST duodenum on follow up after completing adjuvant therapy, 3 developed recurrence (60%) all of which had size more than 5 and mitosis more than 5/50 hpf. **Conclusion:** Interpreting the above results, we conclude that a patient with a GIST of stomach with a size >12 or a mitosis >9/50hpf may be considered upfront for longer adjuvant therapy with imatinib than presently being followed, preferably lifelong. Patients with a duodenal GIST of size more than 5 and mitosis more than 5/50 hpf may also be considered for longer adjuvant therapy upfront, but more numbers are required to prove the same.

Oral video**OV6 3491**

Totally laparoscopic Billroth I gastrectomy for Corrosive gastric stricture- Technical description. Kapil Nagaraj Palanisamy, Kalayarasan Raja, Sandip Chandrasekar, G Senthil, Biju Pottakkat, JIPMER, Puducherry

Introduction: Corrosive gastric strictures were classified on the basis of extent of stricture formation which guides the surgical management. Billroth I reconstruction is preferred in gastric strictures restricted to distal stomach as it more physiological. Technical difficulties prevailing over totally laparoscopic gastroduodenostomy following distal gastrectomy have made surgeons prefer a laparoscopic assisted distal gastrectomy. Herein we present our technical modification of Laparoscopic Billroth I distal gastrectomy and intracorporeal gastroduodenostomy with linear endostaplers for corrosive gastric injuries in two patients which have never been reported earlier.

The Technique: Under general anesthesia with patient in supine position. Six ports placed in following order- one 12 mm camera port at infraumbilical region, one 5 mm working port in right pararectal region, 5mm port at left pararectal region around five fingerbreadths above camera port; one 5 mm in right subcostal region and a 12 mm port at corresponding location on left side. For liver retraction one 5 mm port was placed just below the xiphisternum. Greater omentum separated from stomach at the antrum. Right gastroepiploic vessels were divided with hemolock. Kocherisation done partially of the proximal duodenum only. Pylorus was lifted using umbilical tape after creating a window posteriorly and proximal 2 cm of duodenum mobilized from pancreas. Lesser omentum was entered at the level of the pylorus, right gastric artery was divided in

continuity with harmonic. Window created in omentum at the proximal transection site. Stomach was divided at its healthy part above antrum using one to two Endo GIA linear cutter staplers. Gastrocolic omentum and posterior attachments of stomach divided with harmonic. Two gastrotomies made— one along greater curvature proximal to staple line and another at the level of pylorus. Stomach mobilized and brought anterior to the duodenum with a fixed traction of the duodenum. Traction is applied with ease as the specimen is still in continuity. Gastroduodenostomy done by double stapled technique; which excludes the specimen along. Specimen is extracted through the port. Number of EndoGIA staplers used for anastomosis may exceed two. **Conclusion:** Totally laparoscopic Billroth I gastrectomy is safe and feasible in well selected corrosive gastric strictures. Difficulties of completing intracorporeal gastroduodenostomy have been overcome with endostaplers and technical modifications.

Poster session

S1 3039

Post Gastrectomy Phytobezoar- A rare cause of Small Intestinal Obstruction. Supreet Kaur Grewal, Rudra Prasad Doley. Rajeev Kapoor, Jaidev Wig, Arvind Sahni, AIIMS, New Delhi and Fortis Hospital, Mohali

Phytobezoars are concretions of vegetable matter in Gastrointestinal tract. They can occur post gastric surgery, owing to altered gastric motility. We report a case of 60 year old diabetic male, 6 months post distal gastrectomy, presenting with small intestinal obstruction due to migration of Phytobezoars into jejunum. He underwent exploratory laparotomy, enterotomy and removal of multiple phytobezoars.

S2 3075

A Case of Large GIST of the stomach infiltrating into left lobe of liver, successfully resected en bloc following a very effective Neoadjuvant Chemotherapy— Case report. Aviral Jain, Upender Rao, Rohit Dama, Ranjith Rao, Guduru Venkat Rao, Asian Institute of Gastroenterology, Hyderabad

A 28-year-old male presented with a 1-month history of dyspepsia and intermittent epigastric pain. CECT suggestive of exophytic polypoidal soft tissue density mass lesion (11x9x12 cms), arising from the lesser curvature of the stomach. The mass was seen invading almost the whole of left lobe of the liver. Gastroscopy revealed a lesser curvature mucosal nodularity, biopsy of which was suggestive of spindle cell tumor. Immunohistochemical (IHC) staining showed CD-117 and DOG 1 positivity, and confirmed the diagnosis of gastrointestinal stromal tumor (GIST). Patient underwent surgery outside, but procedure

was abandoned only with diagnostic laparoscopy and tru cut biopsy. Patient was started on neoadjuvant therapy with Imatinib (400 mg once daily). After 6 months of treatment the tumor decreased from 100 mm × 86 mm × 117 to 45 mm × 43 mm × 50 mm in diameter, and surgery was planned. The tumor was completely resected without rupture, by wedge resection of lesser curvature of stomach with non anatomical resection of left lobe of liver, (predominantly segment 2). Post op recovery of patient is good. We report this rare case to show the potential of preoperative imatinib treatment in patients with large gastric GIST with local infiltration to liver to achieve complete resection without rupture. **Conclusion:** Imatinib has an acceptable safety profile and can be considered as a neoadjuvant therapy in large GISTs. We report that a 6 month intake may noticeably increase their resectability potential and improve prognosis.

S3 3090

Acute Gastric Dilatation As An Initial Presentation Of Systemic Lupus Erythematosus - A Rare Case Report. Lokesh Yadav, Ramalingam Trivikrman, Lakshmi Kumari Kona, Global hospitals, Hyderabad

Introduction: Acute gastric dilation can be a presentation of wide range of conditions with main differential diagnoses being mechanical obstruction at gastric outlet or ileus/ gastroparesis due to various etiologies like abdominal and other surgeries, acute illness, abdominal trauma and child birth etc. Without proper timely diagnosis and treatment, potentially fatal events such as gastric ischemia and perforation can occur. Systemic Lupus Erythematosus (SLE) is a chronic multisystem autoimmune disease with a prevalence of 0.1%, presents commonly as butterfly rash, low grade fever and non deforming arthritis in female of child bearing age. It can involve any body system but GI involvement is rare with most common being oral ulcers. In more severe form, it can present as pseudo-obstruction or mesenteric vasculitis causing pain, bloody diarrhoea, perforation or gangrene. Here we are presenting a case of acute gastric dilatation as initial presentation of SLE, for the surgeon to be aware and to look for unusual causes for this not so common condition. **The Case:** A 28 year old female presented to ER with short history of multiple episodes of bilious vomiting and abdominal distention. On evaluation with plain radiograph of the abdomen she was found to have massive gastric dilation. On ryle's tube insertion approximately 2.5 L of bilious fluid was drained. Her investigations were within normal limit except for raised ESR. Her CECT abdomen scan showed hugely dilated stomach with hold up of oral contrast and no evidence of mechanical obstruction. She recalled an intermittent history of small joint pain and swelling and on examination Reynaud's phenomenon was positive. On further evaluation, she was found to be positive for

ANA and Anti DS DNA and diagnosis of SLE was made. She was started on systemic steroids following which her gastric dilation resolved on serial x rays and her nasogastric aspirate reduced.

S4 3101

Rare Presentation Of Gastric Tuberculosis. Anil Sundaram, Jayan Stephan, RP Unnithan, Govt Medical College, Trivandrum

Gastric tuberculosis is a rare presentation of tuberculosis (TB) infection¹ with a reported incidence of less than 0.2% on routine gastric biopsies². Regardless of whether gastric tuberculosis is primary or secondary, gastric perforation is exceedingly rare with 6 previous cases reported in the literature³. Tuberculosis (TB) is endemic in India. Stomach involvement is rare. We present a case of 24 year old male who presented with perforation peritonitis. Histopathology showed chronic granulomatous lesion with caseation necrosis suggestive of tuberculosis. This is the seventh case in literature of gastric perforation due to primary tuberculosis of stomach. **The Case:** A 24-year-old male patient presented to the emergency department with acute abdomen pain and vomiting. Vitals: blood pressure-90/70mm Hg; Pulse- 122/min; Temperature-37.5°C. Physical examination revealed abdominal distension, guarding and rigidity. Haemogram- leucocytosis, plain erect x-ray abdomen showed air under diaphragm and dilated small bowel loops. Emergency laparotomy revealed gastric perforation of size 2*1cm in pylorus of stomach with indurated edges and a stricture. Considering the scenario a patch of omentum was placed over the perforation and a Gastro-Jejunostomy and Jejunum-Jejunostomy was done. Post operatively patient was in ventilator for 24 hours and oral fluids were started on day 5 and patient was discharged on post op day 8. Histopathology report of the gastric mucosa biopsy showed numerous caseating granulomas with multinucleated giant cells, suggestive of tuberculosis. Patient was started on category 1 Anti Tuberculosis Treatment. On review after one month patient had gained 6kgs of weight. **Conclusion:** India is the country with the highest burden of TB. The World Health Organisation TB statistics for India for 2015 give an estimated incidence figure of 2.2 million cases of TB for India out of a global incidence of 9.6 million. The low incidence of gastric TB is postulated to be due to the scarce presence of lymphoid tissue in the stomach combined with the presence of an acidic environment¹. In five previously reported cases of gastric perforation, four were diagnosed with TB by the presence of acid-fast bacilli on gastric biopsy or the presence of lymph nodes with caseating necrosis. In the previous five published cases of gastric perforation was treated with distal or total gastrectomy³. In our patient case, his continued sepsis and hemodynamic instability led us to consider a more

conservative approach. With the stomach appearing generally healthy despite the perforation, this approach proved reasonable and successful. Antituberculosis treatment is the mainstay of therapy of. Of the six reported cases of TB-associated gastric perforation, only one patient has survived with prompt surgical intervention and anti-TB therapy³. In our patient, because of the more conservative approach patient survived. References: 1. I. Subei et al. "Primary gastric tuberculosis: a case report and literature review. American Journal of Gastroenterology, vol. 82, no. 8, pp.769 1987. 2. RW Good. Tuberculosis of the stomach. Analysis of cases recently reviewed. Archives of Surgery, vol. 22, pp.415-425 2001. 3. Gill RS et al. Gastric perforation associated with tuberculosis: a case report. Case Rep Med. 2011;2011:392769. doi: 10.1155/2011/392769. Epub 2011

S5 3108

Synchronous Gastric Cancer And Renal Cell Carcinoma Resection- Case Report. Madeswaran Chinnathambi, Venkatesh Senkottaiyan.K, Tamilselvi Subbaiyan, GKNMH, Coimbatore

Introduction: The incidence of incidentally detected synchronous Gastric carcinoma with Renal cell cancer is quite low (0.11--37%), and concomitant surgery for treating both Gastric cancer and RCC is rare. Patients with Gastric cancer are at risk of developing a second, additional primary form of cancer, this may negatively influence the prognosis. The pathological stage of the secondary primary cancer might be the primary factor that influences the treatment modality. Most patients who have resectable synchronous tumors have both tumors operated at the same time, and this does not lead to added postoperative mortality. Herein, we present our experience of performing a concomitant Gastrectomy and Nephrectomy. **Method:** A 72-year-old man was referred for management of Epigastric fullness, Tiredness and vomiting of short duration. Gastric outlet obstruction was noted with lot of food material and no growth could not be identified by OGDscopy initially and repeat procedure revealed stricturous lesion in Gastric outlet from which bits of tissue taken for HPE, and the same reported as Signet ring Carcinoma. A preoperative staging CECT scan revealed an incidental finding of hypervascular mass in the Right Kidney; Renal cell carcinoma (RCC) was the initial impression. A concomitant surgery-Subtotal gastrectomy and radical Right Nephrectomy was performed. The pathological examination confirmed Gastric adenocarcinoma (T2a) -Signet ring type and Clear cell RCC (T1b). **Result:** Patient assessed for and operated under GA, Operating time was 4.5 hours and the blood loss of about 300 ml noted, extubated on the same day and shifted to ward on second post operative day. Diet started gradually Convalescence was uneventful except for Hypoalbuminemia which was corrected and he was discharged in stable condition. Patient improved gradually

wit out major complications during hospitalization and doing well noticed at 5-month follow-up. **Conclusion:** The incidence of synchronous Gastric cancer with RCC is quite low and concomitant surgery is rare. Elderly people with early Gastric cancers have a relative higher probability of developing a synchronous tumor. A concomitant surgery like Radical Gastrectomy and Radical Nephrectomy can be safely performed in selected patients as performed by us, which can achieve feasible oncological control and it is presented here for the rarely performed successful combined resection.

S6 3179

Gastric Carcinoma in a patient with Chronic Lymphocytic Leukemia- coincidence or consequence?

Mangal Mayank, S Sudharsanan, TP Elamurugan, Sadasivam Jagdish, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry

Chronic lymphoid leukemia (CLL) is a neoplasm of mature B- cells of unknown etiology. There is site specific increased incidence of second malignancy in patients with CLL. Leukemia and cancer can thus occur in the same patient either simultaneously or sequentially. We present a case of gastric adenocarcinoma in a patient with chronic lymphocytic leukemia. A 47-year-old female presented with history of abdominal pain for 1 year along with nausea and vomiting for 2 months. On examination, she was pale and had generalised lymphadenopathy. Her abdominal examination revealed vague fullness in the epigastrium, but there was no definite palpable mass. Complete hemogram showed features suggestive of CLL which was later confirmed by a lymph node biopsy and bone marrow examination. While upper GI endoscopy revealed an ulceroproliferative growth in body of stomach, biopsy from it revealed a well differentiated adenocarcinoma. Gastric cancer developing in a patient with CLL may be due to immunological impairment associated with other etiological factors such as *Helicobacter pylori* infection, smoking etc. Treatment of gastric cancer consists of gastrectomy with regional lymphadenectomy followed by adjuvant chemotherapy. Co-existence of CLL and carcinoma stomach can pose a challenge in the management of such patients.

S7 3340

Massive Gastric Dilatation In Carcinoma Stomach. Subair Mohsina, Naik Debasis, Amaranathan Anandhi, Sathasivam Sureshkumar, Vikram Kate, JIPMER, Pondicherry

Introduction: Gastric outlet obstruction is one of the commonest clinical presentation of carcinoma of the distal stomach, however, it is hypothesized that owing to the short duration of obstruction, a dilated stomach is unlikely. Here we report a case of adenocarcinoma of stomach

which on imaging was found to have a hugely distended and dilated stomach as seen in patients with long standing benign outlet obstruction. **The Case:** Sixty-five years old female patient presented with complaints of recurrent episodes of vomiting and ball rolling movements in the epigastrium for one month. Patient also had complaints of loss of appetite and significant weight loss. Upper gastrointestinal endoscopy revealed a proliferative growth in the antro-pyloric region beyond which the scope could not be negotiated. Histopathology of the growth confirmed the diagnosis of adenocarcinoma of stomach. Contrast Enhanced Computed Tomography (CECT) of the abdomen revealed a mass lesion in the antro-pyloric region with suspected infiltration into the head of pancreas, an omental deposit and a hugely dilated and distended stomach occupying the entire abdominal cavity from the diaphragm reaching upto the pelvis. Patient underwent palliative gastrojejunostomy and remains asymptomatic. **Conclusion:** Although massive gastric dilatation is rare in patients with malignant obstruction, a hugely dilated and distended stomach can sometimes occur in a patient with distal gastric malignancy and hence the surgeon should have an index of suspicion in patients with atypical presentation.

S8 3345

An unusual presentation of Emphysematous Cystitis in Carcinoma Stomach- A Case report. Rajesh Srirama Reddy Bachavarlahalli, Shanmugam Dasarathan, Kadambari Dharanipragada, JIPMER, Puducherry

Introduction: Emphysematous cystitis is a rare disease of the urinary bladder characterized by formation of gas in and around the urinary bladder. It is most commonly caused by *Escherichia coli*. It is most commonly described in diabetes mellitus and in other immunocompromised patients. It is atypical in presentation and a high degree of clinical suspicion is necessary to identify the entity in susceptible population. **The Case:** 47 year old man presented to surgical casualty with complaints of vomiting for one month. He had history of loss of appetite for last three months with significant loss of weight. There was no history of ball rolling movements or post prandial fullness. On examination, patient was emaciated and severely dehydrated. His pulse was 104/minute and BP 80/60 mm of Hg. Per-Abdomen examination revealed normal abdomen without any palpable mass. At admission blood gas analysis revealed metabolic alkalosis with hyponatraemia and hypokalaemia. He was initially diagnosed as benign gastric outlet obstruction and evaluated further after initial resuscitation. Upper Gastro Intestinal Endoscopy revealed severe oesophagitis with suspicious pyloric ulcer and a deformed duodenal bulb. Multiple biopsies were taken. Patient was unfit for any major surgical procedure due to his poor general condition, so he was started

on parenteral nutrition to improve his nutrition status. Endoscopic biopsy showed gastric mucosa with dysplastic glands invading muscularis mucosa, suggesting well-differentiated adenocarcinoma. Meanwhile the patient developed recurrent febrile spikes. His total counts were 23,000/mm³ and antibiotics were started empirically after blood culture samples were taken. Contrast enhanced Computerised Tomography (CT) scan showed diffuse oedematous circumferential wall thickening of the stomach with maximum thickness in the antro-pyloric region measuring 1.5 cm for the length of 5cm. Bladder showed presence of intraluminal gas and emphysematous changes in the bladder wall with foley's catheter in-situ suggesting an incidental diagnosis of Emphysematous cystitis. Urine culture showed pus cells <5/HPF (High Power Field), RBC (Red Blood Corpuscles) present, >10⁵ CFU/mL (Colony Forming Units) and grew *Klebsiella pneumoniae*. Blood culture also showed *Klebsiella pneumoniae*. Antibiotics were changed according to sensitivity reports. Unfortunately, the patient continued to deteriorate, developed respiratory distress and succumbed to the fulminant infection. **Conclusion:** Emphysematous cystitis is a rare condition occurring in susceptible populations. In our patient, *Klebsiella pneumoniae* grown in urine and blood culture, indicating disseminated infection. In the presence of any comorbidities like diabetes or immunocompromised status, as seen in our patient malnutrition and malignancy has put the patient at risk of fulminant infection. Emphysematous cystitis usually has good prognosis if intervened at right time and treated with culture based antibiotics. But if this entity is not recognised early it can present with full blown haemorrhagic shock as in our patient. The mortality rate in emphysematous cystitis is reported to be 7%. We should have a high degree of suspicion, as early treatment will lead to successful cure of the disease but, if there is a delay in diagnosis patient can go into septic shock and have unfavourable outcome including death.

S9 3392

Endoscopy assisted laparoscopic transgastric resection of submucosal lesion at gastroesophageal junction: A novel technique. Bidarahalli Krishna Prasanna, Pramili Kaniyarakkal, Mathew Philip, Shaji Ponnambathayil, Satheesh Ipye, PVS Memorial Hospital, Kochi

Introduction: Submucosal lesions of the stomach are amenable to endoscopic removal and is a feasible method of treatment with good oncological outcome. But the endoscopic management of lesion at gastroesophageal junction with "J" maneuver is technically challenging. **The Case:** We present a case where endoscopy guided laparoscopic transgastric resection of a 3.8 cm sized submucosal lesion just below the gastroesophageal junction was done and thus avoided wedge resection and

gastrostomy and the related complications of GERD. The procedure was technically challenging because with "J" maneuver, the endoscopic view gave a mirror image to the surgeon. **Conclusion:** Endoscopy assisted laparoscopic transgastric resection of lesion near gastroesophageal junction is feasible and safe.

S10 3031

Palliative treatment of gastric cancer: An audit comparing primary surgery or chemotherapy. Selvakumar Balakrishnan, SGP GIMS, Lucknow

Introduction: Advanced/metastatic gastric cancer patients with gastric outlet obstruction (GOO), upper gastrointestinal bleeding (UGI bleed) or dysphagia are usually offered surgery for swift palliation, albeit with a high morbidity. We analyzed the effectiveness of primary surgery or chemotherapy in palliation of these symptoms. **Methods:** A retrospective analysis was undertaken between June 2007 and September 2015. Patients of biopsy-proven gastric adenocarcinoma with CT/surgical evidence of locally advanced/disseminated disease were included. GOO was inability to maintain nutrition with oral diet due to repeated vomiting. UGI bleed was any history of hematemesis, melaena or both. Dysphagia was inability to swallow solid food. Patients were divided into 2 groups- Group A, treated with palliative surgery primarily and Group B, treated by palliative chemotherapy primarily. 'Palliative surgery' included gastric resection/bypass (gastro-jejunostomy). Gastroparesis was inability to start orals by post-operative day 7/re-insertion of nasogastric tube. Post-operative bleed was any luminal/extra-luminal bleed. Combination chemotherapy with 2 (platin/fluoropyrimidine) or 3 drugs (including anthracycline) was preferred for 'Palliative chemotherapy'. During chemotherapy, GOO was managed with liquid diet, naso-jejunal (NJ) feeding, or self-expanding metallic stent (SEMS). **Results:** 139 patients underwent palliative surgery or chemotherapy: Group A- 87 patients and Group B- 52 patients. In Group A, of the 56 with GOO, 57.1% (n=32) improved and 42.9% (n=24) had gastroparesis. Of the 11 without GOO, new-onset gastroparesis developed in 36.6% (n=4). Overall 41.8% (28/67) had gastroparesis and 7 (25%) patients had indwelling NJ/FJ tubes at discharge. In Group B, of the 26 with GOO, 84.6% (n=22) improved to take soft diet after a median of 1 cycle (range 1-3) and 1 month (range 0.5-3.0) of chemotherapy. Only 4 had a SEMS placed. Of the 26 without GOO, 7.7% (n=2) developed new-onset GOO. Overall 11.5% (6/52) had persistent GOO after therapy. In Group A, of the 42 with UGI bleed, 90.5% (n=38) resolved, while 9.5% (n=4) had post-operative bleed. Of the 45 without bleed, 4.4% (n=2) had post-operative bleed. Overall 6.9% (6/87) had a post-operative bleed. In Group B, of the 14 with UGI bleed, 71.4% (n=10) resolved after a median of 1 cycle (range 1-2) and 1 month (range 1-1.5)

of chemotherapy and 28.6% (n=4) continued to bleed. Of the 38 without UGI bleed, 13.2% (n=13) developed new-onset tumor bleed. Overall 17.3% (9/52) had bleed during palliative chemotherapy. In Group A, 2 had dysphagia and both (100%) were relieved. In Group B, of the 9 with dysphagia, 88.9% (n=8) improved at a median of 2 cycles (range 1–2) and 1.5 months (range 1–2) of chemotherapy. In Group A, 54% patients had morbidity (18.4% above Clavien-Dindo grade 2) with reoperation, re-admission and death in 8%, 9.2% and 3.4% respectively. Overall, chemotherapy-related grade 3/4 toxicity was seen in 23.6% patients. The median overall survival was similar (A vs B 7 vs 6 months, $p=0.125$). **Conclusions:** Both palliative surgery and chemotherapy can be used to treat GOO, tumour-related bleed and dysphagia in advanced gastric cancer. Palliative surgery has a high morbidity and therefore, primary chemotherapy must be actively considered. Decision-making by multidisciplinary team with patient participation leads to best outcomes.

S11 3070

Study on the effects of bariatric surgery on Nonalcoholic fatty liver disease (NAFLD) using MR Elastography. Narendranath Nagoti, Lakshmi K, Global Hospital, Hyderabad

Introduction: NAFLD is the hepatic manifestation of metabolic syndrome and leading cause of chronic liver disease in the West. Though most studies report beneficial effect of surgically induced weight loss on liver histology, some studies have reported a few cases of worsening of fibrosis. Liver biopsy is the gold standard for staging of NAFLD, but disadvantages include sampling error, poor patient compliance, bleeding and death. MRE has sensitivity of 98% and specificity of 99% for discriminating hepatic fibrosis and can be used as non-invasive alternate for liver biopsy to detect NAFLD. (Abbreviations: NAFLD –Non alcoholic fatty liver disease, MRE- MR Elastography). **Aim:** To evaluate the outcome of bariatric surgery on NAFLD in morbidly obese patients before and 6 months after surgery done at our hospital with reference to improvement or deterioration of liver status as interpreted by biochemical labs, resolution of comorbidities and on MRE. These changes were also separately assessed according to the type of bariatric intervention. **Methods:** This study included 31 morbidly obese patients who underwent bariatric surgery at Global Hospital, Hyderabad between June 2015 and May 2017. Baseline anthropometry, clinical data, biochemistry, liver steatosis and stiffness (MRE) were recorded and repeated at follow-up after 6 months. **Results:** Out of 31 patients included in the study, 12 are diabetic, 15 are hypertensive, 13 have hypercholesterolemia and 12 have hypertriglyceridemia. They have a mean BMI of 43.7 kg and mean excess body weight of 59 kg. On index MRE, mean hepatic fat fraction is 16.13%. 15 have grade 1 fatty liver, 10

have grade 2 fatty liver and 6 have grade 3 fatty liver. Mean hepatic stiffness was 2.74. 8 patients have normal stiffness, 16 have inflammation, grade 1-2 fibrosis is seen in 4 patients and grade 2-3 fibrosis in 3 patients. After consent, 15 underwent sleeve gastrectomy and 16 gastric bypass (13 MGB+3 RYGB). After a mean follow up of 7 months, mean BMI is 34.4 and mean percent of excess body weight loss is 41.77%. Diabetes is completely resolved in 9 patients and partial resolution in 3. Nine patients has complete resolution in hypertension whereas 5 patients had decrease in dosage of antihypertensives. Hypercholesterolemia resolved in all 13 patients and hypertriglyceridemia in 10 out of 12 patients. With a mean hepatic fat fraction of 4.8, steatosis has resolved in 22 and improvement is seen in 9 patients. Mean hepatic stiffness is 2.66. Inflammation was resolved in 11 patients and stiffness is improved in 4. This improvement was consistent irrespective of the type of bariatric surgery performed. 3 patients had worsening of stiffness. None of the patients had a new development of fibrosis. **Conclusions:** Surgically induced weight loss significantly improves hepatic steatosis in morbidly obese patients with NAFLD. However, rapid weight loss can worsen liver fibrosis due to increased lipolysis with transfer of large amounts of long-chain fatty acids from visceral adipose tissue to the liver. Early identification and surveillance of these patients is therefore important, to avoid liver-related morbidity and mortality.

S12 3130

An analysis of 174 consecutive gastrectomy specimen reports for extent of lymphadenectomy and margin involvement- need for standardization. Pranav Honnavara Srinivasan, Madras medical college, Chennai

Introduction: D2 Gastrectomy, subtotal or total is the standard of care in management of gastric cancer as accepted by surgical community. The adequacy of D2 gastrectomy is determined by histopathological analysis of the gastrectomy specimen – which will predict information regarding survival of patient. **Aim:** To analyse the histopathology reports after gastrectomy regarding adequacy of surgical procedure (margin, lymph node yield), tumour biology (grade, histology, lymph node positivity, lymphovascular invasion) TNM staging and in relation to setting of surgery (emergency or elective). **Method:** Single centre study (2013-2016) of 174 consecutive gastrectomy specimens (96- subtotal, 78 total). The gastrectomy specimen was properly oriented, with the proximal and distal margins marked by the assistant surgeon and the nodes along the stations carefully dissected after extracting the specimen and sent separately for examination by the pathologist. **Results:** T1- nil, T2 -5 (all subtotal), T3 (81- subtotal, 67-Total gastrectomy), T4 (10 subtotal, 11 total). Most Subtotal gastrectomy specimens are moderately differentiated (55.2%), well differentiated

(5.2%), poorly differentiated (39.5%) with lymphovascular invasion in 36.4% (n=35) and an adequate lymph node yield (>15) of 81.25% (n=78). Most Total gastrectomy specimens are poorly differentiated (71.7%), moderately differentiated (24.3%), well differentiated (3.8%) with lymphovascular invasion 66.7% (n=52) and an adequate lymph node yield of 91% (n=71). Lymph node yield was higher in total (mean-18.17, range-12-27) than subtotal gastrectomy (mean- 15.64, range- 1-25) specimens. R1+ margins were seen in 10.41% of subtotal gastrectomy (n=10) involving the proximal margin (80%) especially in antral tumors involving the lesser curve. R1+ margins were seen in 8.9% of total gastrectomy specimens with the type of margin involved being proximal margin in all (100%). Larger macroscopic tumor size, poorer histology increased lymph node ratio, emergency surgery and lack of specialized technical expertise were significantly correlated with margin positivity irrespective of type of gastrectomy. Emergency surgery (10- subtotal- 8, total -2) when compared to elective surgery (subtotal- 88, total- 76) showed more specimens being R1+ (14.4%), elective (8.2%), less number of nodes harvested (10.2 emergency vs 15.8 in elective). Higher margin positivity is related directly to tumor being more proximal in location, higher T stage, poorer grade of differentiation, emergency surgeries and subtotal resection. **Conclusion:** Total gastrectomy specimens are associated with higher lymph node yield, positivity, histological grade and lymphovascular invasion than subtotal specimens reflecting the biological aggressiveness of these tumors which must have mandated wider resection in the first place. Irrespective of type of gastrectomy, proximal margin is most commonly involved margin. Involvement along the lesser curve for subtotal and GE junction tumors in total gastrectomy specimens in emergency setting are most associated with R1 resection revealing a role for frozen section in this group even in emergency setting.

E-video

EV8 3432

Laparoscopic Management of large gastric GIST. Azaz Ahmed, JKA Jameel, Apollo Hospitals, Chennai

GIST is the most common mesenchymal neoplasm of GIT. Around 60% of GIST occur in stomach. Laparoscopic excision in recent age has proven that it is well associated with low morbidity, mortality, fast recovery, less pain and sound oncologic outcomes. Here, we present a video of laparoscopic excision of large gastric GIST. A 52 year old lady presented with hematemesis and melena. On evaluation, she was found to have anemia and endoscopy showed submucosal nodular tumour. CT scan was consistent with GIST of stomach arising from fundus of stomach. She underwent laparoscopic excision of GIST with good perioperative period. Histopathology

was consistent with GIST and margins were negative. This video demonstrates advanced laparoscopy and meticulous techniques and tips which should be followed in dealing with such large tumours.

EV24 3185

Video abstract: laparoscopic sleeve gastrectomy- how do I do it? Dr Ram Raksha Pal, Dr Deepak Mittal, Dr Perungo Thirumaraichelvan, Dr Rahul Jaiswal, Dr Sanjay Patolia, Dr Mahendra Narwaria

Introduction: Laparoscopic sleeve gastrectomy is one of the common operation done for treatment of obesity. Although technically easier to perform than most other bariatric procedures but minute technical details are of utmost important to avoid complications. Our technique to perform sleeve gastrectomy is easier to master and help in good operative outcome. **Material and methods:** edited video of laparoscopic sleeve gastrectomy showing all important steps. Our technique comprise of 4 port technique with initial incomplete dissection at greater curvature (only window into lesser sac), dissection of angle of His, retro-gastric dissection to free the fundus and left crus which is facilitated by GCT in the antrum so that the stomach can be lifted anteriorly. Successive firing of multiple Endo GIA staplers to create a sleeve keeping in mind that it should be having equal anterior and posterior wall, should not be very tight, torsion free and 1 cm fundus should be left at angle of His. Last step is to free the excised stomach from greater omentum and its delivery by 12 mm right pararectal port. **Discussion:** while doing sleeve gastrectomy if we free the complete greater curvature of stomach upto angle of His, the stomach becomes difficult to manipulate for stapling. Getting a good shape sleeve is easier if we keep its natural support during stapling. We keep GCT inside antrum which help us lifting the stomach anteriorly and facilitate retrogastric dissection. **Conclusion:** Our technique of sleeve gastrectomy is easy to learn/ replicate, minimizes complications and ease the surgery. Comparative studies can be done to establish its superiority.

EV25 3490

Video presentation: Laparoscopic D2 gastrectomy. Deep Goel, Souvik Paul, Ravindra Vats, V P Bhalla, BLK superspeciality hospital, New Delhi

The D2 lymphadenectomy is standard of care for resectable gastric cancer. Laparoscopic D2 gastrectomy is now becoming popular. The oncological outcomes, lymph nodal yield and safety of both conventional and laparoscopic D2 gastrectomy are comparable. In this video we present our technique of laparoscopic D2 gastrectomy based on our experience with 44 patients from 2013 till date. The lymph nodal yield was adequate. There were no major per operative complications and no mortality.

Oral paper**IM1 3084**

Impact of re-feeding in patients with proximal jejunostomy: An Indian perspective. Anand Nagar, Siddharth Mehrotra, Amitabh Yadav, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi

Introduction: Patients who have a proximal jejunostomy are difficult to manage because of their high stoma output which results in frequent episodes of fluid and electrolyte imbalance with hospital admissions and expensive parenteral nutrition (PN). There are few reports on the use of re-feeding of their effluents into the distal bowel— a simple, safe and low cost practice. We here relate our experience between Jan 2010 and Feb 2016 with this manouevre in 35 patients who had jejunal openings less than 120 cm from the duodeno jejunal flexure. **Results:** There were 26 males and 9 females who had a median age of 47 (range 19-74) years that were managed with distal re-feeding for high stoma output. The most common indications for the proximal stoma were intestinal gangrene in 25 (71%) of whom 20 (80%) had mesenteric venous and 5 (20%) had arterial thrombosis and intestinal perforation in 7 (20%). The median proximal and distal small bowel lengths were 45 (range 15-120) cm and 90 (range 0-240) cm respectively. The ileo-caecal valve was preserved in 33 (94%) and there was only colon distally in 2 (6%) patients. 25 (71%) required post-operative ICU care. Re-feeding was done in all patients. Additional PN was required in 6 (17%) patients during their index admission. Their median hospital stay was 13 (range 6-60) days. All the patients were discharged without intravenous lines. 8 (23%) patients required readmissions for acute renal failure which was managed conservatively. No major complications were associated with re-feeding. The average extra cost of treatment was 9-45,000 (median 20,000) rupees. None of patients required PN after discharge from hospital. 30 (86%) patients had their stomas close at a median time of 65 (range 14-224) days. Both the patients with colon only as distal bowel expired, mortality was significantly less in patients with preserved ileo-caecal valve [7/33 (21%)]. Sepsis was the cause of mortality in 4 (11%) patient who died during index admission and 3 patients after their discharge from the hospital. In the long term follow up 2 patients died after 1 and 10 months, both were due to intracerebral bleed. Survival at 1 and 3 years was 74%. **Conclusions:** Patients with proximal jejunostomy can be managed with distal re-feeding. It is cost effective and associated with few complications.

IM2 3307

Scope induced type I duodenal perforations: Clip or Surgery? Amol Dahale, Siddharth Srivastava, Sundeep Singh Saluja, Sanjeev Sachdeva, Shivakumar Varakanahalli, GB Pant Institute of medical education and research, New Delhi

Introduction: Scope induced duodenal perforation (type I Stapfer) of duodenum is life threatening complication and surgery remains standard of care. With advent of over the scope clip (OTSC), scope perforations are increasingly managed using OTSC. We compared outcomes of OTSC and surgery in management of scope induced perforation of duodenum. **Methods:** The records of patients with scope induced duodenal perforation between September 2008 to December 2016 managed at tertiary care center were reviewed from the database. Those identified and treated within 24 hours of procedure were included in the study. The epidemiology, aetiology, baseline parameters, perforation size, morbidity, mortality and duration of hospital stay were compared among the two groups. **Results:** Among the 20 patients with type I duodenal perforations managed, five were excluded from analysis due to delayed diagnosis and treatment. Of fifteen patients, five were treated with OTSC placement while remaining 10 underwent surgery. The baseline parameters including age, sex aetiology and co-morbidities were comparable in both groups. Median size of perforation was 1.5 cm in both OTSC and surgical group. All patients treated with standard of care according to institutional protocol. Patients in OTSC group were started orally after 24-48 hours of OTSC, as compared to 7 days in surgery group. The overall mortality was 2/10 in surgical group and 0/5 in OTSC group (p=0.52). The morbidity was significantly higher in surgical group (7/10 vs 0/5; p=0.02). The Median hospital stay was significantly less in OTSC group compared to surgery group (2 vs 22 days p=0.003). **Conclusion:** OTSC is feasible and probably better option in patients with type I duodenal perforation managed within 24 hours of diagnosis with lower morbidity and shorter hospital stay.

IM3 3318

Ileostomy closure: not always a simple procedure. Amrit Pipara, Tshering Doma Bhutia, Prem Varghese Thambi, Manas Kumar Roy, Subir Sinha, Robin Thambudorai, V Sitaram, Sudeep Banerjee, Tata Medical Center, Kolkata, Sikkim Manipal Institute of Medical Sciences and Central Referral Hospital, Gangtok and University Hospital of North Tees Stockton, UK

Introduction: Loop ileostomy is created to reduce the consequences of (distal) anastomotic failure following colorectal resection. Ileostomy closure is presumably a simple procedure and often relegated to junior surgeons. However, studies have shown significant morbidity following the closure of loop ileostomy. **Aim:** To audit our experience of ileostomy closure. **Methods:** This is a retrospective analysis of data retrieved from a prospectively maintained database (REDCap, EMR and Excel). The study period is January 2012 to December 2016. **Results:** One hundred twelve patients underwent loop ileostomy closure. Two were excluded (one had liver resection along with ileostomy closure; another needed re-exploration for intestinal obstruction 10 days after Hartmann's reversal). Demographic data: 43/110 female, mean BMI 23.44 (SD 3.79). Loop ileostomy was usually done after low/ ultra-low anterior resection for carcinoma rectum (86). All but one patient had closure through peristomal elliptical incision. Technique of ileostomy reversal: simple anterior wall closure (19), side to side hand sewn (46), side to side stapled (23), resection with end to end anastomosis (16), end to side anastomosis (6). The median post-operative hospital stay was 5 days (range 2-22). Fifty-six patients had morbidity post-operatively; 21 had more than one complication. Complications were: superficial surgical site infection (25), prolonged ileus (9), intestinal obstruction (8), anastomotic leak (3), electrolyte disturbance (4), septicemia (8), colonic pseudo-obstruction (5), and incision site hematoma (2). Four were re-admitted: intra-abdominal collection (2), peritonitis (1) and colonic pseudo-obstruction requiring colonic decompression (1). Six patients were re-operated: anastomotic leak (3), obstruction at ileo-ileal anastomosis (1), unrecognized rectovaginal fistula on distal colonogram requiring transverse loop colostomy at same admission (1), ileal perforation proximal to the anastomosis (1). Seven patients developed incisional hernia (median follow up 20 months). Two patients died. **Conclusion:** Morbidity associated with ileostomy closure should not be underestimated. Assessment of distal alimentary tract and meticulous surgical technique are important.

IM4 3387

Risk factors for index surgery in Crohns disease in an Indian setup. Prashant R Rao, Satheshsh Iype, Kamalesh NP, Mathew Philip, PVS Memorial Hospital, Kochi

Introduction: Crohn's disease is a chronic incurable inflammatory bowel disease that is gradually becoming more prevalent in India India. Despite appropriate medical treatment, almost 74% of patients will require surgery at some point in their disease course. In this study, we aimed to identify the risk factors and indications for first surgery in Indian CD patients. **Methods:** The clinical records of 90 consecutive CD patients operated at PVS Memorial hospital between January 2015 and January 2017 were

reviewed. Clinical factors, including gender, age at onset and at diagnosis, symptomatology, investigations, disease location and pattern, medical treatment history and surgical details were examined, and compared with the characteristics of 156 CD patients being medically managed during the same time period. **Results:** The operated group, with a male preponderance (1.57:1), had a mean age of 34.51 (range=12-68). Simultaneous involvement of small intestine (SI) and colon (LI) was the most common disease location followed by involvement of only LI (13%)>only SI (11%). Sticturing (S) pattern was most commonly identified pattern (86.66%) with fistulising (F) (11.11%) and NSP (2.22%) pattern being less common. Most common indication was SAIO>acute intestinal obstruction>intractable disease>perforation. Most common procedure performed was ileo-cecal resection. The control group was matched in terms of age and gender. Bowel involvement was SI+LI (62%)>SI (21.7%)>LI (16%), with most common pattern being NSP (50%)>S (39.1%)>P (8%)>S+P (2%). Simultaneous involvement of both SI & LI and a stricturing disease pattern were found to be significant risk factors for first surgery on univariate analysis where as patients with NSP pattern were found to be more likely to be managed medically. **Conclusions:** Simultaneous involvement of small and large intestine and a stricturing pattern are risk factors for surgery with most common indication being obstruction. Patients with NSP pattern is more likely to be managed medically.

IM5 3506

Surgery for Intestinal Fistulas: A 20 year Experience of a GI surgical unit. Suresh Kumar, Aditya Manke, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Amitabh Yadav, Samiran Nundy, SGRH Delhi

Introduction: A fistula is defined as an abnormal communication between two epithelialized surfaces. Intestinal Fistula is an abnormal anatomic connection between a part (or multiple parts) of the intestinal lumen and lumen of another epithelialized structure or skin. A majority of such fistulas are iatrogenic and occur following abdominal surgeries. Other causes of spontaneous fistulas include chron's disease, diverticular disease, underlying malignancy and radiation enteritis. EC fistulas are associated with high morbidity and mortality due to septic complications from intra-abdominal infection, electrolytes imbalance and malnutrition. The goal of surgical management of an intestinal fistula is to restore GI continuity and allow enteral nutrition with minimal morbidity and mortality. In this study, we present our experience with surgical management of Intestinal Fistulas. **Methods:** This is a retrospective study where data was gathered from a prospectively maintained electronic database. A total 356 patients were operated between 1996 to 2017 operated at Department of Surgical Gastroenterology and Liver

Transplantation at Sir Gangaram Hospital New Delhi for intestinal fistula which were included for analysis in this study. **Results:** A total of 356 patients were operated between 1996 to 2017 of which males were 197 (55.3%) and females were 159 (44.6%). The median age of patients was 42 years (31.75-55.25). The Median hospital stay was 11 days (6-22). Majority of patients had origin of their fistula from small bowel 52.8% (n=52.8%) followed by Colonic in 19.1% (n=68), Rectal 16.8% (n= 60) and remaining 11.2% from Stomach or Esophagus (n=40). The total 90-day mortality in our series was 38 (10.67%). Mortality was higher in Females 11.9% (n=19) as compared to males 9.6% (n=19). Site specific Mortality was highest for those patients operated for fistula from stomach or esophagus which was around 22.5% (n=9) followed by 10.6% (n=20) for small bowel fistula, 9% (n=8) for colonic fistulas and 2% (n=1) for rectal fistulas. **Conclusion:** Surgery for intestinal fistula is associated with a significant mortality risk which was around 11% in our series. The mortality risk was highest for those patients who were operated for a fistulous communication with the upper GI tract (Stomach/ Esophagus) and was least for those who had a fistula from the rectum.

Poster session

IN1 3032

Radio-guided surgery with intraoperative endoscopy may substitute Whipple resection in high operative risk patients with multiple low-grade neuroendocrine duodenopancreatic tumours. Vinay Samuel Gaikwad, Paras Hospital, Gurgaon

Introduction: Major abdominal surgery in patients with cirrhosis carries a significant risk of hepatic decompensation. In relatively indolent tumors such as low-grade neuroendocrine tumors, organ preservation is often sufficient to afford cure. Intraoperative assistance of nuclear medicine and endoscopy can assure complete tumour removal while avoiding major debilitating surgery. We describe a case scenario where these techniques have been utilized effectively. **Methods:** A 56-year-old lady with Child A cirrhosis presented with symptoms of acidity and flushing. An upper endoscopy reported multiple lesions from D1 till the distal D2 (around 15 lesions), which were confirmed on histopathology to be grade 1 neuroendocrine tumors. A 68Ga-PET did not reveal extraduodenal disease. She had a history of decompensation and the risk of a Whipple procedure was unacceptably high. **Results:** We performed radio-guided surgery using a hand held gamma probe, which detected an additional pancreatic head deposit. Intraoperative endoscopy was used to mark the proximal and distal extent of the duodenal lesions. A duodenotomy was then performed and each lesion was excised and repaired. Regional lymphadenectomy was

also performed. The patient recovered smoothly and is disease and symptom free for 21 months. **Conclusion:** Intraoperative techniques such as radio-guided and endoscopic localization can assist in organ preservation, while ensuring complete tumour removal in selected patients with suitable results.

IN2 3074

Varied presentation of delayed Ischemic Intestinal stricture following Blunt trauma Abdomen. Dinesh Kumar, Rajiv Gandhi Govt Gen Hospital, Chennai

Introduction: Intestinal injuries occurs in 5-16% of cases of blunt abdominal trauma. Intestine is the 3rd most commonly injured organ. Small bowel is most commonly involved than colon which accounts for only 3-5%. The presentation is generally acute, with Intestinal perforation and mesenteric vascular injury and inevitably needs laparotomy. In patients who are hemodynamically stable, with no peritoneal signs the management is usually conservative. Due to advances in abdominal imaging with high diagnostic reliability more and more patients are managed non operatively. Vascular compromise of a segment of bowel with stable hemodynamic parameters, is usually managed conservatively. These patients, later can present with abdominal pain or subacute intestinal obstruction due to bowel stricture. Because of its rarity, it leads to both diagnostic and therapeutic difficulties.

The Cases: Case 1: 36 yrs male had 10 days history of abdominal pain, distension, vomiting. Three months back he sustained RTA. CECT of the abdomen and pelvis done at that time revealed Grade 3 liver injury involving seg 5/8 with thickening of the transverse colon. Patient was managed non operatively. Now presented with distended abdomen. CECT showed dilated small and large bowel loops (9cm) with multiple air fluid levels. A diagnosis of Subacute intestinal obstruction was made and the patient was placed on nonoperative management. But pain and distension persisted, so Diagnostic laparoscopy done showed dilated small bowel loops and dilated right colon with a stricture at midtransverse colon which was found to be hard and fibrotic, raising the suspicion of neoplastic growth. Hence right Hemicolectomy with Ileotransverse Anastomosis was performed. Histopathology of the resected specimen showed chronic non-specific inflammation. On follow up, the patient is doing well. Case 2: 31 yrs male had 3 month history of abdominal pain, distension, vomiting. He sustained RTA causing liver injury which was managed nonoperatively one month prior to the onset of these symptoms. Now presented with distended abdomen with mild tenderness. Esophagogastroduodenoscopy showed bile stasis in the stomach. Colonoscopy was normal. CECT showed thickening and long segment narrowing (6.5cm) of the small bowel with a fluid density noted in between the bowel loops, suggestive of an abscess. Diagnostic

laparoscopy confirmed the CECT findings and the long segment stricture juxtaposed to the abscess cavity, 120 cm from the DJ flexure was resected along with the interloop phlegmon and a primary small bowel anastomosis was performed. HPE showed chronic non-specific inflammation. On follow up patient is symptom free. **Conclusion:** Post traumatic bowel stricture is therefore a viable differential diagnosis in these patients with history of RTA who were managed non-operatively. In these patients laparoscopy offers the advantage of both securing the diagnosis and definitive treatment. Owing to the paradigm shift towards non operative management of BAT in recent years, more and more cases of delayed bowel stricture are to be expected. Timely management and Resection of the affected segment is both diagnostic and therapeutic.

IN3 3086

Ileovesical fistula- 8 year after post radiation for uterine cancer post surgery. Jignesh Maganbhai Patel, Mamta Hospital, Surat

An ileovesical fistula is a rare complication of post radiation for uterine cancer post surgery 8 year back. It presents with recurrent abdominal pain, pneumaturia, fecaluria, recurrent urinary tract infection, and dysuria. A 71-year-old female presented with an ileovesical fistula, which was diagnosed by clinical history, and computed tomography (CT) cystography. Exploratory laparotomy, an excision of the fistulous tract, bladder repair, and ilio-transverse anastomosis were performed. The histopathological examination of a resected, affected ileal segment showed chronic inflammation without atypia. Unfortunately patient was expired due to age related co morbidity and sepsis.

IN4 3099

A Rare Case Diffuse Entero-Mesenteric Lipomatosis With Intussusception. Shrishail Sadashiv Hanagandi, Sanjeev Patil, Ranjit Rao, Aviral Jain, Prdeep R, Guduru Venkat Rao, D N Reddy, Asian Institute Of Gastroenterology, Hyderabad

30 year female presented with history of colicky abdominal pain, distension, vomiting and constipation since 10 days patient gives similar history since 13 years, when she undergone small bowel resection and anastomosis, and later admissions she was managed conservatively. CECT showed multiple fat-density tumours in small bowel and colon with ileo-ileal intussusception. At laparotomy there were innumerable submucosal lipomas involving, small bowel and its mesentery, colon and its mesocolon, with predominantly the diseased segment being terminal ileum with long segment irreducible intussusception. Bowel proximal to intussusception was grossly dilated also containing multiple smaller lipomas. Ileocaecal resection and anastomosis was done. Pathology confirmed the diagnosis of diffuse intestinal lipomatosis, identifying extensive submucosal lipomas in the small bowel and it's

mesentery. Her post-operative course was uncomplicated and she remains symptom-free at 3 months after surgery. Symptomatic diffuse intestinal lipomatosis is a very rare condition with variable presenting symptoms. It is readily diagnosed by cross-sectional imaging and treated by surgical resection of the intestinal segments causing symptoms. The etiology may involve fetal somatic genetic mutations.

IN5 3119

In Sequale of Chronic mesenteric ischaemia- Is Diagnostic Laparoscopy useful? Livin Jose, Villalan Rex, Amudhan Anbalagan, Rajendran S, Naganath Babu OL, Madras Medical College, Chennai

Introduction: Chronic mesenteric ischaemia (CMI) is relatively rare condition that accounts for only 5% of mesenteric vascular thrombosis compared to acute mesenteric ischaemia which is around 60-80%. Initially most patients can be managed conservatively. These patients later on can develop intestinal stricture due to mild and moderate effect of thrombosis on the bowel. Laparoscopy has become increasingly popular as a diagnostic tool in these cases. Hence, we present our experience with the use of laparoscopy in the diagnosis and management of the sequale of CMI. **The Cases:** Case 1: 41 yr old male a known case of Descending thoracic aortic thrombus with splenic infarct on anticoagulants presented to us with history of abdominal pain, loss of weight and ball rolling movements of 1 month duration. His biochemical investigations were normal. CT angiogram revealed an eccentric thrombus in descending aorta- 12cm with 30-40% occlusion; eccentric thrombus near origin of IMA; IMA normally opacified and evidence of thrombus in SMV. Barium meal series showed focal dilatation with terminal ileal mucosal thickening. In view of his physical findings a diagnostic laparoscopy was planned which revealed a stricture in the terminal ileum about 20 cm from the ileocaecal region for which an Ileal resection and primary anastomosis was done. Case 2: 36 years old male, a chronic smoker with history of bilateral claudication pain of 2 months duration presented with abdominal pain, loss of weight and ball rolling movements of 1 month duration. CT angiogram depicted a long segment occlusion of 15mm in the SMA just beyond its origin with distal reformation. Vascular surgery opinion suggested that single vessel disease need not be revascularised. Laparoscopy was done and showed Proximal jejunal stricture about 40cm from DJ flexure and dilated loops proximal to the stricture for which jejunal resection and anastomosis was done. Pt had an uneventful recovery. **Conclusion:** Chronic abdominal pain in patients with chronic mesenteric ischemia is not only due to vascular origin but can be due to sequale of mesenteric ischemia like intestinal strictures. High clinical suspicion with early diagnostic laparoscopy is the key to diagnose these cases.

IN6 3146

CMUSE- A rare entity. Series of two cases causing obscure gastrointestinal bleed. Siddhant Vijay Mathurvaishya, Navneet Tiwari, Guduru Venkat Rao, Pradeep Rebella, Asian Institute Of Gastroenterology, Hyderabad

Aim: To study presentations of CMUSE in Indian population causing GI bleed. **Methods:** Retrospective analysis of medical case records was done and data regarding demographics and presentation and management was collected and analysed. **Results:** Two cases of CMUSE were presenting with obscure GI bleed were found. Case 1 was that of a 10 year male child presenting with intermittent melena and anaemia. He had normal upper GI scopy and colonoscopy along with normal capsule endoscopy. He underwent intraoperative enteroscopy which revealed ulceration in jejunum with slow ooze and after taking biopsies argon plasma coagulation was done on the ulcer and bleeding was controlled. Biopsy was suggestive of CMUSE and he was managed conservatively. Case 2 was that of 60 years old male who was having overt GI bleed for 20 days before presentation. Patient had a normal upper GI scopy and colonoscopy and CT angiogram. He was subjected to exploratory laparotomy and intraoperative enteroscopy which showed multiple areas of stricture and single area of significant stricture with fresh bleeding from the ulceration. The diseased segment of small bowel was resected and biopsy of the same revealed CMUSE. **Conclusion:** CMUSE is a rare clinical entity which presents with GI bleed and stricture. Diagnosis is mostly histopathological and requires high suspicion on the part of pathologist.

IN7 3161

Complicated Jejunal diverticulosis: A case series. Satya Prakash Jindal, Adithya GK, Varun Madaan, Vachan S Hukkeri, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi

Introduction: Small bowel diverticulosis is a rare clinical entity as compared to large bowel diverticulosis. These are generally false diverticulae lacking a muscular wall. Intestinal dyskinesia, abnormal peristalsis and increased intraluminal pressure are implicated in its etiology. The sites of occurrence are most commonly in the duodenum and rarely in the jejunum or ileum. They are usually asymptomatic and are being increasingly diagnosed as an incidental finding on abdominal imaging. They may present with non-specific chronic symptoms or acute complications. Pain abdomen is the usual presentation, while some patients present with malabsorption syndrome. Acute complications of jejunal diverticulae include obstruction, haemorrhage or perforation. The nonspecific nature of the symptoms coupled with the

relative rarity of this clinical entity can make the diagnosis challenging. A high clinical suspicion is usually required to make a diagnosis in such cases. **Method:** Retrospective analysis of our data was done from year 2008 to 2016. All cases of jejunal diverticulae treated during this period were selected and detail analysis was done. **Results:** We present a series of nine cases of complicated Jejunal diverticulae. Five patients presented with gastrointestinal bleed and four patients presented with features of perforation. Among five patients presented with hemorrhage, four patients were diagnosed preoperatively with jejunal bleed and one patient was diagnosed with jejunal diverticulae only at surgery. Among them, two patients were diagnosed by CT angiography, one patient by MR angiography and one patient with push enteroscopy. All four patients, who presented with perforation peritonitis underwent laparotomy with preoperative diagnosis of perforation peritonitis and found to have jejunal diverticulae only at surgery. All were eventually managed with resection and anastomosis of the involved small bowel. We observed that Jejunal diverticulae which bleed were pseudodiverticulae on mesenteric border of jejunum while the diverticulae with perforation were true diverticula on antimesenteric border. **Conclusion:** Although, jejunal diverticulae is considered to be a rare entity, but this is increasingly being seen. So one should keep the possibility of this diagnosis, in case of obscure gastrointestinal bleed and unexplained itiology of perforation peritonitis.

IN8 3188

Typhoid Fever Masquerading Tubercular Ileal Perforation- A Rare Case Report. Anusha Dudaka, Sudharshanan S, Elamurugan TP, Jagdish S, JIPMER, Pondicherry

Introduction: Ileal perforation is one of the most dreaded complications of abdominal tuberculosis. It is more common in immunodeficient patients, where ulcerative type of intestinal tuberculosis predominates. Various factors play a role in the outcome of these patients like age, co-morbid illness, though the lag period (advent of symptoms to time of admission to hospital) correlated directly to the mortality in these patients. Herein we present a 28 year old male who had a co-infection of typhoid fever along with intestinal tuberculosis. **The Case:** The patient presented with abdominal pain and fever for one week duration. On examination, he had diffuse tenderness of his abdomen with guarding. X-ray revealed free air under diaphragm. The patient underwent limited resection of terminal ileum and caecum with end ileostomy for ileal perforation. The patient's serum Widal test was positive and blood culture grew *Salmonella typhi* and the patient was started on intravenous antibiotics based on culture and sensitivity. The patient's general condition worsened after one week with bile leak from the surgical site. The patient succumbed

to severe sepsis. Postoperative histopathology of the resected ileocaecal segment showed features of ileocaecal tuberculosis. **Conclusion:** As typhoid is a common cause of ileal perforation in the developing countries, the co-existence of typhoid fever in this patient lead to the delay in the diagnosis and appropriate management of tubercular ileal perforation. Knowledge about various causes of typhoid perforation and complete work up of these patients can produce improved clinical outcome in these patients.

IN9 3262

Laparoscopy in obscure partial small bowel obstruction: An effective diagnostic and therapeutic tool. Ameet Kumar, CK Jakhmola, Command Hospital Air Force, Bangalore and Base Hospital, Delhi Cantt.

Introduction: Small bowel obstruction (SBO) is a common emergency. Adhesions due to a previous surgery are the cause in upto 60% of these cases. The other two major causes are tumors and hernia. Those presenting with a complete SBO would undergo surgery for their condition. In those whom an adhesive etiology is suspected due to a previous abdominal surgery or inflammatory condition, are given a trial of conservative management. In a subset of patients who present with partial SBO and have no previous abdominal surgery, it is our belief that the cause for the obstruction should be actively pursued notwithstanding the fact that the intestinal obstruction has resolved. To this effect we have used laparoscopy as an additional investigative tool to diagnose the cause and also manage it in the same sitting. **Methods:** This was a retrospective review of a prospectively maintained database of all SBO cases managed at our centre between Jan 2014 to Jan 2017. The inclusion criteria were patients with partial SBO that resolved on conservative management. Exclusion criteria were those with previous abdominal surgery or hernia as the etiology or with an obvious cause picked up on imaging or with complete SBO. All such patients whose etiology, after initial work up which included atleast one cross sectional imaging, remained unknown were subjected to diagnostic laparoscopy. **Results:** 14 patients (8 males) met these narrow inclusion criteria. The median age was 33 years (9-49 years). A diagnostic laparoscopy established diagnosis in 13/14 patients. Per-operatively, the cause in one patient was not identified and of the remaining 13, 5 had strictures, 3 had congenital bands, 1 patient each had a meckels diverticulum with a mesodiverticular band, a jejunal diverticulae, a NSAID enteropathy, an intussusception due to submucous lipoma and an idiopathic sclerosing encapsulating peritonitis, respectively. All 13 patients were operated upon laparoscopically. The surgeries done were segmental small bowel resection and anastomosis in 8, division of band in 3, Meckels diverticulectomy with division of band

in 1 and adhesiolysis in 1 patient, respectively. The mean duration of surgery was 77+/-16 minutes. Two patients had post op complications (SSI). The histopathology of the 5 strictures included tuberculosis in 2, crohn's disease in 1, non specific inflammation in 1 and ischaemic stricture in 1 (due to mesenteric tear following abdominal trauma sustained a few months ago). The patient with no apparent cause during diagnostic laparoscopy remains symptom-free after 23 months of follow-up. The other 13 patients too are doing well. **Conclusions:** In a laparotomy naive patient with partial small bowel obstruction, it is important to know and treat the cause as they would be repeatedly hospitalized with similar complaints or go on to have a complete intestinal obstruction. A diagnostic laparoscopy is an effective investigative tool in such cases and a laparoscopic management is feasible in such patients.

IN10 3476

Isolated drain site metastasis after open resection in ileal adenocarcinoma- An uncommon site. Saheer N, Saheer Neduvancehry, Prasanth Penumadu, Sivasanker M, Suneel Kaushik, JIPMER, Puducherry

Although port site implants have been described after laparoscopic resection for gastrointestinal malignancies, drain site metastasis in solid intrabdominal tumour after open resection is a rare phenomenon. Only few cases have been reported in literature describing drain site metastasis after open resection for carcinoma colon, stomach and cervix etc. Isolated drain site metastasis is even rare. To our knowledge drain site recurrence after laparotomy for ileal cancer has not been published. We report a 50-year-old gentleman who had undergone laparotomy and ileal resection for distal ileal adenocarcinoma presented with an isolated drain site metastasis after one year of completion of chemotherapy.

IN11 3477

A rare case report of Actinomycosis causing intra-abdominal band and intestinal obstruction. Byshetty Rajendar, JIPMER, Pondicherry

Introduction: Actinomycosis has widely varied clinical presentations ranging from asymptomatic to mass lesion mimicking as malignant abdominal disease and is described as one the most misdiagnosed diseases. *Actinomyces israelii*, a normal commensal of bronchial and gastrointestinal tract is responsible for the majority of cases of Actinomycosis in human. Our case illustrates a rare clinical presentation of abdominal actinomycosis with an intra-abdominal fibrotic band that led to small bowel obstruction. **The Case:** A 67 year old lady presented to us with complaints of diffuse colicky abdominal pain, abdominal distension and multiple episodes of vomiting for 6 days. Patient had constipation for 6 days and obstipation

for 1 day. There was no history of Tuberculosis/Diabetes Mellitus/Hypertension/Bronchial Asthma/Coronary artery Disease. No history of IUD insertion/ recent surgeries. On examination she was conscious, oriented and vitals were stable. Abdomen was soft, distended; diffuse tenderness with guarding was present. Bowel sounds were exaggerated. Management: CECT revealed terminal ileal stricture close to IC junction for which exploratory laparotomy was done. On laparotomy a granular mass (3X2 cm) at the base of mesentery and a right ovarian nodular growth (2 X 2cm) was found and a dense fibrotic band was present between them, causing intestinal obstruction with a transition zone at 10 cm proximal to the IC junction. The mesenteric mass and the fibrotic band was excised in toto along with right oophorectomy and sent for histopathological examination. On microscopic examination Actinomycis species was identified and a diagnosis of abdominal actinomycosis was made. **Conclusion:** Our case illustrates a rare presentation of Abdominal actinomycosis with band formation leading to small intestinal obstruction. High index of suspicion is needed for early diagnosis and treatment.

IN12 3478

Is Delayed Laparoscopic Appendectomy Better Than Prompt Open Appendectomy? Ashwitha Shenoy, S Kumaravel, JIPMER, Pondicherry

Acute appendicitis is one of the most common pediatric surgical emergencies requiring surgical interventions. However there exists extensive controversy even now on investigations for evaluation of suspected appendicitis, management of simple appendicitis, the prudence of delaying surgery to convert to a semi-emergency setting or avoiding surgery completely during first attack, and superiority of laparoscopic versus open appendectomy. One such controversy i.e delaying surgery to treat as semi-emergency was evaluated by us. **Methods:** This is a prospective study, comprising of consecutive children with appendicitis treated over a period of three years (January 2014- Jan 2017). All children below 13 years of age who underwent appendectomy (Open/ Laparoscopy) following a diagnosis of acute appendicitis were included in our study. All interval appendectomy were excluded. The parameters evaluated were duration of hospital stay from admission to surgery and from surgery to discharge in days, laparoscopic and open appendectomies, surgical site infection, stump appendicitis, residual abscess, intestinal obstruction and readmission. **Results:** Out of 210 patients, who underwent Open appendectomy (OA) and Laparoscopic appendectomy (LA). There was no difference between age and sex between the two groups. The Mean preoperative hospital stay for OA was 0.634 while for LA was 2.9 days $p < 0.001$). The mean postoperative hospital stay was 4.16 for OA and while 2.89 for LA- $p < 0.001$). 26.9% had SSI in Open group and 4.8%

had SSI in Laparoscopy which was statistically significant ($p < 0.0005$). Seven patients in Open group and four patients in Laparoscopy had other major complications (other than SSI) including readmission that were comparable and difference not statistically significant. **Conclusion:** Delaying surgery to provide the benefits of laparoscopy is superior to open surgery in terms of SSI rate, length of hospital stay and also equivalent in terms of major complications including readmission.

IN13 3078

Effect of seasonal variation on mesenteric ischaemia: Drought kills in more than one ways. Suresh Babu, Navneet Ashok Tiwari, G V Rao, Pradeep R, Asian institute of Gastroenterology, Hyderabad

Aim: To ascertain the effect of season on mesenteric ischaemia. **Methods:** All patients with mesenteric ischaemia in between 2009 and 2016 were studied and their demographic data, presentation, type of ischaemia, month and season of presentation, pro-coagulation work up and know prothrombotic states and outcomes were measured. All categorical variables were tested with Chi-square test and univariate analysis where applicable and Student's t-test and ROC curve analysis for continuous variables were performed using IBM-SPSS 21. **Results:** A total of 207 cases of mesenteric ischaemia were treated during the study period. Of these 6 cases were in known EHPVO cases and 6 cases of NOMI, 56 cases of arterial and rest 139 cases were of venous ischaemia. Men were more likely to have mesenteric ischaemia compared to women and individuals in their 3rd decade to 6th decade were more likely to suffer from mesenteric ischaemia. Summer season had nearly double the number of cases compared to Winter and Monsoon seasons ($n = 101$ vs. 54 vs. 51; $p < 0.01$). Ironically, summer had a protective effect on incidence of mesenteric ischaemia compared to winter and monsoon seasons ($p < 0.01$ and $p = 0.0134$) in prothrombotic states. **Conclusion:** Mesenteric ischemia had significant seasonal variation in a tropical country like India. Good hydration could indirectly have a protective effect over mesenteric ischemia, which has to be evaluated with further studies.

IN14 3117

Evaluation of SMA thrombectomy in Acute Mesenteric Arterial Ischaemia. Dhaval Odhavjibhai Mangukiya, Keyur S Bhatt, SIDS Hospital & Research Center, Surat

Introduction: AMI caused by arterial embolism accounts for 50% of acute ischemic conditions. The thrombosis typically occurs at the origin causing extensive infarction and mainly a complication of preexisting visceral atherosclerotic lesions. In this retrospective study we evaluated effects of thrombectomy on perioperative mortality and morbidity in patients diagnosed & operated

for acute SMA thrombosis/emboli at a tertiary level institute. **Methods:** Out of 78 patient who were admitted with acute mesenteric ischemia 47 with arterial (SMA) occlusion were considered for retrospective analysis who were operated in emergency. Diagnostic modality was CT angiography whenever abdominal symptoms out of proportion of clinical signs. Other protocols were to assess ABG and D-Dimer in all patients suspicious for bowel gangrene. Thrombectomy using appropriate Fogarty catheter in patients with extensive bowel ischaemia and potentially revivable intestine which depends upon the intraoperative findings. **Result:** Mean age of patients was 54 with male to female ratio of 31:16. CT angiography had accurately detected bowel ischaemia in all patients and 44 out of 47 patients had block at origin or within 3 cm of origin of SMA. Two patients had delay in intervention of more than 36 hours, in rest of the 45 patients average time between admission to surgery was 6 hours. 33 patients underwent SMA thrombectomy. Two out of these thirty three patients underwent only thrombectomy without need of bowel resection, rest all required resection with anastomosis (6) and stoma (27). Average post operative ICU stay with or without thrombectomy was 6 days. Mortality rate was 10% (5/48) that is within 30 days of surgery. Re-look exploration after 24 hours of primary surgery was done in 17/48 patients out of which 15 had thrombectomy with limited resection. 12 out of these 15 patient did not require further resection and gross improvement in bowel perfusion was observed. In 6/33 thrombectomy patients primary anastomosis after massive bowel resection was done. None of these 6 patient had anastomotic leak. Average hospital stay was 10 days for all 47 patients. Short bowel syndrome observed in all patients requiring resection more than 200 cm and proximal jejunum. Total mortality within 1 year of surgery seen in 11 out of 38 patients follow up for more than 1 year. Cause of death was nutritional in all patients. Refeeding was utilized in all patients with proximal stoma (23 patients who had stoma at less than 50 cm from duodenojejunal junction) and 2 out of these patients required supportive parenteral nutrition. Bowel reconnection was achieved in all patients with stoma and average interval from primary surgery was 74 days. **Conclusion:** SMA thrombectomy whenever feasible during exploration for bowel ischaemia can be performed safely without any added morbidity. Well designed study comparing radiological intervention versus open thrombectomy is required. But in all patient requiring exploration with extensive ischemia without peritonitis are the cases of choice for SMA thrombectomy.

IN15 3186

Role of C-reactive protein, total and differential counts, bilirubin levels and imaging in the diagnosis of acute appendicitis as a cause of right iliac fossa pain: A descriptive study. Chellappa Vijayakumar, Shetty Sushruth, Krishnamachari Srinivasan, Nagarajan Raj Kumar, Verma Surendra Kumar, A Ramesh, JIPMER, Pondicherry

Introduction: The aim of study was to compare the efficacy of clinical impression, biochemical markers and imaging in the diagnosis of Right Iliac Fossa (RIF) pain with special reference to appendicitis and their implication in reducing the negative appendectomy rates. **Methods:** All patients presenting to casualty with RIF pain were included in the study. Blood investigations including C-Reactive Protein (CRP), serum bilirubin, White Blood Cell (WBC) counts and Ultrasound (USG) were done. Based on clinical impression patients were either posted for appendectomy or observed (equivocal cases). Patients who had recurrent pain on follow up underwent appendectomy or underwent Contrast Enhanced Computed Tomography (CECT) (equivocal cases). Patients who only had a single self-limiting episode with no other alternative diagnosis or had a normal CECT report were included in non-specific RIF pain group. **Results:** The mean value of WBC counts was $9.57 \times 10^9/L$ and $7.88 \times 10^9/L$ and that of serum bilirubin was 1.37mg/dl and 0.89mg/dl in the appendicitis and non-appendicitis group respectively, which was statistically significant ($p < 0.05$). The percentage of CRP positivity was higher in the appendicitis group (55% Vs 12%). The sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for USG was 84.2%, 77.17%, 85.4% and 75.5%, for CRP was 51.8%, 85%, 82% and 57%, for WBC count was 45.1%, 88%, 86.6% and 48.3% and for serum bilirubin was 69.2%, 75%, 81.4% and 60.5% respectively. **Conclusion:** Imaging and biochemical investigations including bilirubin can act as useful adjuncts to the clinical diagnosis of appendicitis.

IN16 3187

Drop In Post-Operative Albumin As A Marker Of Clinical Outcome In Gastrointestinal Surgeries. Anantha Krishna, Nagesh NS, Bangalore Medical College & Research Centre, Bengaluru

Introduction: Acute stress response is associated with major Gastrointestinal surgeries which may be related to adverse clinical outcome. Peri operative nutrition is one of the most important indicator of outcome especially in gastrointestinal procedures where the patients are usually malnourished and have difficulty in maintaining adequate nutritional status. Serum albumin is one of the vivid marker of nutritional status. In this study, we tried to analyse the outcome of the patient based on the immediate postoperative serum albumin levels & post-operative drop in Albumin. **Aims:** To evaluate the importance of Serum albumin and drop in immediate post-operative albumin as a predictive marker for post-operative complications and treatment outcome in a tertiary care centre. **Methods:** All patients undergoing elective gastrointestinal surgery which involved bowel anastomosis from August 2016 to April 2017 were included in this study. Immediate Preoperative (POD -1 to POD -5) and immediate post-

operative (POD 1) serum albumin levels were recorded and percentage drop in the post-operative period from pre-operative levels was recorded. Outcome of these patients with respect to recovery of bowel function, post-operative Hospital stay, time to start oral feeds, drain output, failure of the anastomosis was recorded. Mortality of the patients was also recorded. Patients were classified into two groups based on their albumin levels as Group 1 with 3.5 g/dL and above, and Group 2 with less than 3.5 g/dL. Outcome variables were documented tabulated and analysed statistically. **Results:** A total of 176 patients underwent elective surgery involving opening and anastomosis of the bowel during the study period. There were 144 patients in Group 1 and 32 patients in Group 2. Mean pre-operative albumin was 3.8 mg/dL. An average drop of 22% was noted in immediate post-operative albumin. Overall complication rate was found to be higher in patients with more than 25% drop in serum albumin in Group 1 and drop of 16% and more in Group 2 patients. Morbidity due to complications such as anastomotic leak and prolonged hospitalisation were also higher in Group 2. Incidence of re-laparotomy was also found to be significantly higher in Group 2 (15.6% vs 2.8%). Mortality was also significantly higher in Group 2 (12.5% vs 4.1%). Wound infections were more in patients with a drop of >16% (21.02% vs 7.9%). **Conclusion:** A negative acute phase reactant such as Albumin can accurately predict a tumultuous post-operative course and help to predict post-operative complications. Immediate Post-operative albumin levels and the percentage drop in albumin level from pre-operative levels serve as a Better Indicator of postoperative outcome. It also helps to plan for adequate optimisation of the patient preoperatively there by reducing the chances of post-operative complications.

IN17 3446

Duodenal perforation: Outcomes of surgical management at a tertiary care centre. Ronak Atulbhai Malani, Samrat Ray, Shailendra Lalwani, Siddharth Mehrotra, Vivek Mangla, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi

Introduction: Duodenal perforation is not an uncommon surgical emergency. It can be secondary to ulcer, trauma, ERCP or surgery for some other condition. It carries very high mortality ranging from 4 to 30% in western countries but there are very few reports from India. **Methods:** We retrospectively studied prospectively collected data on 55 consecutive patients who underwent surgery for duodenal perforation in our unit from January 2006 to December 2016 and analyzed their pre operative, intra operative and post operative variables and outcomes in the form of duration of hospital stay, ICU stay and mortality. **Results:** There were 38 males (69%) and 17 females (31%) (M:F = 4.5:2) who had a mean age of 52.3 years (range:16 to 81 years). The cause for duodenal perforation was duodenal

ulcer (n=25, 45.5%); followed by post ERCP complications (n=15, 27.3%), surgery (n=11, 20%) and blunt trauma (n=4, 7.2%) with perforations localized at D2 (n=30, 55.5%) and at D1 (n=25, 45.5%). Patients underwent primary repair of the perforation with an additional diversion procedure (n=28, 51%), repair only in 18 (32.8%), diversion only in 6 (11%) and a resection procedure in 3 patients (5.2%). There were 21 (38%) deaths. The patients with duodenal perforation secondary to ERCP had a longer hospital stay (>20 days, n=8, P=0.046), ICU stay (>10 days, n=6, P=0.059), duration of drainage (>10 days, n=10, P=0.001) and higher leak rate (n=6, P=0.001) & re-exploration rate (n=4, P=0.037) as compared to other etiology for duodenal perforation. There was no difference in mortality among the various etiologies, duodenal ulcer (n=11, 44%), post ERCP (n=6, 40%), surgical trauma (n=2, 18%) and blunt abdominal trauma (n=2, 50%). Patients undergoing repair and diversion had a significantly longer hospital stay (>20 days, n=9, P=0.001), higher leak rate (n= 8, P=0.019) and longer duration of surgery (>10 days, n=15, P=0.001) with no significant difference in mortality as compared to the other surgical procedures. 23 patients (41.81%) had pre operative organ failure, 11 patients (20%) had post operative leak and 30 patients (54.54%) were operated after 3 days of onset of symptoms. A higher mortality was seen in patients with pre operative organ failure (n=18, 78.3% vs 9.4%, P=0.001), post operative leak (n=7, 63.6% vs 31.8%, P=0.05) and longer duration from onset of symptoms to surgery (> 3 days) (n=14, 46.5% vs 28%, P=0.05). **Conclusion:** Duodenal perforation is associated with a considerable operative mortality regardless of its cause which is highest in those who have a longer interval to surgery, who have pre operative organ failure and those who have a post operative leak.

IN18 3370

Local Excision for Duodenal Tumours: A single centre experience. Aditya Manke, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimish Mehta, Samiran Nundy, SGRH, New Delhi

Introduction: Primary malignant tumours of duodenum represent a relatively rare and account for 0.3% of all Gastrointestinal malignancies. Precursor lesion like duodenal polyps/adenomas are found in around 5% of patients on endoscopy and warrant removal by either endoscopic techniques or surgery in view of high chance of malignant transformation to the tune of 30 to 85%. For suspected benign precursor lesions Pancreaticoduodenectomy is associated with high morbidity and mortality. Local trans duodenal excision or segmental resection is associated with lesser mortality and morbidity with equivalent outcomes. In this study we have reviewed our experience with Local or segmental resections for duodenal tumours. **Methods:** Analysis of a data of all patients who underwent

a Local excision or Segmental duodenal resection from a prospectively maintained computerized data was done. **Results:** A total of 20 Patients (15M:5F) with a median age of 52 years (41 to 58) were operated between 1997 to 2017 at Surgical Gastroenterology unit at Gangaram Hospital. Presenting symptoms were Bleeding 8 (40%), Pain 5 (25%), Jaundice 2 (10%), Vomiting 2 (10%). 16 underwent transduodenal local excision with closure of duodenotomy, 3 had segmental resection with duodeno jejunostomy and 1 had a wedge resection with primary closure. Median operating time was 165 mins (90 to 250). Median Hospital stay for the patients was 9 days (7.5-11.5). Final HPE showed adenoma in 8, GIST in 8, Adenocarcinoma in 2, Inflammatory polyp and heterotrophic pancreatic tissue in 1. One patient with adenocarcinoma had margins free and did not consent for a completion pancreaticoduodenectomy and the other was not fit for a completion surgery in view of poor performance status. We had 0 Postoperative 90 day mortality. 5 (20%) had Grade II complications, 1 had Grade IIIa (5%) and Grade IIIb (5%) respectively. Our series had 1 Recurrence of adenocarcinoma at an interval of 17 months and required chemotherapy. **Conclusion:** Transduodenal Excision or Segmental resection is feasible for pre malignant Duodenal adenomas and GIST with minimal postoperative morbidity and good oncological outcomes.

IN19 3136

Isolated rupture of duodenum following blunt trauma: Report of a case of avulsion of pylorus.

Chellappa Vijayakumar, Inbasekaran Anbarasu, Gopal Balasubramaniam, Sundaramurthi Sudharsanan, Dhanapal Baskaran, JIPMER, Pondicherry

Introduction: Isolated duodenal injuries in blunt trauma, especially of the first part of duodenum do not occur often (4%). Due to the anatomical position of the duodenum, blunt duodenal trauma is usually associated with injuries to adjacent structures which present a challenge to surgeons. The choice of procedure must be tailored to the nature of the defect and the amount of tissue lost. An array of surgical techniques has been developed for the management of patients with duodenal injuries. The surgeon should choose the most efficient technique according to the type and seriousness of the patient's injury. **The Case:** This was a case of a 19-year-old boy who had a blunt injury to his abdomen, hit by a ball while playing cricket. On admission, the patient had stable vital signs and a normal laboratory reports. Chest x-ray and ultrasound showed air under diaphragm and free fluid abdomen. Patient was posted for laparotomy with the diagnosis of bowel perforation. A complete circumferential rupture of the first part of duodenum with avulsion of pylorus was found during laparotomy. There was no retroperitoneal haematoma and pancreas was normal. Usually pedicled ileal loop was interposed between the duodenal stumps to restore the continuity of the patient's duodenum. But we did primary closure of disrupted ends with omental patch support and along with a feeding jejunostomy. Apart from minimal postoperative pelvic collection, the patient's postoperative course evolved with no further problems. The patient was discharged on the 12th postoperative day in good condition. **Conclusions:** In these cases of complete transection of pyloro duodenal junction, our choices for reconstruction were limited. Important factors for the successful management of this patient were prompt surgical intervention and the accurate assessment of the nature of the duodenal and associated injuries. We believe that primary closure is a reasonable good choice because the anatomical continuity of duodenum and pylorus was restored.

Colon and rectum

Oral papers

CR1 3076

Identifying A Gene Expression Profile In Primary Colon Cancer Tissue That Could Predict Chemotherapy Response. Aviral Jain, Guduru Venkat Rao, Sasikala Mitnala, Ravikanth VV, Steffie UA, Asian institute of gastroenterology, Hyderabad

Introduction: Chemotherapy has been the mainstay of care for colorectal cancer. However, response rates are observed in only a minority of the treated patients. Currently there are limited tools to prospectively identify patients that are more likely to benefit from the therapy. Therefore, this study was taken up to identify differentially expressed gene signature predictive of chemotherapy response in CRC patients. **Methods:** A total of 5 tumor tissues and corresponding normal tissues (n=10) were collected from patients with colorectal cancer, being treated primarily by surgery and subsequent adjuvant chemotherapy. The patients were followed up for their response to treatment. RNA was isolated from the tissues using Qiagen RNAeasy kit. cRNA was generated, fragmented, labeled with biotin and hybridized to Human Gene 1.1 ST arrays from Affymetrix. Gene level differential expression analysis (One way ANOVA-unpaired) was used to identify differentially expressed genes between responders and non-responders using Affymetrix Transcriptome Analysis Console v3.0.0.466. **Results:** Of the 5 patients, it was identified that 3 responded to chemotherapy and 2 did not respond. Differential expression analysis between the two groups revealed that 187 genes were upregulated and 6 genes were down regulated with a fold change (linear) of 2. Genes namely PTGIS (Prostaglandin I2 Synthase), C3 (Complement C3), C7 (Complement C7), LYVE1 (Lymphatic Vessel Endothelial Hyaluronan Receptor 1), and CXCL12 (C-X-C Motif Chemokine Ligand 12) were significantly upregulated and CEACAM12 (carcinoembryonic antigen-related cell adhesion molecule 12), MUC13 (Mucin 13), ST14 (Suppression Of Tumorigenicity 14) were downregulated in the non-responder group. These genes are majorly involved in cell proliferation, liver metastasis, cell adhesion and inflammation. **Conclusion:** We have identified a gene signature that is predictive of response to chemotherapy. Further validation is required before using the gene panel at the clinical level.

CR2 3104

Effects of Preoperative Nutrition Intervention on Postoperative Outcomes in Colorectal Cancer With Modest Hypoalbuminemia– A Randomised Control Trial. Siddhant Vijay Mathurvaishya, Pradeep Rebella, Guduru Venkat Rao, Navneet Tiwari, Asian Institute of Gastroenterology, Hyderabad

Introduction: Malnutrition causes a significant increase in postoperative complications by impairing host immune function, causing muscle dysfunction, decreasing collagen synthesis, and delaying tissue healing. Preoperative serum albumin level has been identified as a reliable measure of a patient's perioperative nutritional status. Low albumin is a proven factor strongly associated with delayed recovery of bowel function and postoperative complications. However, there is limited data examining associations between modest decrease in serum albumin levels frequently seen in patients having colorectal malignancies. The primary aim of our study is to investigate role of nutritional intervention in patients with modest hypoalbuminemia undergoing colorectal cancer surgery and to evaluate the morbidity associated with the modest levels of hypoalbuminemia. **Methods:** The study is a randomized control study enrolling 100 patients with colorectal cancer having modest hypoalbuminemia (50 cases and 50 control) planned for surgery, were randomized using random allocation software. Patients with bleeding tumors and obstruction were excluded from the study. Group A was subjected to intensive enteral nutritional therapy for 7-10 days before surgery. Group B was taken for surgery without such nutritional intervention and the difference in morbidity in terms of hospital and ICU stay, leakage of anastomosis, delayed stoma function when applicable, renal failure, cardiac comorbidities, etc., were analyzed using Chi square test, Fisher's exact test and Student's t-test. **Results:** The mean length of hospital stay (9.2 vs 7.2 days; p=0.025) and ICU stay (1.25 vs 2.35 days p=0.001) was significantly more in Group B compared to Group A. The overall postoperative complication was more in Group B with wound disruption being more common. Also the need for stoma creation was more in control group (p=0.001). **Conclusion:** Modest hypoalbuminemia was associated with increased overall post-operative morbidity, hospital and ICU stay, and wound surgical wound infections.

CR3 3169

Oestrogen receptor beta and their prognostic role in colorectal malignancy. Lohith Umaphathi, Yashoda Hospital, Hyderabad

Introduction: Oestrogen receptor beta (ER beta) expression in colorectal cancer is known and targeted ER beta activation in advanced colorectal cancer is being tried. We try to evaluate the incidence of ER beta in our population and its possible role in prognosticating the disease. **Methods:** We conducted prospective study on 50 surgical patients of colorectal cancer presenting to our institute from October 2015 to April 2017. ER beta status was measured immunohistochemically and its association with overall survival (OS) and disease free survival (DFS) was evaluated. **Results:** Of the 50 patients evaluated, 17 (34%) were ER beta positive (moderate to high expression). Females were more ER beta positive (n-9, 50%) and had a better prognosis, whereas lack of ER beta was more common in males (n-23, 66%) and also associated with higher stage and tumor extent. MSI was more frequently associated with ER beta expression and in female patients. Multivariate analysis showed OS (HR 1.63, 95% CI 1.22- 3.30, P=0.04) and DFS (HR 1.59, 95% CI 1.07- 2.30, P=0.02) was significantly better in ER beta positive patients. **Conclusion:** Oestrogen receptor beta is associated with better prognosis and hence activation of ER beta in advanced cancer might help in arresting progression of the disease.

CR4 3238

Surgical management of colonic diverticular disease in India: A single centre experience of 21 years. Sunil Kumar Rawat, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi

Introduction: Diverticular disease of the colon is considered to be a disease of the west but its incidence seems to be increasing in India. The usual indications for surgery elsewhere are intractability of symptoms and complications in the form of perforation, bleeding, sepsis, fistula formation and obstruction. We examined the data on our patients with diverticular colonic disease who required surgical management to analyse, retrospectively from prospectively maintained data, their demographic profile, the indications and results of operation. **Methods:** Between 1997 and 2017 we performed operations for colonic diverticulitis in 87 patients. **Results:** The study included 67 (77%) males and 20 (23%) females. Their mean age was 61 (range 34 to 85). 31 patients (36.50%) underwent emergency surgery and rest 56 (63.50%) were operated electively. 10 patients (11.1%) had colovesical fistulae, while a rectovesical and rectourethral fistula was found in one patient each. 19 (22.2%) patients presented

with peritonitis at the time of admission, out of which 10 patients had purulent (Hinchey grade 3) and 9 patients had feculent peritonitis (Hinchey grade 4). The site of diverticulosis was in the left colon in 82 patients, entire colon in 4 and in the right colon was in 1 patient. After resection a primary anastomosis (single stage) was done in 7 (7.9%), a two stage procedure (anastomosis with proximal diversion) in 59 (68.7%) patients and a Hartmann operation (three stage) in 21 (23.8%) of patients. The Clavien Dindo grade I, II, III and IV complications rates were present in 11.2%, 28.5%, 8% and 6.5% respectively. Three patients died, out of which 2 (6.45%) were emergency and 1 (1.78%) had elective mortality. Both patients operated in emergencies had fecal peritonitis and died of sepsis with multiorgan failure. The elective mortality was due to acute coronary syndrome postoperatively. **Conclusion:** In our experience operations for diverticulitis coli are mainly performed for complications such as intestinal fistulae or perforation unlike in Western countries where it is done for intractable pain. The mortality of these procedures is fairly low but there is a considerable morbidity rate.

CR5 3314

HER 2 positivity in patients with gastrointestinal tract malignancies: clinicopathological analysis in a prospective observational study. Kamal Kishore Bishnoi, Bheerappa Nagari, Venu Madhav Thumma, Shantveer G Uppin, NIMS, Hyderabad

Introduction: HER 2 positivity is having prognostic and therapeutic significance in gastroesophageal cancers. Now various studies showed its importance in other gastrointestinal tract cancers. **Methods:** The current study aims to know the incidence of HER 2 positivity in a different type of gastrointestinal malignancies in Indian patients and its correlation with the clinicopathological parameters. **Prospective, single-center, nonrandomized analysis of HER 2 status was done in patients with gastrointestinal malignancies, using IHC markers.** The study was conducted in the Department of Surgical Gastroenterology, Nizam's Institute of Medical Sciences, Hyderabad from June 2015 to May 2017. Descriptive statistics and Chi-square analysis were performed to estimate the incidence and its association with clinicopathological parameters. **Results:** A total of 102 patients with gastrointestinal cancers underwent IHC study to know HER 2 Status. HER 2 positivity seen in 14 patients (2+ score=12 and 3+ score=2), which is 13.7% in study population. The incidence of HER 2 positivity in esophagogastric, duodenal, small bowel, appendix, colorectal, liver, biliary and pancreas was 17.7 (4/23), 60 (3/5), 0 (0/6), 0 (0/3), 7.1 (2/30), 0 (0/5), 16.6 (2/12) and 16.6 (3/18) percentages. HER2 Positivity was not having significant association with the age, sex, site, tumor differentiation, stage, nodal metastasis, Lymphovascular and Perineural invasion (p>0.05) in most of the cases except

in biliary cancers where HER 2 positivity is significantly ($p=0.016$) associated with Lymphovascular invasion. **Conclusions:** Incidence of HER 2 positivity was 13.7% without significant association with clinicopathological parameters in Indian populations. Large-scale studies are warranted to validate the findings and define its role in the management of gastrointestinal tumors.

CR6 3424

Short Term Perioperative Outcomes of Robotic Versus Laparoscopic Anterior Resection– Our Initial Experience in Tertiary Care Centre. Darshankumar Kantibhai Patel, Apollo Main Hospital

Introduction: Robotic surgery is a new approach to rectal cancer patients. The aim of this study is to compare the short term perioperative outcomes between standard laparoscopic and da Vinci Si Surgical robotic AR. **Methods:** A single centre prospective observational study was performed in 79 patients undergoing RAR/LAR for rectosigmoid cancer over the period of 2 years to compare the short term perioperative outcome variables like operative time, blood loss, conversion rate, diversion ileostomy/ colostomy rate, LOS, postop starting oral intake and Clavien-dindo grade of complications. **Oncological outcome variables** like proximal, distal and circumferential resection margins involvement, number of harvested/ positive nodes & pathological stage group. **Cost analysis** was also done for both groups. **Results:** Patients' preop characteristics were not significantly different between groups except previous major abdominal surgery which was higher in RAR compared to LAR (47.2% vs. 11.5%, P value=0.002). The mean operative time is 257.50 minutes in LAR and 278.11 minutes in RAR. (P value=0.257). Mean blood loss is 199.23 mL in LAR and 165.28 mL in RAR (P value=0.011). There is no conversion in either group. Diversion rate was 42.3% in LAR and 43% in RAR (P value=0.927). Postop complications and grade of complications were not significantly different between groups (P value=0.438). Post op day of starting oral intake is 3.12 days in LAR and 1.94 days in RAR (P value=0.001). Post op length of stay in hospital is 6.95 days in LAR and 5.79 days in RAR (P value=0.050). There is no significant difference in proximal, distal and circumferential resection margin (P value=0.099) involvement between group. The mean number of harvested nodes is 13.46 in LAR and 13.21 in RAR (P value=0.085). The mean number of positive nodes is 2.31 in LAR and 2.91 in RAR (P value=0.951). There is no statistically significant difference for pathological stage group between groups. Complete specimen quality is found in 76.9% in LAR and 90.6% in RAR. Near complete specimen quality is seen in 11.5% in LAR and 5.7% in RAR. Incomplete quality was found in 3 cases (11.5%) in LAR and

2 cases (3.8%) in RAR (P value=0.243). Mean total cost in rupees in LAR was 324761.08 rupees (P value=0.136) and in RAR it was 393421.13 rupees (P value=0.162). **Conclusions:** RAR is associated with lower blood loss and earlier start of oral intake post operatively compared to LAR. There is no significant difference in other perioperative outcomes variables. This new technology use resulted in acceptable short term perioperative outcomes compared to LAR despite unfavorable patient characteristics (previous major abdominal surgery number was higher) in RAR. RAR is safe, effective and feasible in terms of oncological outcome and cost point of view. However, RAR using advanced technology did not translate into superior oncologic outcomes compared to laparoscopic anterior resection. *AR- Anterior resection, RAR – Robotic AR, LAR- Laparoscopic AR, LOS-Length of stay

Poster session

CR1 3498

Hirschsprung's Disease: Paradigm Shift from Three Stage to Single Stage Scarless Surgery: Our Experience. Ketaki Vivek Gharpure, Kumaravel S, Bibekanand Jindal, Krishnakumar Govindarajan, Bikash Kumar Naredi, JIPMER

Hirschsprung's disease is one of the common causes of intestinal obstruction, now diagnosed more commonly in neonatal age group. The management and surgical correction of Hirschsprung's disease has seen considerable advances since Swenson first described his curative approach. Standard practice in the past involved a three staged approach. A proximal diverting colostomy was done at the time of first presentation and subsequent pull through was performed followed by closure of colostomy. In modern practice, the rising trend towards minimally invasive surgery has led to wider use of the Trans-anal endorectal pull-through. This single stage procedure avoids colostomy and its related complications including the social stigma of a stoma. We report our experience with 6 cases of Hirschsprung's disease managed with single stage trans-anal endorectal pull through. Early complications included a minor leak in one child which required drain insertion and subsided subsequently. There were no incidences of post-operative enterocolitis. All children show good continence at 2 years follow up. These results are comparable to multistaged approach. The additional advantages include avoidance of multiple hospital admissions, a short hospital stay, a single exposure to anaesthesia, satisfactory stooling pattern with better cosmetic appearance. The trans-anal endorectal approach is therefore the obvious choice over traditional multistage procedure.

CR2 3068

Large Bowel Obstruction In Carcinoma Cervix-Post Treatment. Madeswaran Chinnathambi, Karthika Sivaprakasam, GKNMH, Coimbatore

Introduction: Cervical carcinoma can metastasize to lymph nodes, liver and lung via haematogenous and lymphatic route. Metastatic Bowel involvement can rarely occur as a component of generalised carcinomatosis. The most frequent clinical picture is of partial obstruction of bowel in metastatic bowel wall lesions. (1, 2) We report below such a case of bowel metastasis from carcinoma cervix presenting as subacute intestinal obstruction and Bleeding per Rectum.

Methods: Prospective study of 73 years old female patient who presented with subacute intestinal obstruction and Bleeding per Rectum. Relevant past history revealed H/O Radiotherapy and Chemotherapy for Carcinoma Cervix -stage 2B with Right Parametrial involvement, she had on and off Urinary and Bowel symptoms treated conservatively and she is on regular periodical followup. On evaluation of the presenting symptoms with Labaratory, Imaging studies and Colonoscopy– found to have an ulcerative lesion partially obstructing the lumen, multiple bits of tissue taken for HPE.CECT revealed irrerular wall thickening noted in Sigmoid colon with retroperitoneal infiltration and Radiation changes in bowel and Paraaortic and Paracaval nodes. HPE showed moderately differentiated Squamous cell carcinoma. Involving the muscularis propria from the serosal side, mucosa appears free of involvement. Giving an impression of Recurrent Metastatic lesion from the Cervix which shows good treatment response with Chemotherapy evidenced by Imaging studies.

Conclusion: Bowel obstruction secondary to metastatic Carcinoma cervix is very rare. Treating Physician should consider and highlight the workup for Recurrence and metastatic Carcinoma Cervix with HPE Report of Squamous cell carcinoma. The route of metastasis to bowel is either via retrograde lymphatic spread or via direct extension because of its close relationship with pelvic wall.

CR3 3116

Surgery in Complicated Sigmoid Diverticulitis: Retrospective Analysis. Dhaval Odhavjibhai Mangukiya, Keyur S Bhatt, Pankaj Desai, Rajiv Mehta, Subhash Nandwani, Mayank Kabrawala, Karsan Nandaniya, Divya Mulchandani, SIDS Hospital & Research Center, Surat

Globally diverticulosis is considered as a western world or developed country disease with prevalance from 5% to 45%. Anatomically 90% diverticulosis involves distal or left sided colon and only 1.5% involves solely right colon. Although its uncommon in asian and african race, incidence increasing due to westernization in diet habit

i.e. less vegetables or fibre rich food. In Asian scenario prevalance of right colon diverticulosis edges over left colon (1, 2). Incidence increases with age pericularly in sigmoid diverticulosis i.e. 60% after age of 80 (3). In India with prevalance of 9% according to south Indian cohort (4) where as 3% as North Indian cohort (5). 46% from total had left colon disease, 40% with right colon and 13% detected with pancolic diverticulosis (4). Various complications can occur with this benign and silent disease namely Bleeding Perforation, Abscess, Fistula, Stricture, Obstruction, Ureteral Obstruction, Phlegmon (Inflammatory mass), Saint's Triad (Diverticulosis, cholelithiasis and hiatal hernia). Comlications occur in 10–25% of cases. It can also creates dilemma for differential diagnosis of malignancy hence requires vigilant attention. CECT abdomen gets grade A recommendation to clinch the diagnosis and guide the management while colonoscopy is detecting many incidental diverticulosis without much role in acute presentations. Paradigm of treatment is shifting more towards conservative approach avoiding emergency exploration and morbid multistage interventions like hartmann's procedure. Laparoscopy is preferable choice in elective procedure. A multicenter randomized of primary anastomosis or Hartmann's Procedure for perforated left colonic diverticulitis with purulent or fecal peritonitis showed favorble results for primary anastomosis (6). We represent retrospective analysis and outcome in last 18 months of tertiary centre of South Gujarat where in 2445 colonoscopy we detected 198 diverticulosis (8%). Pancolic diverticuli were most common i.e. 44% (89/198) followed by left side (31%) and right side (23%). Total 21 patients admitted for symptomatic diverticular disease in which 18 admissions were for sigmoid diverticulitis with average age of 61 years. Most common presenting symptom was bleeding per rectum in our study. Emergency surgery was required in 16 patients, from which primary anastomosis with diverting stoma was done in 14 patients where as Hartmann's procedure done in 2 patients. Two patients underwent elective surgery, one after putting pigtail and second for stricture. Mortality in one patient, who had second stage surgery for Hartmann's reversal. To conclude, incidence of complicated sigmoid divertilculitis is more requiring intervention as compare to other parts of bowel. Primary anastomosis should be choice of surgery with or without diversion which depends on intra operative findings.

CR4 3152

Mesh repair of abdominal wall defects during colostomy reversal surgery- A novel approach: Our experience. Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Hitesh Mehta, Lilavati hospital and research centre, Mumbai

Introduction: Incisional hernias are seen to occur in 1 of every 3 patients operated for colostomy reversal. This is a significant morbidity and cause for a possible re-surgery in these patients. We started performing polypropylene mesh closure for the abdominal wall defects following colostomy reversal to prevent this complication. **Methods:** The present study includes 8 consecutively operated patients for colostomy reversal by a single surgeon in the gastrointestinal surgery department. Colostomies were performed as diversion stoma following laparoscopic sigmoid resection for diverticulitis in 2, laparoscopic anterior resection for malignancy in 4 patients, for malignant obstruction in 1 and for a colonic perforation following blunt trauma abdomen in 1 patient. The reversal was done at a duration ranging from 4 weeks to 6 months following the creation of stoma. Standard preoperative skin preparation, meticulous wound protection during bowel anastomosis and Preperitoneal or onlay polypropylene mesh placement was done. **Results:** 2 patients developed seroma postoperatively which was managed with aspiration and antibiotics. None of the patients had wound infection or leak and all are doing well at greater than 1 year follow up for 7 patients and 6 month follow up for one patient. None of the patient has developed hernia at the stoma reversal site. **Conclusion:** Mesh closure of abdominal wall defect during colostomy reversal surgery is safe, feasible, cost-effective and avoids the complication of incisional hernia at the site. Further studies with large number of patients with a long term follow up will give answers on routine use of this approach.

CR5 3191

Pouchovaginal Fistula: Managing a Rare Complication in Patient with Ulcerative Colitis after Total Proctocolectomy and Ileal Pouch-Anal Anastomosis. Sumesh Kaistha, Command Hospital Central Command, Lucknow

Total proctocolectomy with ileal pouch-anal anastomosis (IPAA) has become an established surgical procedure for ulcerative colitis. However, pouchovaginal fistula is a rare complication of IPAA. We present an interesting case of a 53 years old lady who developed pouchovaginal fistula after 2 years of surgery mandating multiple surgeries. She ultimately required pouch excision with permanent ileostomy. 5 years post revision surgery patient is asymptomatic. Aim of this presentation is to highlight the management protocol for this rare complication of IPAA for ulcerative colitis.

CR6 3379

Endoscopic Ultrasound Guided Overlapping Anal Sphincteroplasty: The Way Forward?- A Preliminary Report. Saket Kumar, Prabhu Singh, Rakesh Kumar Yadav, Abhijit Chandra, Vishal Gupta, Vivek Gupta, Pradeep Joshi, KGMU, Lucknow

Introduction: Effective management of anatomical anal sphincter injury with severe fecal incontinence remains a challenging task. Overlapping sphincteroplasty is still considered the standard surgical procedure for such condition, however long-term results are often less than satisfactory. Incomplete sphincter repair and neurovascular damage during sphincteroplasty could be responsible for disappointing long-term outcomes. This study was done to evaluate endoanal ultrasound guided overlapping sphincteroplasty technique to ensure completeness of sphincter repair intra-operatively and also protecting the neurovascular bundles. **Methods:** The study was conducted at a tertiary health care center in India. Between January 2014 and March 2015, eight patients with damaged anal sphincters (extent of injury: 90- 120 degrees) who underwent endoanal ultrasound guided overlapping sphincteroplasty, were evaluated in the study. Perioperative outcomes, anal manometry findings and fecal incontinence scores were recorded prospectively. **Results:** Eight patients (7 females, 1 male) with a median age of 27 years (range, 21-44 years) were included in the study. Six patients had obstetric associated anal sphincter injury; while other two had sphincter damage following fistulectomy. Preoperative assessment revealed anterior sphincter defect between 90 and 120 degrees and diminished anal squeeze pressures (mean 26 mmHg; range, 20-36 mmHg) in all patients. The median St. Mark's incontinence score was 19 (range, 17-24). Overlapping anterior sphincteroplasty was done in all patients under endoanal ultrasound guidance. Patients were followed-up for a median duration of 29 months (range, 22-36 months). Postoperative evaluation done at the last follow-up revealed a marked improvement in anal squeeze pressures (median pressure=73.4 mmHg; range, 62-92 mmHg) as well as St. Mark's incontinence score (median score- 11.5; range, 10-14). **Conclusions:** Use of intraoperative ultrasound ensures the completeness of sphincter repair and also decreases chances of neurovascular injury, which could translate in improved long- term functional outcomes

CR7 3277

Management of Rectal Foreign Body: A Rare Case Report. Nirkhi R. Shah

Entrapped anorectal foreign bodies are encountered infrequently. Although entrapped foreign bodies are most often related to sexual behavior, they can also result from ingestion, sexual assault, self-treatment of anorectal disease or some medical procedure. Numerous objects, including glass or plastic bottles, various fruits and vegetables, bones, nails, light bulbs, Impulse body spray cans, sex toys, wooden sticks, etc. Because of the wide variety of objects and the variation in trauma caused to local tissues of the rectum and distal colon, a systematic approach to the diagnosis and management of rectal foreign bodies

is essential. Even after extraction, delayed perforation of rectum or significant bleeding from the rectum may occur. Here, presenting a case of an 18-year-old male who consulted the emergency department with complain of accidental insertion of some foreign body (plastic bottle) in anal canal. On examination, vital signs were normal. Abdomen was soft and non-tender with palpable foreign body in hypogastrium. Closed end of foreign body was palpable high up on rectal examination. X-ray of the pelvis showed the foreign body in lower abdomen and pelvis. Manual removal by holding the base of the bottle was impossible. After giving general anesthesia, in lithotomy position foreign bod could not be removed per-rectally. Midline laparotomy was performed. The bottle was tipped to the sigmoid loop before making a short longitudinal enterotomy opening of 5cm over the bottle to extract the plastic bottle from sigmoid colon. Sigmoid colon and rectum was assessed for vascularity and injury. Primary repair of enterotomy was done in single layer of continuous interlocking suture using silk 2-0. Laparotomy was closed with a drain in pelvis. The post-operative course was uneventful and patient left the hospital on the sixth day.

CR8 3281

Lower GI bleed post complex colorectal surgery: Two rare case reports. Manish Ahuja, Devendra Desai, Annirudha Kulkarni, Sudeep Shah, Vinod Chandiramani, Pd Hinduja Hospital & Research Centre, Mumbai

Severe and life-threatening lower GI bleed is extremely rare post complex colorectal resections. Most of these are limited to mild hematochezia associated with the first bowel movement post-surgery, and can be managed conservatively with observation and blood transfusion. We report a series of two extremely rare causes of LGIB post complex colorectal procedures. Case 1: Patient presented with LGIB 11 days post LAR for rectal cancer secondary to an internal iliac artery pseudoaneurysm with an arterio-colic fistula. Case 2: Patient presented with secondary hemorrhage from an un-named branch of the left inferior gluteal artery post IPAA for ulcerative colitis. Both patients failed initial conservative and endoscopic attempts at hemostasis, however were successfully managed eventually with glue and coil embolization of the respective vessels and the internal iliac artery. Pseudo aneurysms post pelvic surgeries are extremely rare and so is secondary hemorrhage from the inferior gluteal vessels post pouch surgery. Early diagnosis, aggressive use of colonoscopic and radiological interventions are often sufficient enough to manage such rare causes of LGIB. A multi-disciplinary approach is off paramount importance in such scenarios

CR9 3397

Neoanal Reconstruction Using Transposed Antro Pyloric Valve And Gluteus Muscle Wrap For End Stage Fecal Incontinence: A Preliminary Report. Nikhil Chopra, Rakesh Kumar Yadav, Pavan Kumar, Abhijit Chandra, Vishal Gupta, Saket Kumar, Pradeep Joshi, Vivek Gupta, KGMU, Lucknow

Introduction: Effective management of anatomical anal sphincter injury with severe fecal incontinence remains a challenging task. Overlapping sphincteroplasty is still considered the standard surgical procedure for such condition, however long-term results are often less than satisfactory. Incomplete sphincter repair and neurovascular damage during sphincteroplasty could be responsible for disappointing long-term outcomes. This study was done to evaluate endoanal ultrasound guided overlapping sphincteroplasty technique to ensure completeness of sphincter repair intra-operatively and also protecting the neurovascular bundles. **Methods:** The study was conducted at a tertiary health care center in India. Between January 2014 and March 2015, eight patients with damaged anal sphincters (extent of injury: 90- 120 degrees) who underwent endoanal ultrasound guided overlapping sphincteroplasty, were evaluated in the study. Perioperative outcomes, anal manometry findings and fecal incontinence scores were recorded prospectively. **Results:** Eight patients (7 females, 1 male) with a median age of 27 years (range, 21-44 years) were included in the study. Six patients had obstetric associated anal sphincter injury; while other two had sphincter damage following fistulectomy. Preoperative assessment revealed anterior sphincter defect between 90 and 120 degrees and diminished anal squeeze pressures (mean 26 mmHg; range, 20-36 mmHg) in all patients. The median St. Mark's incontinence score was 19 (range, 17-24). Overlapping anterior sphincteroplasty was done in all patients under endoanal ultrasound guidance. Patients were followed-up for a median duration of 29 months (range, 22-36 months). Postoperative evaluation done at the last follow-up revealed a marked improvement in anal squeeze pressures (median pressure=73.4 mmHg; range, 62-92 mmHg) as well as St. Mark's incontinence score (median score- 11.5; range, 10-14). **Conclusions:** Use of intraoperative ultrasound ensures the completeness of sphincter repair and also decreases chances of neurovascular injury, which could translate in improved long- term functional outcomes.

CR10 3427

Robotic ventral rectopexy: Initial experience in an Indian tertiary health-care centre. Amit BL, Apollo Main Hospital, Chennai

Introduction: Minimally invasive ventral rectopexy is a well-described technique for management of rectal prolapse. Robotic system has proven its advantage for surgeries in the pelvis. Applying this technique, ventral rectopexy can be done more precisely with minimal recurrence. With growing experience, the operative duration and cost of robotic ventral rectopexy can be reduced with better outcome. Few case studies have been described in literature with no study from Indian subcontinent. We describe a series of eight cases of robotic ventral rectopexy done for rectal prolapse in a tertiary health-care centre of India. **Methods:** A total of 8 patients were operated for complete rectal prolapse during the period from August 2015 to April 2016. da Vinci Si robotic surgical system was used with prolene or permacol mesh for ventral rectopexy. All patients were prospectively followed for a period minimum of 3 months. Pre- and intra-operative findings were recorded along with post-operative outcome. **Results:** Out of eight patients, prolene mesh was used in five patients and permacol mesh (porcine collagen) in three patients. Mean operative time (console time) was 177 min and mean total time was 218 min. Mean blood loss was 23.7 ml. Functional outcome was satisfactory in all patients. There was no significant complication in any patient with mean hospital stay of 2.2 days. With average follow-up of 8.8 months, no patient had recurrence. **Conclusion:** Robotic ventral rectopexy is a safe technique for rectal prolapse with excellent result in terms of functional outcome, recurrence and complications. With experience, the duration and cost can be comparable to laparoscopic technique.

CR11 3488

Isolated metastases to multiple genital organs: A curious case of metachronous spread of carcinoma colon. Pavneet Singh Kohli, JIPMER, Puducherry

Metastasis to female genital tract from extra-genital organs is an uncommon event in absence of disseminated disease. Ovaries are the most common site for metastases among the genital organs and usually present as an adnexal mass mimicking as primary ovarian cancer. Spread to other genital organs are rare and have few reports in literature. Here we highlight a 58-year-old lady who completed treatment for carcinoma right colon five years back and now presented with post-menopausal bleeding. On further evaluations she was diagnosed to have endometrial adenocarcinoma with immunohistochemistry suggestive of metastases from colonic origin. She underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy with resection of the distal ureter. The specimen showed metastatic deposits involving both the ovaries, fallopian tubes, uterus and cervix. She has completed chemotherapy and is disease free at 9 months.

CR12 3495

An unusual cause of chronic bleeding following modified Duhamel procedure. Ketaki Vivek Gharpure, Bibekanand Jindal, Barath Jagadisan, Bikashkumar Naredi, JIPMER, Puducherry

14 months old child with Down's syndrome and Hirschsprung's disease underwent a modified Duhamel procedure. Following the procedure, the child presented with chronic gastrointestinal bleeding requiring transfusion. The child was found to be bleeding from staple line ulcers of the Duhamel pouch. Staple line ulcers are rarely reported in children and are not recognized as a cause of chronic bleeding following modified Duhamel procedure. The endoscopic findings and management of this child have been detailed. Staple line ulcers need to be recognized as an unusual cause of cause of significant chronic bleeding following gastrointestinal surgeries using staplers in children.

CR13 3063

Higher preoperative serum Carcino embryonic antigen (CEA) level predicts poor histology in colorectal cancer patients- A prospective observational study. Ishan Shah, Amitabh Yadav, Saumitra Rawat, Suresh Singhvi, Sir Gangaram Hospital, New Delhi

Introduction: Higher CEA level is an independent prognostic factor for recurrence and survival in colorectal cancer. American joint committee on cancer has suggested incorporating preoperative serum CEA level (C-Stage) into TNM staging system. Its role in predicting histology has not been widely categorized. **Methods:** From the period of May 2015 to December 2016, clinically suspected and/or endoscopically and/or radiologically diagnosed 82 cases of colorectal cancer patients prospectively analyzed and preoperative serum CEA level obtained. Those who have taken neo adjuvant treatment were excluded from the study. They all underwent resection with standard oncological principles. Final histology including TNM staging, differentiation, lympho vascular invasion, neural invasion and type of tumour correlated with the preoperative CEA level. **Results:** In our study, mean age was 55 and mean CEA level was 12.9 ng/ml. Most of the patients presented with Stage 2a (n=29, 35.4%) followed by Stage 3c (n=19, 23.2%) and Stage 3b (n=17, 20.7%). Neural and lymphovascular invasion was present in 28 (34.1%) and 42 (51.2%) patients respectively. Patients with higher preoperative CEA level (>3ng/ml) were associated with higher T stage (p=0.020). These patients are also linked with higher chances of neural invasion (n=23, 43.4%, p=0.017), lymphovascular invasion (n=36 (67.9%), p=0.001) and poor differentiation of the tumour (n=11 (20.8%), p=0.068) in compared to patients with normal CEA level. There was no

significant correlation found with over all stage, N stage, location, type of tumour, age, sex and well or moderate differentiation. **Conclusion:** Preoperative serum CEA level is a predictor of poor histopathological features and indirectly leading to poor prognosis in colorectal cancer patients.

CR14 3144

Effect of perioperative high concentration oxygen supplementation on postoperative surgical site infection in patients undergoing elective colorectal surgery- A randomized controlled trial. Mayank Mangal, Subair Mohsina, Sathasivam Suresh Kumar, Pankaj Kundra, Vikram Kate, Jawaharlal Institute of postgraduate Medical Education and Research (JIPMER), Puducherry

Introduction: Perioperative oxygen supplementation has been proposed to decrease surgical site infection (SSI) with controversial results in various randomized controlled trials. This study was carried out to investigate the effect of perioperative high oxygen concentration (80% FiO₂) on SSI in patients undergoing elective colorectal surgery.

Methods: This was a single centre, prospective, parallel arm, double blind, superiority randomized controlled trial carried out in a tertiary care hospital from October 2015 to May 2017. All patients more than 18 years of age undergoing elective colorectal surgery under general anaesthesia in the Department of Surgery were included. Patients undergoing minor colorectal procedures (eg. polypectomy), patients with evidence of infection, malnutrition, respiratory illness and those who are unfit for general anaesthesia were excluded. A sample size of 90 was calculated for an expected reduction in the surgical site infection by 15 % (25% vs. 10%) in the 80% FiO₂ group (alpha error-5%; power 80%) Stratified block randomisation was done at the time of induction of anaesthesia and allocation was carried out in 1:1 ratio into 80% FiO₂ group and 30 % FiO₂ group. Stratification was done based on preoperative plan of stoma vs. no stoma. Patients in the 80 % FiO₂ group received high concentration oxygen (80% oxygen + 20% nitrogen) intraoperatively via endotracheal tube and postoperatively up to 6 hours through non-rebreathing mask. Patients in the 30% FiO₂ group received standard concentration (30% oxygen + 70% nitrogen) intraoperatively via endotracheal tube and supplement oxygen postoperatively through standard face mask. The patients were assessed daily for development of SSI using the ASEPSIS criteria. Primary outcome measure was incidence of SSI and secondary outcome measures were the day of the detection of SSI, Grade of SSI, incidence of anastomotic leak, postoperative day of return of bowel functions, postoperative day of ambulation and length of hospitalization. **Results:** A total of 94 patients were included in the study, 47 patients each in 80% FiO₂ and 30 % FiO₂ groups respectively. The two groups were comparable in the demographic and

clinicopathological characteristics such as age, gender, ASA grade, primary diagnosis, duration of surgery and type of anastomosis. The overall incidence of SSI was 47.87%. The SSI rates were similar between the 80% FiO₂ and 30 % FiO₂ groups (55.32% vs. 40.43%; p=0.148). The grades of SSI between the two groups were comparable (superficial: 68% vs. 68.4%; deep: 28% vs. 16%; organ space: 4 % vs. 15%; p=0.30). The anastomotic leak rate was similar between the two groups (1/47 vs. 2/47; p=0.27). The mean day of detection of SSI (2.96±3.451 vs. 2.51±3.928; p=0.246), postoperative day of return of bowel functions (2.20±0.542 vs. 2.13±0.582; p=0.54), postoperative day of ambulation (4.15±0.868 vs. 4.18±1.284; p=0.97) and length of hospitalization (16.09±8.174 vs. 16.72±10.336; p=0.862) was similar between the two groups. **Conclusion:** The perioperative high oxygen concentration therapy does not reduce surgical site infection in patients undergoing elective colorectal surgery.

CR15 3151

Outcome analysis of laparoscopic management of sigmoid diverticulitis: A tertiary centre experience. Gunjan Shailesh Desai, Prasad Pande, Namita Chavan, Dattaprasanna Kulkarni, Paresch Varty, Hitesh Mehta, Lilavati hospital and research centre, Mumbai

Introduction: In diverticulitis- whether emergency or elective, and acute or chronic complicated cases, all the procedures viz. resection and primary anastomosis [RPA] with or without a diverting stoma, Hartmann procedure, stoma reversal after diversion or Hartmann can be performed laparoscopically. However, owing to the low incidence of the disease in India and the complexity of the procedure, there are very few studies on the outcomes of laparoscopic surgery for sigmoid diverticulitis from India. **Aim:** To evaluate the outcomes of laparoscopically treated patients of sigmoid diverticulitis. **Methods:** Prospective observational study enrolled 37 patients of sigmoid diverticulitis managed laparoscopically from March 2015 to March 2017. Demographic, clinical, operative, postoperative and complication data was entered in a patient proforma and the data compiled and evaluated using appropriate statistical tests. **Results:** 20 simple and 17 complicated diverticulitis patients were operated laparoscopically, 13 in emergency setting and 24 in elective setting. Only 3 patients required conversion to open surgery- 2 due to dense adhesions and 1 due to COPD. No patients had ureteric or bowel injury. 18 patients underwent laparoscopic primary sigmoid resection and anastomosis [LPRA] without stoma, 11 patients had LPRA with stoma, 6 had Hartmann procedure and 2 had laparoscopic lavage. Results showed less blood loss, shorter hospital stay and fewer complications in the elective group and simple diverticulitis patients. None of the patients had anastomotic complications. 2 patients had stoma related

complications. **Conclusion:** Laparoscopic management of diverticulitis is feasible, safe, provides the benefits of less wound related complications as well as a shorter hospital stay and should be the surgical procedure of choice in elective or emergency setting for simple/complicated diverticulitis.

CR16 3202

Intra operative colonic lavage in left sided colorectal malignancy: Our experience. Rajesh Murugesh, Satinder Pal Bains, Jacob Mathew, John Mathew Manipadam, Ramesh Hariharan, VPS Lakeshore Hospital, Kochi

Introduction: Anastomotic leakage is the most significant complication after colorectal surgery. Bowel preparations has been believed to reduce the rate of anastomotic

leakage and wound infection, but has not been proven uniformly. On table colonic lavage has been proposed as an alternative to mechanical bowel preparation, as with on table colonic lavage we can assess completeness also and can do colonoscopy to rule out any synchronous polyp lesion. **Aims:** To compare our experience of on table colonic lavage with mechanical bowel preparation. **Methods:** The prospective data of 15 patients who underwent on table colonic lavage (Group-1) was recorded. Intraoperative parameters (operative time, blood loss), morbidity (anastomotic leak, wound infection), mortality were studied and compared with those of 30 patients who underwent preoperative mechanical bowel preparation (control, period during 2014-2015; Group -2). **Results:** The demographics of the two groups were similar (table 1).

Parameter	On table lavage (Group-1) n=15	Mechanical pre op bowel preparation (Group-2) n=30	p value
Age (median, years)	60	62.5	NS
Sex (m/f)	12/3	15/15	NS
Comorbidities	7	15	NS
Clinically obstructed	2	0	NS
Endoscope not passable	1	0	NS
Anastomosis type (Stapled/Handsewn)	11/4	20/10	NS
Neoadjuvant therapy	4	4	NS
The outcomes in the two groups are shown in table 2			
Parameter	On table lavage (Group-1) n=15	Mechanical pre op bowel preparation (Group-2) n=30	p value
Anastomotic leak	1	1	ns
Re-exploration	1	1	ns
Covering stoma	7	5	0.0703
Operative time (median, Hrs)	7	7	0.051
Hospital stay (Median, days)	10	10	0.1491
Wound infection	0	1	ns
On table colonoscopy	2	0	0.1061

In Group-1, two patients underwent on table colonoscopy to rule out any synchronous polyp lesion as bowel was clear after lavage. There was no wound infection or mortality. In Group-2, five patient (16%) required diverting stoma as bowel was loaded even after mechanical bowel preparation, six (20%) patient did not tolerate mechanical bowel preparation. **Conclusion:** On table colonic lavage is an attractive alternative to mechanical bowel preparation without additional intra operative time, morbidity & mortality; it is applicable to all patients, and provides an empty clean bowel, which may also help outcomes in a larger series of patients.

CR17 3283

Impact of Platelet Lymphocyte Ratio (Plr) on the Stage of Colorectal Carcinoma. Sreejith S, Ramesh Rajan, Bonny Natesh P, Sindhu RS, Raviram S, Jacob Mathew, Government Medical College, Trivandrum

Introduction: The development and progression of malignancy has a major impact on inflammatory markers. In Colorectal Carcinoma, Inflammatory biomarkers may be helpful in prognostication in the subgroup of patients where Carcinoembryonic Antigen (CEA) is not elevated. We examined the impact of Platelet Lymphocyte Ratio (PLR) on the Stage of colorectal carcinoma. **Methods:** This is a

retrospective, observational study done by analysing the prospectively held colorectal database in the Department from January 2012-December 2016. Inclusion criteria: All consecutive patients who underwent resection for colorectal cancer. Exclusion criteria: Patients with Rectal cancer who received Neoadjuvant Chemoradiotherapy (NACRT), Evidence of infections (URI, LRI, UTI, thrombophlebitis) and /or Total leukocyte count >11000, CLD. Of 172 patients with colorectal cancer resected over this period, 63 were excluded and 109 patients were analysed for study. Patients were divided into two groups, Group A with stage 0-stage IIA and Group B with stage IIB-IV (AJCC, 8th Edition, 2016). The two groups were comparable Vis a Vis, age, sex, co morbidities and performance status ($P<0.003$). **Results:** There were 40 patients in Group A and 69 patients in Group B. The two groups were analysed with Student t test. Mean PLR in Group A and Group B were 101.05 (SD=26.41, SE=4.18) and 165.2 (SD=66.83, SE=8.05); $P=0.0002$. ROC curve was plotted and the area under curve was 81.6%. The cut off PLR above which locally advanced colorectal carcinoma (stage IIB and above) needs to be considered was found to be 122.3 (with sensitivity of 71% and specificity of 85%). This result was obtained irrespective of the CEA levels. **Conclusion:** PLR seems to be a useful Biomarker of locally advanced colorectal cancer. It holds promise in prognostication especially in the subgroup of patients where Carcinoembryonic Antigen (CEA) is not elevated. However this needs further validation with a larger prospective study.

CR18 3284

Laparoscopic total proctocolectomy with ileal pouch-anal anastomosis for Familial Adenomatous Polyposis: Safety, Feasibility and Outcomes. Amit Narendra Chopde, Subhash Mishra, Rajkumar Gupta, Rajesh Bhojwani, Santokhba Durlabhji Memorial Hospital, Jaipur

Introduction: Patients with Familial Adenomatous Polyposis (FAP) are young, socially active and cosmetically conscious. Minimally invasive approach would be preferred by them. However, data establishing the safety and feasibility of laparoscopic approach in FAP is limited. **Aim:** To evaluate feasibility and outcomes after laparoscopic total proctocolectomy with ileal pouch-anal anastomosis (TPC+IPAA) for patients with FAP. **Methods:** Twenty FAP patients with or without coexisting malignancy underwent elective laparoscopic TPC+IPAA during 2011 to 2017 at a tertiary care centre with vast experience of colorectal surgeries (SDM hospital, Jaipur). Fifteen were done as 2-staged procedure and five were performed as 3-staged procedure. The ileal pouch-anal anastomosis was at the level of dentate line and mucosectomy was not done in any of the cases. Diversion loop ileostomy was added in all cases. The main outcomes were: Hospital stay, postoperative complications, oncologic and functional outcomes and long-term complications. **Results:** The median age of the patients was 29 (range: 16-50) and mean body mass index was 26.25 (SD=4.29). The average

operative time was 277 minutes (SD=34.31) and median blood loss was 160 ml (range: 100-280ml). Three patients had invasive malignancy while 4 patients were detected to have dysplasia on final histopathology report. Pathological complete resection (R0) was achieved in all cases of malignancy. There was no perioperative mortality. The 90 day postoperative morbidity consisted of Clavien-Dindo grade I and II complications only (25%) with paralytic ileus being the most common (3 patients). There were no anastomotic complications. Average hospital stay was 7.5 days (SD=2.56) with the median follow up being 32 months (range 13 months-59 months). No patient with malignancy developed local recurrence during this period. Long term complications were seen in five patients (25%) with one patient (5%) developing parastomal hernia who had to be operated. One of the patients with malignancy developed liver metastases at 37 months of follow up and eventually died. This patient had node positive invasive malignancy of the upper rectum (pT2, N1, M0) at the time of pouch creation. The functional results improved over time as assessed by stool frequency (mean 5.6 v/s 3.2) and Waxner incontinence score (mean 1.95 v/s 0.95) at 6 months and 1 year after ileostomy closure. ($P<0.05$). **Conclusions:** Laparoscopic total proctocolectomy with ileal pouch-anal anastomosis for Familial Adenomatous Polyposis is safe, technically feasible and offers favourable postoperative and functional outcomes. Minimally invasive approach could be the standard of care for prophylactic treatment of FAP in near future.

CR19 3499

Laparoscopic Resection Rectopexy for Complete Rectal Prolapse: Our Experience. Suresh Kumar Saini, Subhash Mishra, Rajkumar Gupta, Rajesh Bhojwani, SIDSS, SDMH, Jaipur

Introduction: Laparoscopic resection rectopexy (LRR) is one of the techniques for treatment of rectal prolapse especially in patient who has constipation as a main symptom and has long redundant sigmoid colon preoperatively. Data regarding the LRR showing the perioperative outcome and follow up results are limited in our country. Here we are presenting our experience of 15 cases of LRR. **Methods:** This is a retrospective analysis of prospectively maintained data bases between 2009 to 2017. 15 laparoscopic resection rectopexies for rectal prolapse grade V were done. Data were evaluated regarding perioperative outcome and follow up result mainly constipation and recurrence. **Results:** 15 patients underwent resection rectopexy between 2009 to 2017 for grade V rectal prolapse. The median age of cohort was 48.53 yrs (21-73 yrs). 8/15 (53.33%) were male and 7/15 (46.66%) were female. Main symptoms were prolapse itself and constipation (86.66%). Two (13.33%) patient were conversion of previous laparoscopic mesh rectopexy to LRR and one patient (6.67%) was conversion of previous laparoscopic suture rectopexy to LRR. One (6.67%) patient have history of previous thiersch wiring. The average operative time was 122.86 minutes (SD=22.83). No covering

stoma created in any patient. Post operative pain was major morbidity (20%) and wound site infection in one (6.67%) patient. There was no anastomotic leak and urinary and genital complications. Mean length of hospital stay was 5.4 days (SD=2.06) and constipation improved in 53.84% (7/13) patients. The median follow up was 25 months (range 1-96 months). On follow up recurrence was noted only in 1 (6.67%) patient. There was no mortality. **Conclusion:** Resection rectopexy is a safe procedure with good postoperative results and long term functional outcome.

CR20 3398

Modified Stapling Technique for J-pouch construction in Restorative Proctocolectomy for Ulcerative Colitis.

Monish Karunakaran, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram

Introduction: Creation of ileal reservoir-anal anastomosis following proctectomy has substantially minimized if not completely negated the need for a permanent end ileostomy in medically refractory ulcerative colitis. As opposed conventional technique, which uses 3 firings of open linear 75mm staplers, our modified technique for J-pouch creation involves initial firing with linear 75mm staplers & the succeeding 2 firings with endoscopic 60 mm staplers. With this technique, ileum does not shoulder up, owing to its long shaft and a much more accurate and safe apposition of the ileal limbs is achieved. Additional perceived benefits include less crushing of the stapled tissues & better staple-line hemostasis. **Methods:** Retrospective review of electronic medical records of all consecutive patients who underwent ileal pouch-anal anastomosis at our institution from January 2015 to June 2017. This included patients who underwent either a 2 or 3-stage procedure. Patient demographics, operative technique, and available follow up data was recorded. **Results:** 42 patients underwent ileal pouch anal anastomosis during the study period. Out of this 24 & 18 patients underwent pouch construction with the conventional & modified stapling technique respectively. Both of these groups were comparable with respect to demographic data & disease-related factors. There was no peri-operative morbidity in either of the 2 groups. There were no significant differences between the 2 techniques in terms of operative duration, intra-operative blood loss or need for transfusions. Both techniques were also similar in terms of time to ileostomy closure, short term pouch function & pouch related complications. **Conclusion:** Modified stapling technique using endoscopic stapling device can be recommended as a safe technique for optimal J pouch creation.

CR21 3111

Polidocanol versus phenol in oil injection sclerotherapy in treatment of internal hemorrhoids– A randomized controlled trial. Sandeep Mishra, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry

Introduction: Hemorrhoids are a fairly common disease with a prevalence of 4.4% with a peak occurring in both sexes between 45-65 years. Treatment of internal hemorrhoids depends on the grade of the disease. Injection sclerotherapy is the preferred treatment method in grade 1 and 2 hemorrhoids. Injection phenol in almond oil has been widely used conventionally in many institutes in India but it has a list of complications, which can be serious sometimes. On the other hand, polidocanol has a sclerosant as well as a local anesthetic effect. This offers painless sclerotherapy that can be easily administered as an out-patient procedure. However, usage of polidocanol as a routine is not followed in many centers in India. Hence, this study was carried out to investigate the safety and efficacy of polidocanol injection sclerotherapy in grade 1 and 2 internal hemorrhoids. **Methods:** This was a Good clinical practice (GCP) compliant, single-blind, prospective, single-center, superiority, randomized controlled trial carried out in a tertiary care hospital between February 2016 and April 2017. They were randomized into two groups, the 3% polidocanol (n=75) and the 5% phenol group (n=75) after blinding them. Grade III or IV hemorrhoids. Patients with Anal fissure, proctitis, perianal abscess, perianal hematoma, rectal prolapse, rectal varices, Bleeding disorders, Sclerotherapy during the last 12 months, Previous anal surgery and Pregnancy were excluded. The primary end point was stopping of per rectal bleeding after the first sclerotherapy session. Sclerotherapy was repeated every 2 weeks until the bleeding stopped, finally at 12 weeks after the last sclerotherapy session. The secondary end points were assessment of pain, pruritus and patient satisfaction. **Results:** A total of 150 patients were enrolled in the study, 75 in each group. Both the groups were comparable in terms of demographic and clinicopathological characteristics. At the end of the first sclerotherapy session with polidocanol, 60.6% of patients versus 38.1% in phenol group had stopped perianal bleeding (p=.009). After the second sclerotherapy session, 94.7% of patients in the polidocanol group and 84% of the patients in the phenol group were treated successfully. The patient satisfaction was 87% in polidocanol group versus 73% in phenol group (p=.040). Furthermore, in the polidocanol group significantly less treatment sessions were required than the phenol group (1.39±.49 vs 1.62±.49; p=.010), and the total volume of injected sclerosant was less [3.30 (±.96) vs 4.86 (±1.46); p=0.001]. **Conclusion:** It can be concluded that 3% polidocanol is more effective than 5% phenol in oil when used as injection sclerotherapy in the treatment of first and second degree internal hemorrhoids. Phenol in oil remains a reliable and time-tested treatment option for internal hemorrhoids with 84% success rate after the second session. This study demonstrated that polidocanol is a highly effective with 95% success rate after the second session in the treatment of first and second grade internal hemorrhoids. Its side effects profile is similar to phenol in oil. It can be a treatment modality of choice to reduce the number of treatment sessions.

CR22 3154**Comparison of Diclofenac Suppositories and Diltiazem Gel in Post-operative Pain Relief following Hemorrhoidectomy: A Randomized Control Trial.**

Aneesh Suresh, Balamourougan Krishnaraj, Sarath Chandra Sistla, JIPMER, Puducherry

Introduction: Post-operative pain is the most common and distressing complication following hemorrhoidectomy. Various topical agents have been tried for pain relief like Glyceryl trinitrate, NSAIDs, local anesthetics, sucralfate, metronidazole and calcium channel blockers with variable effect. No study has been conducted till date to compare the pain-reducing effect of diclofenac suppository and diltiazem gel. Hence, the objective of this study was to evaluate the efficacy of rectal diclofenac suppository and topical diltiazem gel in providing post-operative pain relief following hemorrhoidectomy. **Methods:** This was a single center, prospective, open-labeled, parallel arm randomized control trial carried out between April 2015 and May 2017. All patients above the age of 18 years with grade 3/ grade 4 hemorrhoids undergoing elective hemorrhoidectomy were enrolled whereas patients with previous hemorrhoidectomy, ischemic heart disease, pregnancy, orthostatic hypotension and second/third degree heart block were excluded from the study. The sample size of 24 in each group was calculated based on mean difference in VAS score of 2.7 (5% alpha error, 80% power). Patients were randomized into two groups using block randomization technique. One group of patients received 100 mg of rectal diclofenac suppository whereas the other received 1 g of 2% topical diltiazem gel at 0, 12 and 24 hours. Pain was assessed using VAS scores at 6, 12, 24 and 48 hours. If VAS score was more than 4, rescue analgesia in the form of injection morphine 0.1 mg/kg was given. The primary objective was to evaluate the efficacy of rectal diclofenac suppository and topical diltiazem gel in reducing post-operative pain. Secondary objectives included need for catheterization, post-operative edema and overall wound healing, total amount of rescue analgesics utilized and side effect profile of both the drugs. **Results:** A total of 43 patients were included in the study, 22 in the diclofenac group and 21 in the diltiazem group. The mean age of distribution was 52.86 ± 14.62 years vs. 42.90 ± 14.88 years ($p=0.032$). Both groups were comparable in terms of other demographic and clinical characteristics such as gender, weight, presentation, grade of hemorrhoids and co-morbidities. The mean difference in VAS scores at 6 hours and 12 hours was not significant ($p=0.399$ and $p=0.134$ respectively) whereas difference in VAS scores at 24 hours [4 (3.00-4.25), 7 (5.00-7.00); $p<0.01$] and 48 hours were significant [3 (2.00-4.00), 5.00 (4.00-6.50); $p<0.01$]. The number of patients requiring catheterization was similar in both groups (9.1% vs. 14.3%, $p=0.664$). The amount of rescue analgesic consumed was less in the diclofenac group as compared to diltiazem group (7.05 ± 4.48 mg vs. 15.71 ± 4.64 mg, $P<0.01$). The incidence of

post-operative edema (13.6% vs. 23.8%, $p=0.457$) was less and overall wound healing (90.9% vs. 81%, $p=0.412$) was better in diclofenac group but was not statistically significant. 2 out of 22 patients (0.09%) in the diltiazem group had side effects compared to none in the diclofenac group. **Conclusion:** Rectal diclofenac suppository is a safe drug and provides superior pain relief than diltiazem gel with decreased incidence of post-operative edema and improved wound healing.

CR23 3384**"Diversion stoma versus no diversion" based on three intra-operative criteria in low anterior resection after neoadjuvant chemoradiation for carcinoma rectum: Pilot study.**

Sindhu Radha Sadasivan Nair, Bonny P Natesh, Ramesh Rajan, Sreejith S, Antony Stanley, Govt. Medical College, Trivandrum

Introduction: Diversion stoma in low anterior resection (LAR) after neoadjuvant chemoradiation (NACRT) for carcinoma rectum is advised, to prevent post-operative anastomotic leak and sepsis. Clinical anastomotic dehiscence was seldom observed in LAR after NACRT; when anastomosis was satisfactory on intra-operative assessment. Literature reports controversies regarding potential benefits of diversion in LAR; encouraging a comparative study. **Aim:** to compare peri-operative clinical parameters and post-operative complications in patients satisfying three intra-operative criteria, in LAR after NACRT for carcinoma rectum, done with or without diversion stoma. **Methods:** Study population: Carcinoma rectum (ICD-9:154.1) underwent LAR after NACRT from 01/01/2016 to 30/05/2017; in the Department of Surgical Gastroenterology, Govt. Medical College, Trivandrum. Study design: single centre retrospective comparison (pilot study). Inclusion criteria: LAR after NACRT (Capecitabine/5-FU+long-course radiotherapy) for carcinoma rectum, satisfying three intra-operative criteria (macroscopic distal resection margin >2 cm, complete full thickness doughnuts and negative Jacuzzi's leak test); done with or without diversion stoma (loop ileostomy). Exclusion criteria: *Adjacent organ resection, *Positive resection margin, *Culture positive other post-operative infections confronting with anastomotic leak. Study protocol: Enrolled cases were stratified as LAR with diversion stoma (Group-I) and LAR without diversion (Group-II). Variables regarding peri-operative profile and post-operative complications were entered in proforma, from department database. Statistical analysis: Two groups were compared by continuous and categorical variables using student-t and Chi-square tests for statistically significant differences ($p<0.05$; SPSS-20). **Results:** LAR patients ($n=36$) satisfying inclusion and exclusion criteria was enrolled into study; 20 in Group-I and 16 in Group-II. Mean age (years) in Group-I was 58.45 ± 10.99 ; Group-II was 59 ± 8.07 ($p=0.84$). 65% in Group-I and 62.5% in Group-II were males ($p=NS$). 15% in Group-I and 18.35% in Group-II had diabetes ($p=NS$). Mean distance (cm) of lesion from anal verge was

7.65+1.78 in Group-I; 8.5+2.39 in Group-II ($p=0.64$). Mean serum CEA ($\mu\text{g/L}$) was 5.53+3.74 in Group-I; 6.81+9.29 in Group-II ($p=0.13$). Macroscopic distal resection margin (cm) was 3.3+0.6 in Group-I; 3.9+1.36 in Group-II ($p=0.085$). Groups found comparable as p -values were statistically insignificant. 35% Group-I and 50% Group-II had laparoscopic resection. Mean heart rate on post-operative day (POD)-5 was 80.8+8.46/minute in Group-I; 81.19+7.54/minute in Group-II ($p=0.649$). Median of drain removal day was POD-4; starting oral fluids was POD-2 in both groups. Antibiotics were given till POD-5 by protocol to both groups; extended till POD-7 in two patients in Group-I and one in Group-II. Overall morbidity in Group-I was 15%; Group-II was 12.5% ($p=NS$). Wound collection in 2 (Group-I) and 1 (Group-II); respiratory infection in 1 patient each in two groups. Highest Clavien-Dindo score was 1; in 2 among Group-I and one among Group-II. No serious morbidities or mortality in either groups; they have shown comparable post-operative outcomes. **Conclusion:** Pilot study on LAR after NACRT for carcinoma rectum done with or without diversion stoma; has shown comparable outcomes. As there is no serious post-operative morbidities or mortality in 'LAR without diversion' group; study may be continued to the required sample size for a comparative study.

E-video

EV2 3114

Laparoscopic Sigmoid Colectomy for diverticulitis. Dhaval Odhavjibhai Mangukiya, SIDS Hospital & Research Center, Surat

Introduction: Chronic sigmoid diverticulitis may present with stricture, fistula or phlegmon. Patients with chronic diverticular disease (persistent pain in the absence of inflammation) have greatly improved quality of life with surgery. We present a case of Laparoscopic sigmoid colectomy for chronic sigmoid diverticulitis with urinary bladder fistula. The **Case:** 62 year old female case of sigmoid diverticulitis since 4 years with history of repeated admission and managed conservatively. She presented with phlegmon formation with colovesical fistula. After bowel preparation she was posted for surgery electively. Total four ports two in left iliac region one supraumbilical and one left iliac region inserted. Sigmoid colon mesentery dissected at root preserving superior haemorrhoidal vessels. Accidentally opened urinary bladder at fistula site repaired using absorbable sutures. Rectum mobilized and transacted at peritoneal fold. Diseased sigmoid delivered through small vertical lower midline incision using wound protector. Specimen transacted and anvil inserted through cut end. End to end colorectal anastomosis using circular stapler. Postoperative period was uneventful. Patient discharged on post operative day 6. Indwelling urinary catheter kept for 14 days after surgery. **Discussion:** Intervention and choice of procedure in acute sigmoid diverticulitis is still in debate. Chronic presentation are preferred for laparoscopic management with primary

anastomosis without diverting stoma. **Video link:** <https://www.youtube.com/watch?v=Rfs8cfrxb3A>

EV12 3405

Laparoscopic Total Pelvic Exenteration in a 26 Year Old Male for Adenocarcinoma of the Lower Rectum Infiltrating the Prostate and Seminal Vesicle following Neoadjuvant Chemoradiation Therapy. Gigi Varghese, Christian Medical College Vellore

This is a video presentation on Laparoscopic total pelvic exenteration in a 26 year old male for adenocarcinoma rectum infiltrating the prostate and seminal vesicles following neo-adjuvant chemoradiation. The duration of the edited video clip is 8 minutes.

EV13 3487

Robot Assisted Extra-Mesolectal Excision of a Retro-Rectal Tumour. Subhankar Paul, Ajit Pai, Raghunath KJ, Apollo Hospitals, Chennai

Colorectal carcinoma is a common type of cancer and usually presents within a spectrum of clinical symptoms of altered bowel habits, bleeding per rectum, weight loss and anaemia depending on the location of the tumour. However, there have been reports of atypical presentations of these carcinoma based on the presenting symptom and less so based on the site. Primary neoplasms of the retro-rectal space are rare and usually diagnosed incidentally while evaluation of unrelated symptoms. This is a video graphical case-report of an unusual presentation of adenocarcinoma rectum as a retrorectal tumour, its diagnosis and management.

EV14 3489

Robot Assisted Intersphincteric Resection. Devendra Ghanshyam Parikh, Department Of GI & HPG Division, HCG Cancer Centre, Ahmedabad

Sphincter preservation in very low rectal cancer (<4 cm) is an uphill task. Abdominal perineal intersphincteric resection carries the best chance for functional sphincter preservation. We have a case series of 6 such cases of such low rectal cancer over a period of last 8 months, in which robot assisted total mesorectal excision with intersphincteric resection carried out. Coloanal anastomosis was done and diverting ileostomy was given to all the patients. Abdominal part was done with robot (Da Vinci XI) assistance and steps were similar to the LAR till we reached the levator ani muscle. Once levator ani muscle reached. Cranial part of the intersphincteric resection was carried out from abdominal part. Remaining part of the ISR was performed from the perineal part. Specimen was delivered from the anal canal and coloanal anastomosis carried out in all the patient. All the patient receive diverting ileostomy.

Oral papers

L1 3029

Outcomes of acute liver failure in a dedicated liver intensive care unit with medical management and transplantation from India. Gaurav Nitin Chaubal, Vaishali Solao, Vibhor Borkar, Somnath Chattopadhyay, Prashantha Rao, Samir Shah, Aakash Shukla, Ruhi Kohli, Sanjay Walke, Priya Shenoy, Mihir Vora, Mohamed Rela, Ravi Mohanka, Global Hospitals, Mumbai

Introduction: Acute liver failure (ALF) is highly fatal. Viral hepatitis is the commonest cause in the Asia whereas medications are the major cause in the West. None of the existing prognostic criteria is perfect. We undertook this study to analyze the outcomes of ALF treated at our centre. **Methods:** Patients were managed in a dedicated liver intensive care unit (LICU). Quadruple H therapy i.e. hypothermia, hypocarbia, hypernatremia and head-end-elevation was used to manage patients. Continuous renal replacement therapy (CRRT) was used for patients with ammonia more than 150 micromol/L and high volume plasma exchange (HVPE) was used for patients with systemic inflammatory response syndrome. Patients fulfilling King's College criteria (KCC) were listed for super-urgent transplant. Liver transplantation (LT) was done in patients not improving with medical management. **Results:** Between January 2014 and July 2016, 83 ALF patients were classified into 3 groups according to etiology; group 1: Hepatitis A/E, group 2: yellow phosphorus poisoning and group 3: other causes. The mean age was 28.5 ± 13.6 years. CRRT was done in 50 patients (60%) and HVPE in 31 patients (40%). KCC was fulfilled in 55 patients (63.3%). KCC had 93% sensitivity, 71% specificity, and 84% accuracy. Thirty five patients (42.2%) survived spontaneously, 36 patients (43.3%) required LT and 12 patients (14.5%) died. Spontaneous survival in group 1 (76%) was significantly higher as compared to the other 2 groups. The overall survival was 79.5% and post transplant survival was 86%. Sepsis was the major cause of death and there was no death due to cerebral edema. **Conclusions:** Hepatitis A/E induced ALF have a high rate of spontaneous recovery. Cerebral edema can be effectively managed with ammonia lowering strategies. Survival in ALF has improved due to aggressive intensive care and LT. KCC has shortcomings and better prognosticating criteria are required.

L2 3235

Antegrade arterial and portal flushing versus portal flushing only for right lobe live donor liver transplantation- A Randomized control trial. Rommel Sandhyav, Viniyendra Pamecha, Piyush Kumar Sinha, Kishore GS Bharathy, Shridhar Sasturkar, Institute of Liver and Biliary Sciences, New Delhi and Sakra World Hospital, Bengaluru

Introduction: In Living Donor Liver Transplantation (LDLT) portal flush only of the graft on the bench is done, unlike in Deceased Donor Liver Transplantation (DDLT) were in situ as well as on bench both portal and arterial flush is done. There is no data on antegrade arterial flushing of the graft on bench and its effects on graft function in LDLT. **Methods:** Consecutive patients undergoing elective right lobe LDLT from September 2015 to October 2016 were block randomised to receive either portal flush only or both portal and arterial on the back table. Preoperative, intraoperative and postoperative outcome measures were analyzed. **Results:** Sixty consecutive elective right lobe grafts were block randomized into two groups: 30 in portal and arterial flush group and 30 in the portal flush only group. There was no difference between the two groups between preoperative, intra operative and donor variables. There was no adverse event related to arterial flushing. The portal flush and arterial group had lower a shorter ICU/HDU stay ($p=0.01$) and hospital stay ($p=0.02$). The rate of graft dysfunction based on Olthoff criteria was 13.3 % with portal and arterial flush compared to 40 % in portal flush only ($p=0.02$). There was no significant difference in the arterial, biliary complications and mortality. Multivariate analysis showed graft weight ($p=0.04$) and portal and arterial flush (0.04) to be significant independent predictors of graft dysfunction. **Conclusions:** Back table antegrade flushing of the right lobe live liver graft with both portal and arterial flush is safe and significantly improves graft function and decreases ICU/HDU and hospital stay in comparison to portal flush only.

L3 3251

Management of complex biliary complications after live donor liver transplantation with combined percutaneous and endoscopic intervention- A large volume center experience. Anisha Tiwari, Sanjiv Saigal, Neeraj Saraf, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Anubhav Khandelwal, Sanjay Saran Baijal, Rajesh Puri, Randhir Sud, Arvinder Singh Soin, Medanta-institute of liver transplant and regenerative medicine, Gurugram

Introduction: Biliary complications (BC) ranging from early postoperative bile leak to late strictures continue to be Achilles heel of live donor liver transplantation (LDLT). We analyzed BC over a 3year period to examine the indication and utility of the combined endoscopic and percutaneous rendezvous approach in managing them. **Methods:** All BC in 843 consecutive LDLT over 3 years from June 2013 were analysed. Significant early bile leaks (< day 6) were re-explored. Late bile leaks were drained externally for the first 3-4 weeks post-transplant. Subsequently, all leaks and strictures were stented endoscopically (duct-duct anastomoses) or percutaneously (Roux-en-Y). ERCP failures and anatomically difficult BC were managed with a rendezvous approach. **Results:** There were 117 (13.8%) BC, including 5 early (managed by re-exploration and HJ) and 112 late bile leak +/- strictures. ERCP and stenting was successful in 71 while percutaneous interventions were required in 41 (Roux anastomosis 10, failed ERCP and sole percutaneous management in 8 and rendezvous technique 23). Among the rendezvous patients, 21 were male and 2 were female. Mean age was 48±11 years. Number of ducts were single in 4; two in 13 and three in 6. Duct configuration were single- 4; spectacted- 9; far apart- 10. 13 had single anastomoses and 10 had 2 anastomoses. Rendezvous approach was used for failed ERCP in 7 and electively in 16 patients (one or more of: tight/ long/ angulated/ multiple strictures on MRCP). The mean period from surgery to stricture was 8±7 months. At a mean follow up of 12±5 months 22/23 patients are well. One patient died of cholangiolar abscess and sepsis. 17 patients are now stent-free after successful remodeling; while 6 patients still have stent in situ. **Conclusions:** LDLT recipients with multiple ducts and multiple anastomoses may develop long/multiple/angulated/ tight strictures that may necessitate combined endoscopic and percutaneous rendezvous management. However, with experience most such patients can be salvaged.

L4 3258

Short term patency of neo middle hepatic vein in right lobe living donor liver transplantation. Deeplaxmi Purushottam Borle, Viniyendra Pamecha, Kishore GS Bharathy, Yashwant Patidar, Binit Sureka, Shalini Thapar Laroia, Indian Institute of Biliary Sciences (ILBS), New Delhi

Introduction: Inadequate drainage of anterior sector can affect graft functional recovery and regeneration following right lobe live donor liver transplantation (LDLT). The aim of current study was to correlate the patency and outcome of the reconstructed neo MHV. **Methods:** Prospective observational study of consecutive recipients with right lobe LDLT with anterior sector reconstruction from January 2014 to October 2015. Doppler ultrasound was done daily till day 14 then on day 21 and 28 to assess patency of neo-MHV and correlated with patient outcome. **Results:** 139

liver transplants were performed during the study period, of which 88 right lobe transplants were included in the study. Seventy-eight patients survived till 28 days. The neo MHV was reconstructed using explant portal vein in 76 (86.4%) and polytetrafluoroethylene (PTFE) and cryopreserved vein in 11 (12.5%) and 1 (1.1%) respectively. The patients were divided into 2 groups according to the neo-MHV patency status. The demographic and biochemistry parameters were not significantly different between the two groups. The 28 days patency rate of the neo-MHV in survivors was 89.7%. All occlusions were detected on or after 7 days. There was no difference in patency rates between venous conduits and e PTFE conduits, the number of veins anastomosed; length and width of the conduit, or the type of anastomosis. Patency did not alter the incidence of early allograft dysfunction, sepsis, rejection, morbidity or mortality. Despite the contribution of the anterior sector to the graft volume being more than 50% in close to two-thirds of patients, there was no noticeable effect on outcomes probably because of the high early patency rates of the neo-MHV resulting in an optimum outflow. **Conclusions:** Explant portal vein for reconstructing anterior sector tributaries has an excellent short term patency rate, as does the ePTFE graft. The explant portal vein is an easily available and cost effective option.

L5 3288

A comparative evaluation of MRI and liver biopsy for liver fat estimation in liver transplant donors. Ankush Golhar, Naimish Mehta, KR Vasudevan, Abhideep Chaudhary, Shailendra Lalwani, Sunita Bhalla, Sriram Rajan, Saumitra Rawat, Samiran Nundy, Sir Ganga Ram Hospital and Mahajan Imaging Center, New Delhi

Introduction: An increased fat content in the donor liver is associated with a greater risk of complications after living donor liver transplantation (LDLT) in both donors and recipients. Magnetic resonance techniques can decompose the liver signal into its fat and water signal components and therefore assess liver fat more directly than computed tomography or ultrasonography. MRI IDEAL IQ (Iterative Decomposition of water and fat with Echo Asymmetry and Least squares estimation) has recently been shown to be accurate for hepatic fat quantification in animal and human studies. This technique can measure the mean fat fraction representative of the entire liver as opposed to biopsy, which examines focal fatty changes only. MRI has also been suggested as a noninvasive modality to monitor hepatic steatosis. In this study, we describe the use of MRI IDEAL IQ technique in quantification of hepatic steatosis in live liver donors and compared it with liver biopsy, which is the gold standard at present. **Methods:** Between November 2014 to February 2017 we prospectively evaluated 50 liver donors comparing the MRI IDEAL IQ technique with either preoperative or intraoperative liver

biopsy. The MRI sequences were performed using a 3.0 TESLA, MR system. The accuracy of MRI was assessed by linear regression analysis between MRI liver fat fraction and biopsy fat estimation. We divided the study population into four groups depending upon the average liver fat content. **Results:** Less than 3 % fat content was detected in 33 donors (84.6 %), 3 to 6 % fat content in 13 (26%), 6 to 9 % fat content in 3 (6 %) and more than 9 % fat content in 1 donor (2 %) on MRI. On linear regression analysis MRI IDEAL IQ fat evaluation correlated well with histopathological fat evaluation for detecting fat content in livers ($R^2=0.757$). The accuracy of MRI IDEAL IQ was 88 % with sensitivity and specificity rates of 100% and 84.6% respectively for detecting fat content in the liver ($P<0.0001$). The average liver fat content evaluated by MRI correlated with BMI but not with age or sex. The groups were comparable in terms of demographic and clinical variables in donors, or development of early graft dysfunction and deranged kidney function in liver transplant recipients. **Conclusions:** The MRI IDEAL IQ technique is a highly reliable and accurate method, which can replace liver biopsy for the liver fat estimation in live liver donors and hence avoid potential complications of an invasive biopsy.

L6 3305

A Study Of Association Between Pathological Characteristics Of Splenic Vein And Shunt Thrombosis In Patients Undergoing Proximal Splenorenal Shunt For Non Cirrhotic Portal Hypertension. Shahana Gupta, Kalayarasan R, Surendra K Verma, Biju Pottakkat, JIPMER, Puducherry

Introduction: Non-cirrhotic portal hypertension (NCPH) accounts for nearly 50% of portal hypertension in Indian patients. Proximal splenorenal shunt (PSRS) is an excellent, one time procedure which changes natural course of the disease beneficially. Shunt thrombosis is an important complication of this procedure, reported in 5.6-47% patients. **Aim:** In this study we assess the hitherto unexplored association of pathological characteristics of splenic vein with shunt thrombosis in patients with Extrahepatic portal vein obstruction (EHPVO) and Non cirrhotic portal fibrosis (NCPF) undergoing PSRS. **Methods:** A prospective observational study was carried out on 96 consecutive patients with NCPH (EHPVO: 39 and NCPF: 57) who underwent PSRS and spleno-adrenal shunt in the Department of Surgical Gastroenterology, JIPMER, Puducherry from 2011-2016. All patients were evaluated with Doppler study of porto-spleno-mesenteric system, upper GI endoscopy and a CT portovenogram prior to surgery. A comparison of histopathological features of splenic vein like presence of medial hypertrophy, wall thickening, intimal fibrosis, adventitial attenuation along with evidence of venous thrombosis and vein wall calcification was performed in groups of patients

undergoing shunt surgery, with or without development of shunt thrombosis during follow up. Splenic vein and shunt diameter, extent of fall in portal pressure (mechanical properties) and lie of shunt were also assessed. **Results:** The study group comprised of 96 patients (77 female) with NCPH. Age ranged between 12 and 55 years. Median splenic vein diameter was 12 mm (range 4-22mm). Median shunt diameter was 9mm (range: 4-15mm). Median fall in portal pressure after shunt surgery was 10 mm Hg (range:2-20mm Hg). Shunt thrombosis developed in 32 patients (34%) during follow up. On histopathological examination of veins, splenic veins in all patients were found to be abnormal. Medial hypertrophy and wall thickening of splenic vein was present in all patients. Intimal fibrosis was observed in 50% patients with shunt thrombosis while it was seen in 25% patients without shunt thrombosis. On multivariate analysis, which considered only pathological characteristics, intimal fibrosis in splenic vein wall was found to be significantly associated with shunt thrombosis ($p=0.023$). In a separate multivariate analysis in which the mechanical and pathological characteristics are considered together, none are found to be significantly related to shunt thrombosis. Intimal fibrosis however showed a p value (0.06) that exceeds the 0.05 cut off only slightly. **Conclusions:** We observe that splenic vein is pathological in all patients with or without shunt thrombosis. Hence, we conclude that pathological splenic vein, when detected intra-operatively, should not obviate performance of shunt. However, when the pathological changes are considered as separate entities in the group, diseased intima (intimal fibrosis) emerges as a possible factor that is significantly associated with shunt thrombosis. Hence, the presence of intimal fibrosis on histopathology should prompt a more rigorous follow up for patients for shunt thrombosis.

L7 3312

Live donor liver transplant for adult acute liver failure. Ankur Vagadiya, Piyush Sinha, Shridhar Sasturkar, Ashok Choudhury, Senthil Kumar, Viniyendra Pamecha, ILBS, New Delhi

Introduction: Emergency liver transplant is life saving in selected patients with acute liver failure (ALF). In parts of the world where deceased organ donation is sparse, emergency live donor liver transplant (LDLT) is the dominant option. **Methods:** Profile and outcomes of all adult ALF undergoing LDLT between "March 2010 to October 2016" at our institute were analyzed. Selection criteria for transplant was Kings College criteria (KCC). **Results:** Of the 173 patients with ALF, 112 (64.7%) fulfilled KCC and referred for transplantation. 35 (31%) of these (19 men) underwent LDLT, 20 patients (17.85%) had contraindication for liver transplant and 57 patients (50.89%) had family not willing/ financial constrain/ no suitable living donor available. The median age was

37 years (18-71). Etiology was HEV (30), HAV (6), ATT induced (22), HBV (16), Indeterminate (21) & others (16). The median jaundice to encephalopathy time was 12.5 days (9.25-20.0). Majority (82 %) were in grade 3/4 encephalopathy at presentation and 80% on ventilator preoperatively. The median duration of mechanical ventilation before transplant was 2.0 days (1.0-3.0). Pre operative culture was positive in 32%. The median MELD score was 36 (27-40), admission to transplant time was 51 hour (13-192). CIT was 93 min (78.2-127.2), WIT was 33.5 min (27.2-46.7) and operative time was 13 h 20 min (12.0-14.47). Right lobe graft was predominant type (32/35). The 5 year post-LT patient survival was 57 %. The mortality was 89 % (68/77) in group of patients who didn't undergo liver transplantation. In no LT group, a median time from onset of encephalopathy to death was 4 days (range, 1-29 days). Multivariate analysis 112 patients showed that LDLT (HR 4.84, $p < 0.01$) was an only factor independently associated with increase survival and arterial ammonia (HR 1.002, $p < 0.01$) was independently associated with decrease survival. In LT group, significant factor predicting post transplantation mortality includes graft weight (GW) less than 643 gm (HR 1.006, $p = 0.01$) and post LT sepsis (HR 4.3, $p = 0.02$). On ROC curve, graft weight predict mortality with AUROC 0.64 (95 % CI 0.42 to 0.85) and the GW cut off was below 643 gm with sensitivity and specificity of 66 % and 67 % respectively. The median donor evaluation time was 16 hours (12.0-18.3). There was no donor mortality. Major complication was seen in one donor in form of wound infection requiring secondary suturing under local anesthesia. **Conclusions:** Emergency LDLT is a feasible in selected patient with acute liver failure with good donor safety and acceptable recipient survival. Window for transplantation is narrow in ALF so early referral before severe cerebral edema and/or multiorgan dysfunction developed can further improve outcome.

L8 3321

'Safe Optimization' of GRWR and Remnant Liver Volume in LDLT: Interlobar vascular plane is not a watershed. Thiagarajan Srinivasan, Renu Kumar, Sanjay Goja, Amit Rastogi, Prashant Bhangui, Arvinder Singh Sooin, Medanta Liver Institute, Gurugram

Introduction: In LDLT, 'line of demarcation' (LOD) as obtained by selective unilobar vascular inflow occlusion acts as guide for parenchymal transection in liver donors. While this technique is standard in donors with adequate GRWR and remnant volumes, we move the line and plane of transection towards the right or left in cases with borderline remnant or GRWR respectively. **Aim:** To compare donor and recipient outcomes of our modified donor liver transection technique in cases where the remnant liver volume (RLV) is small (30-35%; Group A) or where the GRWR is low (0.6-0.8; Group C) versus that with standard transection in the

interlobar avascular plane in cases with $RLV > 35\%$; Group B) or ($GRWR > 0.8$; Group D). **Methods:** Of a prospective database of 1655 right lobe LDLTs from July 2010 to March 2017, 1063 were retrospectively analysed and divided into 4 groups: Group A-163 cases with predicted remnant 30-35% in whom remnant volume was augmented by moving transection plane to right by 5-10 mm, Group B-350 cases with age/ steatosis/ BMI matched donors in whom standard transection was done, Group C-277 cases with low predicted GRWR of between 0.6-0.8, in whom graft volume was augmented by taking sliver of parenchyma over partial or subtotal middle hepatic vein taken with right lobe, and Group D-277 cases with age/ MELD matched recipients with $GRWR > 0.8$). When major bilio-vascular pedicles were encountered, transection plane was shifted to include the pedicle in graft or remnant as applicable. Postoperative donor and recipient, morbidity and mortality were compared in the groups A versus B, and in Groups C versus D. **Results:** The results included biliary complication, mean ICU stay, vascular complications and mortality in Group A versus Group B donors and biliary complication, mean ICU stay, HAT, PVT and 1 year mortality in Group C versus Group D recipients. In Group A (163) and Group B donors (350) the biliary complications were 1/163 and 1/350 ($p = N.S.$), the mean ICU stay was 1d vs 0.9 d ($p = N.S.$), the vascular complications were (0) and (0) ($p = N.S.$) and mortality was (0) and (0) ($p = N.S.$) respectively. In Group C (279) and Group D Recipients (277) the biliary complications were 10.5% and 7.9% ($p = N.S.$), the mean ICU stay was 5d and 4.5d ($p = N.S.$), the portal vein thrombosis rate was 0.7% and 1.08% ($p = N.S.$), the Hepatic artery thrombosis rate was 4.6% and 2.8% ($p = N.S.$) and 1 year mortality was 10.10% and 9.30% ($p = N.S.$) respectively. **Conclusions:** Our protocol of moving the line and plane of parenchymal transection in LDLT helps in safe optimization of GRWR in recipients and liver remnant in donors without increasing the mortality or morbidity. It also suggests that the interlobar avascular plane is not a watershed.

L9 3325

Short and long-term results of surgery for extra-hepatic portal venous obstruction. Anand Nagar, Aneela T, Vivek Mangla, Siddharth Mehrotra, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi

Introduction: Extra-hepatic portal venous obstruction (EHPVO) is a common cause of portal hypertension and variceal bleeding in children and young adults more so in developing countries. Variceal bleeding is the most common manifestation and is associated with a high re-bleeding rate. This study was done to evaluate the results of surgery in patients with EHPVO. **Methods:** Between August 1996 and December 2015, a total of 137 patients underwent surgery for EHPVO. Out of these, complete

follow up information was available for 70 patients. All patients were included in study irrespective of surgical procedure performed and follow-up data were collected prospectively. **Results:** There were 90 male and 47 female patients (median age of 20 [3-57] years) who underwent surgery for EHPVO. Most common indication for surgery was upper gastrointestinal bleeding in 97 (71%) patients followed by hypersplenism in 95 (69%), portal biliopathy in 26 (19%) and lump abdomen in 53 (39%) of patients. Most (80%) patients had a shunt operation (proximal lienorenal shunt in all) and rest had a splenectomy with devascularisation. Perioperatively blood transfusion was required in 15 (11%). There was no operative mortality. Most common postoperative complication was high drain output in 10 (7%) patients. Median hospital stay was 6 (4-22) days. Post-operative complications as per Clavien-Dindo grading was Grade I in 36%, II in 21% and III in 4%. Hypersplenism reversed in all patients. Liver biopsy was normal in all patients. We were able to follow-up 70 (51%) patients for a median follow-up duration of 55 (6-208) months. No patient developed hepatic encephalopathy. Three (4%) patients died, in the follow up, causes of which were UGI bleeding in two and intestinal obstruction in the third. Portal biliopathy recovered in 10 (71%) patients and four patients required multiple endoscopic interventions. Two patients required Roux-en-y hepaticojejunostomy for portal biliopathy. **Conclusions:** Shunt surgery and devascularisation procedures are one time procedures that can achieve good long-term symptomatic control in most patients with EHPVO.

L10 3380

Is left donor hepatectomy safer than right donor hepatectomy: Experience from a high volume Living Donor Liver Transplant program. Sanjay Yadav, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: Donor safety is utmost important in Living donor liver transplantation (LDLT). Increasing demands and instances of small for size syndrome in some recipients with left lobe donors led to the evolution of right lobe LDLT. **Aim:** To compare donor morbidity after donor right lobe (RL), left lobe (LL) and left lateral segment (LLS) donation. **Methods:** Of 1622 patients who underwent donor hepatectomy between June 2010-2106, one (0.06%) died (2012). A consecutive cohort of 726 donors between January 2011 to January 2014 were studied in three groups; RL (n=641, 88.3%), LL (n=36, 4.9%) or LLS (n=49, 6.8%) depending on the type of donation. **Results:** The mean age was 34.6±10 (18 to 55) years and was uniformly distributed. There were 404 females and 322 males. The overall complication rate was 22.1%. Most were Clavien Grade I and II. Clavien Grade IIIa, IIIb, and V (1) were noted

in 4.1% donors. The incidence of these major complications were comparable between RL (n=27, 4.2%), LL (n=1, 2.7%) and LLS (n=2, 4.08%) (p=0.89). The incidences of bile leak (p=0.95), abdominal collection (p=0.73), pleural effusion (p=0.52), re-exploration (0.70) among three types of donor hepatectomy were similar. Bile leak were seen in 20 donors (2.7%). Out of these, 13 were managed conservatively with prolonged (11) or additional (2) intra-abdominal drainage. 7 underwent re-exploration (days 1-3) for bile leak and all the leaks were from caudate ducts which were sutured. Intra-abdominal collection was observed in 28 patients (3.9%). 13 underwent re-exploration, of which 12 were RL donors, and 1 a LLS donor. The reasons for re-exploration were bile leak (n=7), bleeding (n=2) and intestinal obstruction (n=4). **Conclusions:** In centers experienced in right lobe live donor liver transplantation, with careful selection, meticulous surgery and good postoperative care, morbidity after RL donation is similar to that after left lobe donation.

L11 3415

Worldwide survey of live liver donor selection policies: results from 19009 living donor liver transplants. Arvinder Singh Soin, HIRAK PAHARI, Rohan Jagat Chaudhary, Elizabeth Pomfret, Medanta The Medicity, Gurugram

Introduction: While surgical technique in living donor liver transplantation (LDLT) has evolved with a focus on donor safety and recipient challenges, the donor selection criteria remain considerably disparate. **Methods:** A questionnaire on donor selection was sent to 41 centers worldwide. 24 centers (names to be acknowledged during the presentation) responded, generating combined data of 19009 LDLTs. **Results:** Of 24, 18 were predominantly LDLT and 6 predominantly DDLT centers. They were classified into high volume (>500 LDLT, n=10) and low volume (<500 LDLT, n=14) centers. At majority of centers (16/24; 67%), the minimum acceptable GRWR was 0.7 (or less), and remnant 30% (18/24; 75%). The median upper limit of donor age was 60 years and BMI 33 kg/m². At 63% centers, age influenced the upper limit of BMI inversely. 50% centers routinely tested donors for pro-coagulant disorders. Majority preferred AST and ALT <50 IU/ml. Most accepted donors with non-debilitating mild mental or physical disability; rejected donors with treated coronary artery disease, CVA and non-brain or skin primary malignancies; whereas opinions were divided about previous psychiatric illness, substance abuse and abdominal surgery [23/24 (96%) accepted donors with previous laparoscopic cholecystectomy, and 18/24 (75%) also accepted donors with history of other laparoscopic upper abdominal surgeries]. Most performed selective liver biopsy, commonly for steatosis, raised transaminases and >1 features of metabolic syndrome. On biopsy, 50% considered microvesicular and all considered macrovesicular steatosis important. 29% rejected donors for mild inflammation, 42% for non-specific granuloma,

and nearly all (92%) for early fibrosis (F1). Some centers (more often low volume or Western) rejected donors for anatomical reasons: 38% for 3 graft arteries, 79% for portal vein type D/E and 50% for ≥ 3 hepatic ducts. IOC alone (25%), MRCP alone (21%) or both (46%) were used for biliary imaging. **Conclusions:** This first large liver donor survey provides insight into donor selection practices which may aid their standardization and better analysis of data between centers, with potential expansion of donor pool without compromising safety.

L12 3428

99mTc-Mebrofenin Hepatobiliary Scintigraphy with SPECT CT for assessment of Total as well as Segmental Liver Function and its utility in estimation of Future Liver Remnant Functional Volume in patients undergoing Liver Resection. Raghavendra Babu Yalakanti, Suneetha Batchu, Tarun Piplani, Dheeraj Gautam, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagarajan Sreenivasan, Vikram Raut, Arvinder Singh Soin, Medanta The Medicity, Gurugram

Introduction: Evaluation of liver quality and future liver remnant (FLR) function is vital for planned liver resection. CT volumetry do not provide information about functional capacity, so do not reflect actual liver function. Aim is to evaluate value of Hepatobiliary Scintigraphy (HBS) with 99mTc-mebrofenin. **Methods:** Mebrofenin Uptake Rate (MUR) expressed as %/min/Sqmt and correlated with liver biopsy. Total Liver Function MUR (TLF- MUR) was calculated in all patients, and in patients planned for liver resection FLR-MUR was also calculated and correlated with CT Volumetry.

Primary end points were to analyze post hepatectomy liver failure (PHLF) and mortality in patients with liver resection. Secondary end points were management planning implemented in patients with space occupying lesion (SOL) in liver based on MUR. **Results:** Initially HBS was performed in 9 healthy volunteers and subsequently in 40 patients. Liver biopsy performed in all 40, and liver resection (LR) (2 or more segments) was performed for various indications in 24 patients. TLF-MUR and blood pool clearance in Group A (normal liver function), Group B (impaired function), and Group C (severely impaired function) patients was significantly different (p-0.000) (Table). In Group B, TLF-MUR was similar (p-1.0) among patients with mild cholestasis, moderate steatosis and fibrotic livers. Out of 40 patients, five had low TLF-MUR with no liver SOL and are being followed, 35 had liver SOL. In those 35 patients, 8 had low FLR-MUR with high portal pressures, so liver transplant (LT) done in 3 and five patients waiting for LT. In 3 patients, LR deferred for oncological reasons. In LR group (n=24), 22 had no morbidity and the FLR-MUR was between 2.9%/min/Sq mt to 7.97%/min/Sq.mt, while FLR volume on CT was between 38.8% to 92%. However, two of them needed preoperative portal vein embolization (PVE) to augment FLR-MUR. After LR two patients developed PHLF, and subsequent mortality, FLR-MUR and FLR CT volumes were 0.4%/ min/ Sq mt, 2.8%/ min/Sq mt and 38%, 50.2% respectively. **Conclusions:** HBS is valuable technique to predict total liver quality, and risk of PHLF especially in patients with uncertain quality of liver parenchyma. Patients with adequate FLR CT volume but decreased FLR -MUR may benefit from PVE.

Table:

	Group A Normal Liver (n=18)	Group B (n=24)			Group C Pre Cirrhotic / CTP A (n=7)	P value Group A Vs Group B Vs Group C
		Cholestasis (Serum bilirubin between 2 - 3 mg/dl) (n=6)	Moderate (15 -25%) steatosis (n=7)	Fibrotic Liver (Ishak F1-F4) (n=11)		
TLF-MUR %/min/Sq mt BSA Mean± SD	8.9 ± 0.82	7.05 ± 0.83	6.92 ± 1.36	7.17 ± 0.75	3.83 ± 1.28	0.000
Blood Pool Clearance % Mean± SD	42.8 ± 4.9%	31.9 ± 4.3 %	34.6 ± 5.5%	34.2 ± 3.2 %	22.6 ± 4.3%	0.000

Oral video

OV2 3175

Right posterior sectorectomy using the Glissonian pedicle technique: Tricks and pearls for a safe resection.

Abhishek Yadav, Jacob Mathew, H Ramesh, VPS Lakeshore Hospital, Cochin

Right posterior sectorectomy entails resection of the right posterior sector of the liver. The major challenges in this surgical procedure are 1- Identifying and isolating the right posterior pedicle at the hilum. 2- Diligently following the line of parenchymal transection along the right hepatic vein which is oblique, has a longer transection area and is more challenging to follow than the Cantlie's line which is to be followed in a right or left sided liver resection. The isolation of the right posterior pedicle is even more challenging when the Rouviere's sulcus (which is a surface landmark for the right posterior pedicle) is either absent or not prominent. We demonstrate a right posterior sectorectomy in a 55 year old male patient with a 6x5 cm hepatocellular carcinoma located in the right posterior lobe of the liver. Since the division of the main right pedicle was deep intra-hepatic and a prominent Rouviere's sulcus was absent, a Glissonian pedicle technique was used to isolate the right posterior pedicle. Also demonstrated in the surgical video is the line of parenchymal transection to be followed, which is oblique and runs along the right hepatic vein. To follow this transection line diligently is paramount to performing a safe right posterior lobe resection.

Poster session

L1 3062

A rare case of Congenital portal vein stenosis.

Narendranath Nagoti, Manoj Shrivastav, Global Hospital, India

Introduction: Congenital portal vein stenosis is very rare which can predispose to EHPVO and no case has been reported in the literature so far. **The Case:** 4 year old male child presented with upper abdominal pain and lump in upper abdomen since 3 months. There was no history of vomiting, fever or GI bleed. Child was a product of non-consanguineous marriage, born out of full term caesarean section due to cord entanglement around his neck. At the age of 2 months he had jaundice and pale colored stool. He was hospitalized and was found to have gall bladder sludge, mild ascites and splenomegaly. He was managed conservatively and symptoms improved. No history of blood transfusions in the past. On examination he had no pallor or icterus. Abdominal examination showed gross splenomegaly which is extending upto the umbilicus. There was no hepatomegaly or ascitis or dilated veins. Hemoglobin was 9.8, platelets were 1 lakh, liver function

and kidney function tests were normal. USG abdomen with doppler revealed hemodynamically significant short segment portal vein stenosis (around 90% luminal narrowing). Post stenotic portal vein is dilated and show turbulent hepatopedal flow of 1.78 cm/sec. Pre stenotic portal vein show flow of 15.2 cm /sec. Splenomegaly (16.2 cm) with normal echotexture and gall stones were present. He was evaluated with CT scan abdomen which shows thin, circumferential mural thrombus in the main portal vein for length 7 mm and focal narrowing at porta hepatis with post stenotic dilatation of main trunk, right and left branches. Few collaterals are seen at the porta hepatis. Portal vein proximal to it is mildly dilated. There is also gross splenomegaly and cholelithiasis. UGI scopy showed no esophageal varices. After informed consent and pre-anesthetic checkup, he was planned for surgery. Intraoperatively liver was normal in colour and consistency. Few collaterals were present. There was gross splenomegaly. No ascites. There is stenosis of MPV for about 0.5 cm in length in the porta hepatis. Pre stenotic portal vein pressure was 17 mm Hg. He underwent resection of the stenotic portal vein segment with end to end anastomosis using 5-0 prolene interrupted sutures. Post surgery portal vein pressure fell to 7 mm Hg. Biopsy of the stenotic segment showed constricted lumen and denuded lining endothelium. Wall shows thickened media. Portal doppler study done on POD-1 showed preanastomotic portal flow of 40 cm/sec. Post anastomotic hepatopedal flow of 60 cm/sec. USG doppler repeated on POD-4 showed MPV is patent without any thrombus. Preanastomotic PV shows hepatopedal flow of 31 cm/sec and post anastomotic portal vein shows Hepatopedal flow of 66 cm/sec. Splenomegaly 12 cm with Minimal free fluid. Patient was discharged on POD-6 in a stable condition. LFT at discharge were normal and platelet count is 70,000.

L2 3080

Primary Hepatic Tuberculosis: A Rare Occurrence.

Devayani M Niyogi, S Patkar, Rajesh S Shinde, M Goel, Tata Memorial Hospital, Mumbai

Introduction: Tuberculosis affects the liver in one of two ways. It can either be affected as a part of miliary TB or, it can be due to primary hepatic tuberculosis – affliction of the liver by the TB bacillus (*Mycobacterium tuberculosis*) in the absence of pulmonary or miliary TB. This clinical entity is extremely rare even in countries endemic for tuberculosis. Primary hepatic tuberculosis can closely mimic malignancy in terms of clinical presentation and imaging features. **Methods:** Ours is a dedicated hepatobiliary unit in a tertiary cancer care center in India. Among 400 patients undergoing liver resections for suspected liver malignancy over a period of 4 years, we identified 3 patients whose clinical features and imaging closely mimicked primary liver malignancy or metastases but final histopathology was

suggestive of hepatic tuberculosis. **Conclusions:** Primary hepatic tuberculosis is a rare entity where preoperative diagnosis is difficult in view of confounding clinical features and imaging characteristics. It may mimic primary liver malignancy or metastases in the setting of pre-existing malignancy. This report stresses the importance of having a high index of suspicion and preoperative biopsy in cases where imaging features are unequivocal.

L3 3140

Management of Portal Biliopathy- needs individualized approach, an observational study. Karthikeyan Mahalingam, Naganath Babu OL, Prabhakaran Raju, Rajiv Gandhi Govt.General Hospital, Chennai

Introduction: Portal biliopathy defined as spectrum of biliary abnormalities that are associated with portal hypertension, most commonly caused by extrahepatic portal vein obstruction (EHVPO). It is postulated that the collateral veins over CBD form a cavernoma which exerts pressure on the CBD leading to biliary obstruction. The ultimate aim of the management is to relieve biliary obstruction to prevent biliary cirrhosis. Endotherapy, radiological intervention and surgical therapy are available options for this complex disease. **Methods:** We have analyzed series of cases managed in our department in terms of demography, clinical features, various types of management, need of additional procedure and time interval between presentation and procedure, outcome of the procedure in terms of LFT, clinical improvement also analysed. We have analyzed five cases of portal biliopathy with diverse presentation managed under our care. Patient 1- eighteen year old male, EHPVO with stunted growth who presented with jaundice and cholangitis. Initially PTBD was done since ERCP failed and stabilized. Then patient underwent proximal splenorenal shunt (PSRS) and one month later he underwent cholecystectomy with hepaticojejunostomy. Patient 2- 17 yr old boy presented with jaundice and altered LFT, diagnosed as EHPVO with portal biliopathy in the form of distal CBD stricture. Pt undergone PSRS after the procedure his LFT and CBD become normal. Patient 3 was 35 year old male with EHPVO and portal biliopathy. ERCP stenting was done and on laparotomy there were minimal collaterals and managed with primary hepaticojejunostomy. Patient 4 was a 50 yr old female who had portal biliopathy and hepatolithiasis managed with subtotal cholecystectomy with side to side roux en y hepaticojejunostomy. Patient 5- 36 year old male, known case of EHPVO post splenectomy and mesocaval shunt had persistent jaundice trial dissection showed extensive collaterals who was salvaged with ERCP stenting. **Results:** All the patients diagnosed as EHPVO, age ranges from 17 to 50. All patients presented with jaundice and 2 pts had cholangitis seek immediate attention. There were 4 males and one female patient. We have categorized

treatment modalities into three. primary shunt group 2 pts, primary hepaticojejunostomy 2 pts group and shunt followed by HJ group 1 pt. Types of shunt are PSRS (Proximal splenorenal) and mesocaval shunt. Mesocaval shunt pt already undergone splenectomy devascularisation elsewhere. Patient undergone PSRS completely recovered with normal LFT and CBD. Another patient (case1) after PSRS had persistent jaundice stabilized with PTBD, after two months bilioenteric anastomosis done by HJ. Two patients undergone primary Hepaticojejunostomy. Patient with mesocaval shunt had persistent elevation of LFT salvaged with endotherapy and stabilized. **Conclusions:** In the era of advanced technology symptomatic portal biliopathy needs intervention according to severity of collaterals, extent of biliary involvement and deserves algorithmic approach, varies from primary shunt, primary HJ and both. Early shunt procedure is preferable treatment for patient having extensive collaterals. Primary bilioenteric anastomosis offered for patients having manageable collaterals. In spite of extensive surgical manures endotherapy may have salvage role if surgical intervention failed.

L4 3150

Surgical management of fibrolamellar hepatocellular carcinoma: Our experience and literature review. Namita Gangaram Chavan, Prasad Pande, Gunjan Desai, Hitesh Mehta, Prasad Wagle, Lilavati Hospital And Research Centre, Mumbai

Introduction: Fibrolamellar variant of hepatocellular carcinoma is a rare entity that occurs in patients without cirrhosis or underlying liver disorder and is commonly seen to present with abdominal mass or pain. We present here our experience with this rare disease and review its literature. **Methods:** Retrospective review of case records revealed 10 patients with fibrolamellar HCC. Relevant information was noted from case records and data evaluated. **Results:** Mean age was 36 years with 6 females and 4 male patients. Presenting symptoms were pain in 3 patients and abdominal mass in 5 patients. 2 patients were detected on routine health checkups. None had elevated AFP. Left lateral sectorectomy was performed in 2 patients, left hepatectomy in 4 and right hepatectomy in 4 patients. One patient required portal vein embolization prior to right hepatectomy. Postoperatively, one patient had a bile leak managed conservatively, 3 patients had transient derangement in liver function and one patient had wound infection. Six patients had recurrence on follow up scans, 4 of which were managed with segmental resection and two with metastatectomy. **Conclusions:** Fibrolamellar HCC occurs in a younger subset of patients with equal gender distribution [unlike HCC which is more common in males] with no pre-existing liver disorders. The disease can be managed surgically with good outcomes and better survival rates but, more recurrences than hepatocellular carcinoma.

L5 3443

Varied presentation of Abernethy malformation, its management and outcome: Our experience. Swapnil Sharma, Kapildev Yadav, Seema Math, Shailesh Sable, Ashutosh Chouhan, Vibha Varma, Vinay Kumaran, Kokilaben Dhirubhai Ambani Hospital, Mumbai

Abernethy syndrome is a rare congenital anomaly in which there is direct communication between portal and systemic venous circulation. Clinical presentation depends upon type of malformation. It varies from asymptomatic to presentation related with secondary complications of disease to presentation related with associated anomalies. Management options include surgical or interventional radiological closure of shunt and liver transplantation. Here, we are reporting three cases of Abernethy malformation with different types of presentation and different types of management. One of them presented with decompensated chronic liver disease with hepato-pulmonary syndrome whereas other two patients presented with hepato-pulmonary syndrome and portopulmonary hypertension. Two of the three patients required closure of shunt whereas one patient presented with decompensated liver disease with SOL in liver required living donor liver transplantation. Among patients who required closure of shunt, one was closed surgically whereas other was closed using interventional radiology.

L6 3430

Two to Tango- A case for Dual Lobe Liver Transplantation. Naimish N Mehta, Siddharth Mehrotra, Shailendra Lalwani, Vivek Mangla, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi

Introduction: Scarcity of availability of suitable donor has lead to surgical innovations even in living donor liver transplant. Dual lobe liver transplant is technically challenging and infrequently done across the globe, with more than 75% of the procedures reported from a single centre. Here we present our experience of 3 dual lobe liver transplants performed during last two years. **Methods:** We prospectively collected data of 3 patients with end stage liver disease who underwent dual lobe living donor liver transplant at our institute. **Results:** Dual lobe transplant was done in 3 patients with mean age of 54 years (46-58) of which 2 were male and one was female. HCC was the cause in one patient while other two were NASH related and cryptogenic respectively with Child C status. The mean BMI of the patients was 30 (27-34). The mean GRWR with single liver was 0.61 and was considered inadequate for patients with Child C status. Hence dual lobe transplant was planned and mean GRWR expected was 0.85 (0.83- 0.87). Different types of dual lobes graft were used – right lobe with left lateral graft in one, right lobe with left lobe graft in another and both left lobes were used as graft in the third patient.

Native artery and portal vein branches beyond division were used in all the three grafts. Autologous vein graft was used for reconstructing the MHV in 2 patients with right lobe while in twin left lobes a PTFE graft was used as extension to LHV & MHV opening and anastomosed to the IVC. Biliary construction was done using a combination of duct to duct and Roux en Y hepaticojejunostomy in all patients. The mean operating time was 1060 minutes for whole procedure. In each case, both the lobes of liver were implanted sequentially thereby reducing the Cold Ischemia for all the liver grafts. All the recipients were extubated on POD1. The mean ICU stay was 5 days. Fluid collection between the two grafted lobes of liver was noticed in one patient requiring PCD placement. One episode of rejection was managed with pulse steroids. Regular Doppler was performed till POD5 and triphasic CT at time of discharge. All the patients were discharged after mean hospital stay of 18 days. There was no major donor morbidity and mortality. On median follow up one year, one recipient had biliary stenosis requiring percutaneous biliary stenting, all donors are doing well. **Conclusions:** Dual lobe liver transplantation, though technically a complex procedure, can be safely performed in an experienced centre with good outcome.

L7 3461

Fibrolamellar hepatocellular carcinoma (FHCC) with biliary tumor thrombus is an unusual association. Deep Lamichhane, Sudeep Banerjee, Manas Kumar Roy, Robin Thambudorai, Avidip De, Venkatramani Sitaram, Tata Medical Center, Kolkata

Introduction: We report a patient with fibrolamellar hepatocellular carcinoma (FHCC) with biliary tumour thrombus (BTT) in a 14-year-old boy. **The Case:** Clinical presentation- A 14-year-old boy presented with complaint of mass in the abdomen for 5 months. He had been evaluated at another center, differential diagnoses of atypical hemangioma/ focal nodular hyperplasia had been made on imaging and he was kept on follow up. He was referred to us when the mass increased in size and he developed jaundice. Clinical examination revealed icterus and hepatomegaly. Total bilirubin was 2.4 mg% with alkaline phosphatase of 992 U/L (38-600). Alfafetoprotein was normal. Viral markers were non-reactive. CT/MRI images showed a 12.5 cm heterogenous, exophytic, vascular lesion in segment 5 and 6 of liver with mass effect at hilum with bilateral intrahepatic bile duct dilatation with soft tissue density in common bile duct. Left hepatic artery and portal vein were uninvolved. He underwent right hepatectomy with bile duct excision and left duct hepaticojejunostomy. Histopathology showed FHCC with intra and extrahepatic tumor emboli; margins and nodes were tumor negative. He subsequently received SIOPEL 3 protocol chemotherapy. He is asymptomatic at 6 months follow up. **Discussion:**

HCC is an uncommon liver tumor seen in healthy, non-cirrhotic, young adults. MRI is the investigation of choice. BTT is rare and its significance is unclear. Vascular invasion is known to adversely affect prognosis. Margin negative resection is the treatment of choice and postoperative chemotherapy is indicated in selected patients.

L8 3122

Liver hydatid cyst in urban referral center- when do we need Biliary stenting? Keyur Suresh Bhatt, Dhaval O Mangukiyaa, SIDS Hospital, Surat

Introduction: Hydatidosis, a zoonotic infection, is due to the larval stage of the tapeworm *Echinococcus* (E.). A cyst may or may not contain daughter cyst (s). In adults the liver represents the prevalent site (50–70%) and lungs are the second commonest site (10–30%). Rupture into the biliary tree is the commonest complication (up to 25% of cases) and can be associated with biliary obstruction by daughter cysts. **Methods:** We analyzed our data in tertiary care urban centre from October 2010 to March 2017 for liver cysts. Total 52 patients were identified with liver cysts that were operated, out of which 39 had liver hydatid cyst. Who were operated for the same. As a part of protocol all our patients underwent Cystectomy- non-radical alternative. It consists cyst de-roofing and cyst content evacuation without removal of the priciest, plus or minus omentoplasty and whenever required they were subjected to ERC (Endoscopic retrograde cholangiography) and stenting of biliary system. We have opted for surgery after routine protocol of Albendazole pre operatively except the patients who presented with cholangitis due to cyst internal rupture. None of the patient in our series was of type CE 1 (WHO Classification). **Results:** Out of 39 patient we found biliary communication (on imaging, preoperatively) in 14 patient. Out of which we required ERC in 7 patients postoperatively. Two patients were presented with cholangitis and jaundice pre operatively so they were subjected to ERC pre operatively. Total 9 patients had demonstrable biliary communication (23.68% of total). Factor which was found significant in our series was distance from hilum. ERC group patient had average distance of 1.66 cm vs 4.35 cm in non ERC group. Size of cyst (10.79 cm vs 9 cm), Serum alkaline phosphatase level (103.88 vs 62.13, normal range upto 80), Bilirubin levels (1.54 vs 0.75) were statistically insignificant. ERC group patient had average hospital stay of 9.22 vs 3.2 days for non ERC group. One patient had combined liver spleen hydatid cyst. We have one mortality in our series (elderly patient presented to us with severe cholangitis and sepsis with internal rupture of cyst) he was operated upon after ERC but could not be survived due to multiorgan failure. None of the patient had recurrence in our present series in average follow up of 3 months to 7 yrs. One patient had fluid collection which was treated with percutaneous drainage. **Conclusions:** Cystectomy-

a non radical alternative of hydatid disease is practical and feasible approach. Whenever needed ERC should be done post operatively. Cyst which is near to hilum has got more chances of biliary communication rather than large peripheral cysts. However larger studies are needed to reciprocate the same findings. Morbidities are higher in internal rupture cases.

L9 3127

Management of Liver Trauma- Surgical Intervention still necessary? A single centre Observational Study. Venkateshwara Mahadevan, Villalan Ramasamy, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Rajendran.S, Naganath Babu OL, Madras Medical College, Chennai

Introduction: Incidence of liver injury occurs in 5% of all admissions in accident and emergency room. With the current imaging modalities and critical care monitoring, management of liver trauma has evolved. **Aim:** This study aims to analyse the outcomes of liver trauma in relation to severity of injury and mode of management. **Methods:** Liver trauma patients (N=46) referred to and treated in the Institute of Surgical Gastroenterology, Rajiv Gandhi Govt. General Hospital, Madras medical college between August 2014 to February 2017 were prospectively analyzed. All trauma victims sustaining blunt and penetrating trauma to the liver with or without associated injuries were included in the study. Abdominal trauma with isolated injury to the extra hepatic biliary tree or other visceral structures without liver trauma were excluded. Patients underwent detailed history and physical examination. Serial monitoring of vitals, haemoglobin, haematocrit, liver function test done. Severity of liver trauma was done through CECT based AAST grading system. Analysis of the outcomes of the various approaches for the management of liver trauma was done using simple descriptive statistics. **Results:** In our study, of a total population of 46 patients, 38 (83%) were male and 8 (17%) were female. Of 46 patients, 30 were due to road traffic accident (RTA), 13 due to fall from height and 3 due to assault. 3 patients were hemodynamically unstable and 43 patients were hemodynamically stable on admission. Majority of patients had Grade 2 and 3 liver injury (71.6%). Patients were grouped into 3 categories - non operative management, failed non operative management and immediate surgery. Out of 46 patients, non operative management was initiated in 41 patients and 5 were taken for laparotomy. Four patients out of 41 patients underwent delayed laparotomy. Among the failed NOM group, 2 patients had Grade 5 injury, one patient had Grade 4 injury with sepsis and one patient had Grade 3 injury with associated splenic injury. **Conclusions:** Irrespective of the grade of liver injury, non operative management is advocated in hemodynamically stable patients and patients without associated hollow viscus injury. The cornerstone of successful non operative management

of patient is through continuous surveillance by the hepatobiliary team. In operative management, perihepatic packing is the most common salvage procedure done.

L10 3182

Non hepatic surgery in patients with liver cirrhosis; is the nihilism warranted? Satinder Bains, Abhishek Yadav, H Ramesh, Lakeshore Hospital, Cochin

Introduction: Patients with Liver cirrhosis (LC) frequently require non hepatic abdominal surgery. Surgery in these patients is looked at nihilistically even today. **Aims:** We aimed to analyse our experience of non hepatic surgery in patients with LC in respect to the morbidity and mortality and try and identify the factors which affect the outcomes in this group of patients. **Methods:** Retrospective analysis. **Results:** Between March 2000 to December 2016, n=278 patients with LC underwent non hepatic abdominal surgery at our unit. Results showed in following tables:-

Table-1

Total patients	278
Mean age	56 +/- 10.2
Intra abdominal surgery	176
Abdominal surgery	102
Elective surgery	190
Emergency surgery	88

Table-2

Mean MELD score	Morbidity	Overall Mortality
17.8+/-1.1	23%	8.7%

Table-3

Parameter	Child-A	Child-B	Child-C
Patient no.	132	100	46
Mortality	4.8%	7.3%	12.4%

The mortality rate according to Child class was 4.8%, 7.3% and 12.4% in Child class A, B, & C respectively (p=NS). The incidence of morbidity and mortality was however linearly related to the MELD score. On subgroup analysis, presence of ascites, emergency surgery, surgery requiring bowel resection and alcohol as an etiology of liver disease were markers of worse prognosis in this group of patients.

Table-4: showing Sub group analysis

Parameter	Ascites	Emergency surgery	Bowel resection	Alcoholic etiology
No. of patients	102	137		

Conclusions: Our series shows that surgery in patients with LC can be undertaken with morbidity and mortality rates lower than that reported in literature, also the MELD score is a more accurate marker of prognosis than the Child score. We identified a subgroup of patients who do worse than the others, which could be a useful tool for prognosticating patients prior to surgery.

L11 3207

Extracapsular excision of hepatic hemangioma: A single centre experience. Mahesh Goel, Shraddha Patkar, Shubham Garg, Amol Vijay Kanetkar, Tata Memorial Hospital, Mumbai

Presence of symptoms and uncertainty in diagnosis are most common indications for surgery for hepatic hemangiomas. Eighteen patients of hepatic hemangioma operated from January 2011 to December 2016 at the Hepato-pancreato-biliary surgical unit of Tata Memorial Hospital. Indications of operation were presence of symptoms commonest being pain & diagnostic uncertainty. Median size of hemangioma was 9.9 cm (range 3.2 cm to 24 cm). All underwent extra capsular excision. Median operating time was 180 minutes, (range 75 - 460 minutes) and median blood loss was 950 ml (range 100 - 3500ml). Median post-operative stay was 5.5 days (range 3 - 10 days). One (5.6%) patient required re exploration for post-operative hemorrhage, Clavien Dindo (CD) grade IIIb, one (5.6%) had post-operative purulent intra-abdominal collection and underwent per cutaneous drainage CD grade IIIa. There was no post-operative mortality. Post-operative day 3 liver function test were within normal limits. Size of the hemangioma did not correlate with post-operative complications (p=0.135, 95% Confidence interval -1.663 to 11.298). Technique of extra capsular excision is safe and technically feasible in most. This technique preserves maximum liver parenchyma resulting in early post-operative recovery with minimal morbidity.

L12 3121

Budd Chiari Syndrome- A Descriptive Analysis of 38 Cases from a Tertiary Care Centre. K Sathish Kumar, Govt Stanley Medical College and Hospital, Chennai

Budd chiari syndrome is a complex disease characterised by hepatic venous outflow obstruction at any level from the small hepatic veins to the cavo atrial junction. This syndrome is characterised by wide spectrum of presentations ranging from asymptomatic to acute or chronic liver failure. Usually a hyper coagulable state is identified in more than three fourth cases diagnosed with budd chiari syndrome. Similarly budd chiari syndrome has wide variety of management options including medical management, interventional radiological management like hepatic

venoplasty and TIPPS, and surgical management ranging from various shunt surgeries to liver transplantation. Here we present our nine year experience from January 2008 to April 2017 with 38 cases of budd chiari syndrome that were initially identified by Doppler ultra sonography and subsequently confirmed by IVC gram. We herewith discuss the varied clinical presentations, the diagnostic challenges encountered and the various treatment modalities employed in treating these patients at our institute ranging from medical management, interventional radiological procedures, shunt surgeries and liver transplantation.

L13 3123

Living Donor Liver Transplant for Acute Liver Failure in Pediatric patients. Rommel Sandhyav, Piyush Kumar Sinha, Shridhar Sasturkar, Vikrant Sood, Seema Alam, Vinayendra Pamecha, Institute of Liver and Biliary Sciences, New Delhi

Introduction: Acute liver failure (ALF) is associated with high mortality and timely transplant can change the natural history of disease. **Methods:** Prospectively collected data from January 2011 to April 2017 pediatric patients of transplanted for ALF. Selection criteria for transplantation was Kings College Hospital Criteria (KCC). **Results:** 121 children presented with ALF, 76 satisfied KCC of which 61 were referred for transplant. 19 (31.1%) underwent LDLT (13 boys). Etiology was HAV in 36.8% (7), cryptogenic 36.8% (7), ATT induced (2), HBV (1), autoimmune (1) and Wilsons disease (1) Median- age was 6.2 years (5 months-13.6 years); time from admission to transplant 2 days (1-14); jaundice to encephalopathy interval 10 days (7-52); INR 4.82 (2.32-11.1); bilirubin 23.6 mg% (7.9-37.2), PELD (n=14) 39 (25.8-52.7) and MELD (n=5) 32 (19-40). 12 (63%) had grade 3/4 encephalopathy, 12 (63%) patients required preoperative intubation. Preoperative CT was done in 5 patients, all of whom had cerebral edema. 10 patients received left lateral grafts, 8 left lobe grafts and 1 right lobe graft. There was no donor mortality or major complications. Median operation time was 670 min (240-870), blood loss 600 ml (360-1950), WIT 28 (17-55) minutes, CIT 50 (29-94) minutes, GRWR 1.19 (0.62-3.25), Hospital stay 26 (2-115) days. Five patients died in the perioperative period - irreversible brain injury (4); pulmonary haemorrhage (1). Only one patient had late HAT and subsequently succumbed to biliary complication two years later. Overall survival after was LDLT 73.68% (median follow up 29 months (2-62). Among non survivors all had grade 3/4 encephalopathy and were intubated preoperatively. Spontaneous survival among the patients satisfying KCC but did not have transplant was 22.3%. **Conclusions:** Emergency LDLT for pediatric ALF is associated with good outcome compared to patients who did not undergo transplant. Early referral for transplantation can prevent irreversible neurological injury and can further improve outcome.

L14 3231

Glissonian Approach to Liver Resection: Our Experience.

Madhur Anand, Gouri Shankar Sharma, Vikas Kumar Singh, Sachin Jain, Mohammad Farhan Khan, Sundeep Jain, Fortis Escorts Hospital, Jaipur

Aim: The glissonian approach during hepatectomy is a selective vascular clamping procedure associated with low rates of technical failure and complications. The aim of the present study is to present our experience with this technique and its short term outcome. **Methods:** This is a retrospective analysis of prospectively collected data over last 8 years (December 2009 to May 2017). During this period 21 patients underwent liver resections with Glissonian approach. All patients underwent routine preoperative workup including abdominal Ultrasound and triple phase abdominal Computed tomography. Patients with Hepatocellular carcinoma and secondaries liver underwent intraoperative ultrasound. The perioperative outcomes were analysed. **Results:** A total of 21 patients were included in the study, out of which 10 underwent right hepatectomy, 2 right lateral sectionectomy and 9 underwent segmentectomy (segment V- 1 patient, segment VI-2 patients, segments V & VI- 2 patients, segment VII- 2 patients and segments V, VI and VII- 2 patients). Indications for liver resections included Hepatocellular carcinoma with cirrhosis (Child's A- 4), Hepatocellular carcinoma with normal liver (2), hemangioma (5), hemangioendothelioma (1), secondaries from colorectal (5) and gastrointestinal stromal tumors (2) and focal nodular hyperplasia (2). All resections were done by open method and parenchymal transection was done by Debakey's crushing technique. No patient required Pringle's manoeuvre intraoperatively. The operative time was 180-320 minutes and postoperative ICU stay was 12-18 hours. One patient required intra and postoperative transfusion with packed cells and plasma. No patient required postoperative ventilator support. No patient developed postoperative liver failure or encephalopathy. One patient developed ascites and another developed bile leak from the drain postoperatively. Both were successfully managed conservatively. There was no mortality. **Conclusions:** The glissonian approach was effective in all the patients and resulted in acceptable mortality and morbidity. There was no need to change the approach intraoperatively. It can be used as single approach for various types of liver resections in properly selected group of patients.

L15 3254

Duct to duct versus bilio-enteric anastomosis for biliary reconstruction in paediatric living donor liver transplantation.

Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Randhir Sud, Sanjay Bajjal, Neelam Mohan, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: The aim of this study was to compare the impact of biliary reconstruction technique on the incidence of biliary complications in children. **Methods:** The study was a retrospective analysis of prospectively maintained database from September 2004 to January 2016 of 181 paediatric living donor liver transplant (LDLT) patients. Two groups of age and weight matched recipients, Group I (duct to duct biliary anastomosis) and Group II (bilio-enteric anastomosis) were analysed. **Results:** There were 30 patients in each group with mean age of 101.1+43.2 and 102.6+46.5 months ($p=0.89$) in group I & II respectively. The mean weight of group I was 27.2+10.4 kg and group II was 23.8+8.95 kg ($p=0.63$). Incidence of biliary complications was similar [Group I-13.3% (4/30) vs Group II- 16.7% (5/30), $p=0.71$]. Majority of leaks were managed by percutaneous drainage in both groups, strictures by percutaneous trans-hepatic biliary drainage in group II and endoscopic stenting in group I. Group II had higher incidence of post-operative sepsis [16.7% (5/30), $p=0.02$]. With a median follow up of 45 months there was no difference in 1, 3 and 5-year graft survival between the two groups (Group I- 96.7%, 96.7%, 87.9% vs Group II- 96.6%, 87.8%, 87.8% respectively, $p=0.902$). Subgroup analysis was done by excluding patients with biliary atresia with 17 age and weight matched recipients in each group. The incidence of biliary complications was similar in both groups [group I-17.6% (3/17) vs Group II-11.8% (2/17) $p=0.62$] with a higher incidence of post-operative sepsis in group II (23.5%, $p=0.03$). There was no difference in graft survival between the two groups at a median follow up of 55 months ($p=0.50$). **Conclusions:** Duct to Duct biliary anastomosis is not associated with higher incidence of biliary complications compared to bilio-enteric anastomosis in paediatric LT recipients more than 20 kg, with additional advantage of being amenable to treatment by less invasive endoscopic intervention.

L16 3259

Deceased donor liver transplant: Perspectives from a public sector hospital in India. Deeplaxmi Purushottam Borle, Viniyendra Pamecha, Senthil Kumar, Kishore GS Bharathy, Piyush Kumar Sinha, Shridhar Vasant Rao Sasturkar, Chandra Kant Pandey, Vibuti Sharma, Shiv Kumar Sarin, Indian Institute of Biliary Sciences (ILBS), New Delhi

Introduction: As organ donation rate is low, deceased donor liver transplant (DDLT) is an uncommon procedure in India. We present our experience of DDLT from a public sector teaching hospital. **Methods:** A retrospective analysis of all DDLT performed from Jan 2010 to Sept 2016. Demographics, intraoperative, donor factors, morbidity and outcome were analyzed. **Results:** During the study period 348 liver transplants were performed, of which 36 were DDLT (Adult-32, pediatric-4; 35 grafts; 1 split). The median age was 42.5 (1-62) years; 78% men. The median

donor age was 28 (1-77) years; 72.2 % men. About 45% of organs were procured from outside Delhi and 67% of all grafts used were marginal. Three of 38 liver grafts (7.8%) were rejected due to gross steatosis. Commonest indication was cryptogenic cirrhosis (19.4%). The median MELD Na and PELD scores were 23.5 (9-40) and 14.5 (9-22) respectively. Median warm and cold ischemia times were 40 (23-56) and 396 (111-750) min respectively. Major morbidity of grade III and above occurred in 63.8%. In hospital (90 days) mortality was 16.7% and two late deaths because of chronic rejection and biliary sepsis. The overall survival was 77.8% at median follow up of 8.6 (1 - 54) months. **Conclusions:** With a dedicated effort, DDLT can be performed with increasing frequency and safety in a public sector hospital. The perioperative and long term outcomes are acceptable despite the fact that most organs were extended criteria grafts. With optimal planning and coordination most perceived barriers in logistics could be overcome.

L17 3434

ABO-i Living donor Liver Transplant: Early experience with simplified desensitization protocol. Shailesh Anand Sable, Nidhi Mehta, Rajesh Sawant, Kapildev Yadav, Swapnil Sharma, Suneed Kumar, Ashutosh Chouhan, Sorabh Kapoor, Vibha Varma, Vinay Kumaran, Kokilaben Dhirubhai Ambani Hospital, Mumbai

Introduction: The desensitization protocol in ABO-i LDLT has undergone several modifications and with increasing experience the dose and the duration of desensitization has been improvised. Here, we share our early experience with a simplified desensitization protocol in six cases of adult ABO-i LDLT. **Methods:** Between March 2013 and June 2017 we performed 192 liver transplants (162 LDLT and 30 DDLT). We performed six (3.7 %) ABO-i LDLT during this period. All the recipients were admitted to hospital 1 week prior to surgery. Our simplified desensitization protocol included Rituximab 100 mg single dose one week before LDLT (with CD-20 B cell count before and after rituximab), plasma exchanges (PE) starting 5 days before LDLT (number of cycles depending upon pre-op titres and trend of rebound after PE), Mycophenolate Mofetil (MMF) 500 to 1000 mg B.D 5 days before LDLT, Tacrolimus 1 mg BD 2 days and Intra-operative intravenous immunoglobulin (IVIg 40 gm irrespective of the recipient weight at anhepatic phase). All recipients, pre-operative isoagglutinin titres were aimed at ? 1:16 (IgM) and 1:32 (IgG). Post- LDLT immunosuppression included a standard triple drug regimen protocol (Prednisolone+MMF+Tacrolimus). Intravenous Methyl Prednisolone was given at the dose of 2 mg/kg for the 1st week, and then 1 mg/kg for the 2nd week and later a 10 mg/day taper was followed till 30 mg/day. **Results:** Our group of patients are as follows: 64 year male and 36 year male both blood group O+ve received organ from B+ve and A+ve

donors respectively, 33 yr male and 40 yr male B+ve and A+ve received organ from AB+ve and B+ve donors, 59 year male (AB+ to A+) & 45 year male (B+ to O+) (all right lobes with subtotal MHV). The pre-op isoagglutinin titres ranged from 1:1024 to 1:32 for IgM and 1:2048 to 1:64 for IgG. All the recipients required 2-5 cycles of PE pre-operatively and one of the recipients required post-operative PE in view of rising titres and liver enzymes (biopsy proven rejection). Pre-Rituximab anti CD-20 B cell counts ranged from 8.5% to 66% and post- Rituximab count was zero in all the recipients. After LDLT, five recipients achieved normal graft function within 2 weeks of surgery. One recipient required single cycle of PE and steroid bolus for rising titres and liver enzymes (biopsy proven ACR). All of them achieved low isoagglutinin titres in the range of 1:2 to 1:4 for IgM and 1:2 to 1:16 for IgG. None of the six recipients developed antibody mediated rejection (AMR), vascular or biliary complications. Post-operative complications included single episode of sepsis (two recipients), CMV infection (one recipient) and rejection (ACR in 2 recipients: steroid responsive) and cortical blindness (Tacrolimus related in one recipient). Five recipients are doing well with normal graft function at 17, 12, 9, 7 & 2 months. One patient died at 9 months due to congestive cardiac failure. **Conclusions:** Early experience with simplified protocol is safe and effective for ABO-i LDLT.

L18 3449

Psoas Index As A Nutrition Tool To Assess Outcomes After Live Donor Liver Transplantation. Bharat Saranga Kumar, Krishnanunni Nair, Shweta Mallick, Manoj T, Dinesh Balakrishnan, Sudhindran S, AIMS Cochin

Introduction: Nutrition plays a major role in the results of surgical procedures. Chronic liver disease induces a chronic catabolic state leading to increased frailty and in turn poor transplant outcomes. Good tools of nutrition assessment are lacking, BMI and anthropometry are not accurate in cirrhotics due to fluid over loaded state. In practice, the importance nutritional status has been under emphasized in liver transplantation and its outcomes. **Aim:** To study the impact of sarcopenia on the morbidity and mortality following LDLT using the Psoas index. Nutritional assessment in Chronic liver disease is a challenge as the common indices we use like BMI and anthropometric measurements are over expressed than it usually is, in our subjects. Hence muscle mass of the trunk (psoas) which has been proven to express the frailty and the nutrition of the subjects have been studied with CECT during the preoperative evaluation. **Method:** This was a prospective cross sectional study. The CLD patients worked up for LDLT were evaluated with a CT scan 120 days prior to transplantation. Pediatric patients and acute liver failure patients were excluded from the study. The Data was collected prospectively from the hospital database (blood

tests, CT). Using the Siemens CT machine (128 slice), the 1.5mm slices were assessed from the L3 to L4 in the Axial sections. The psoas Volume was assessed using Aquarius Intuition Terrarecon volumetry software 4.4.11. **Results:** Patients who had normal psoas index (class 0 as per the European Working Group on Sarcopenia guidelines 2010) had no mortality. On associational analysis the re-intubation rate postoperatively was found to have a significant correlation with mortality (72%) (p value <0.001). On correlational study of psoas index with ICU stay, a negative correlation was observed which was statistically significant (0.005). By mean comparison analysis the psoas index of the mean of 0.09+/- 0.003 among the subjects was observed to be an independent risk factor of mortality but with negative statistical significance (0.065). The need to change the antibiotics following a culture positive infection was found to be significant with the psoas index which showed a negative correlation and statistically borderline significance (p value - 0.065) which shows an influence of sarcopenia in sepsis. **Conclusions:** It can probably be established that sarcopenia can influence the post operative outcome in liver transplant patients. The assessment of psoas muscles and psoas index assessment would be sufficient to prognosticate the outcomes. Negative aspects of the study would be the small sample size, which would have improved many clinical correlations to get statistical significance.

L19 3324

Splenectomy versus proximal spleno-renal shunt in non-bleeder patients with non-cirrhotic portal fibrosis: A prospective cohort study. Hari Govind, Sundeep Singh Saluja, Ajay Kumar, Vaibhav Varshney, Pramod Mishra, GB Pant Institute of medical education and research, New Delhi

Introduction: The role of splenectomy with or without endotherapy versus proximal spleno-renal shunt (PSRS) in patients of Non-cirrhotic portal fibrosis (NCPF) without variceal bleed is still debatable. We aimed to study the short and long term outcomes in non-bleeder patients of NCPF whom were treated with splenectomy with or without endotherapy versus PSRS. **Methods:** The non-bleeder patients with NCPF whom had undergone either splenectomy or PSRS from 2008 to 2016 were enrolled in study. The patients were followed up post surgery at regular intervals and clinical, biochemical, radiological (Doppler ultrasound for shunt patency) and endoscopic investigations (varices status) were done as per protocol. The outcome measures noted were change in grade of varices, incidence of bleed, encephalopathy, and shunt patency. **Results:** Of the 35 NCPF patients enrolled in the study, 19 patients underwent splenectomy with or without endotherapy and 16 patients underwent PSRS. The indications of surgery were symptomatic hypersplenism

(n=26) and symptomatic painful splenomegaly (n=9). The initial grade of varices was small/large in 11/8 patients in splenectomy group and 6/10 patients in PSRS group (p=0.31). The other baseline parameters were similar among two groups. At median follow up was 42 months (12-72 months), the incidence of rebleed (1/19 vs 2/16; p=0.58) and decrement in grade of varices (8/19 vs 11/16; p=0.18) was comparable among two groups. The shunt thrombosis and encephalopathy rate were 1/16 (6.2%) and 2/16 (12.5%) in patients undergone PSRS. **Conclusions:** The splenectomy with and without endotherapy in non-bleeder NCPF patients has less morbidity and equivalent variceal rebleed rates as compared to PSRS.

L20 3303

Pattern and risk factors for recurrence of Hepatocellular carcinoma (HCC) following liver Transplantation.

Premanandh Elavarasan, Manikandan Kathirvel, Sudhindran S, Binoj ST, Puneet Dhar, Sudheer OV, Dinesh B, Unnikrishnan G, Ramachandran Menon N, Biju Chandran, Amritha medical college, Kochi

Introduction: Although the risk factors for tumor recurrence after liver transplant for HCC has been well studied, data from India is sparse. **Methods:** Prospectively collected data of 43 patients (mean age 52 years. M:F-43:0) who underwent liver transplant for HCC between 2006 to 2016 (out of 563 total transplants), at our centre was reviewed. After excluding 3 patients who died in the postoperative period, the remaining 40 (LDLT 35, DDLT 5) were analysed for tumour recurrence. **Results:** All patients had fulfilled UCSF criteria whilst 12 (28%) were outside Milano criteria. Pre transplant bridging therapy [RFA=19% (8), Tace=16.2 (7), RFA and TACE=4.7 (2)] was performed in 17 patients (40%). Over a median follow up of 8 years, 11 patients (28%) had recurrence. While recurrence occurred in the liver in 55%, purely extrahepatic recurrence was seen in the remaining (lung 18%, bone 18%, peritoneum 9%). The median time of recurrence was 14.9 months (range 4 to 60 months). Pre op AFP levels more than 200 ng/ml and presence of micro vascular invasion were significantly associated with increased risk of tumour. Pre-operative hepatitis serology, age, the type of transplant, waiting period to transplant, neutrophil/ lymphocyte ratio, PET avidity and response to bridging therapy were not significantly associated with tumour recurrence. Only one patient with recurrence could be treated locally (RFA). **Conclusions:** Pre-operative AFP levels more than 200 and microvascular invasion on explant pathology are high risk factors for recurrence of HCC after liver transplant. Recurrence occurred solely in extrahepatic sites in 45%, emphasizing the need to identify systemic micrometastasis in this group of patients prior to transplant.

L21 3289

Prevalence of non-alcoholic fatty liver disease and hypercholesterolemia in patients of gallstone disease undergoing laparoscopic cholecystectomy. Kaptan Singh Bhanker, PGIMER, Chandigarh

Introduction: Gallstone disease (GSD) and non alcoholic fatty liver disease (NAFLD) have high prevalence in the general population and they share the common risk factors for their occurrence. Limited literature with inconsistent results is available suggesting the potential association between these life style induced diseases. Liver biopsy is the gold standard for diagnosing NAFLD. **Aims:** (1) To identify the prevalence of asymptomatic NAFLD or NASH in liver biopsy specimen; (2) to identify association of hypercholesterolemia with NAFLD in patients of symptomatic GSD undergoing laparoscopic cholecystectomy (LC). **Methods:** This is a prospective observational study conducted on patients who underwent LC for symptomatic gallstones in the Department of General Surgery, Post Graduate Institute of Medical Education and Research, Chandigarh from 1 July 2013 to 31 December 2014. All included patients had ultrasonography (USG); serum triglycerides (TG), cholesterol, low density lipoprotein cholesterol (LDL-C), and high density lipoprotein cholesterol. A wedge liver biopsy was obtained from free edge of right liver lobe during LC and all biopsy specimens were analyzed by single pathologist. **Results:** Total of 101 patients were included. NAFLD was confirmed on liver biopsy in 21.8%. Thirteen patients had NAFLD both on USG and liver biopsy, while 22 patients who had NAFLD on USG had normal liver biopsy (p 0.006). Fibrosis and cirrhosis was not found in any biopsy specimen. Dyslipidemia was present in 49.50%. There was no significant association observed between NAFLD and serum cholesterol, TG or LDL-C (p 0.428, 0.848, 0.371 respectively). None of the patient had any complication due to liver biopsy. **Conclusions:** GSD and NAFLD share the common risk factors and there is high prevalence of NAFLD in GSD. Liver biopsy during LC gives an opportunity to diagnose the disease at an early and reversible stage. It is feasible, safe and cost effective.

L22 3213

Study of outcomes of surgical resection of large hepatocellular carcinoma in cirrhotics and non-cirrhotics. Pramod Jagannath, Manipal Hospitals, Bengaluru

Introduction: Hepatocellular carcinoma (HCC) is one of the most common malignancies in the world. These tumours are associated with cirrhosis in 80% of cases. HCCs are not uncommon at clinical presentation, and the surgical outcomes of such tumors have been reported to

be poor as studies have shown that tumor size is related to outcome. This study aims to evaluate the outcome and prognostic factors of patients with large HCC who were treated with surgical resection and compare the outcomes between the cirrhotic and non-cirrhotic patients. **Methods:** All the patients with large HCC admitted to Manipal Hospital, Bangalore who underwent surgical resection between June 2009 and May 2017 [retrospective (June 2009-May 2015) and prospective (June 2015-May 2017) component] were considered. Patient demographics, clinical, surgical, pathology, morbidity, mortality and survival data were collected and analysed. **Results:** A total of 39 consecutive patients were admitted and operated for large HCCs between June 2009 and May 2017. Twelve (30.8%) of them were cirrhotics and the remaining 27 (69.2%) patients were non-cirrhotics. There was no statistical difference in the demographics, presentation, comorbidities, baseline characteristics, presentation and the type of surgeries performed between the cirrhotics and non-cirrhotics. However, significant difference was noted in the mean blood loss, proportion of patients requiring intraoperative PRBC transfusion, number of PRBCs and FFPs required during surgery between the groups. There was no significant difference between the groups on histological examination apart from the bigger size of tumor noted in the cirrhotic group. The post-operative ICU stay and the hospital stay was significantly higher in the cirrhotic group. Both the groups were comparable in terms of post-operative morbidity. Half the patients in both the groups developed recurrence on follow up. The overall mortality was significantly higher among the cirrhotics as compared to the non-cirrhotics. Overall survival (OS) and disease free survival (DFS) were analysed using Kaplan Meier curves and log rank test was used to identify the significance. The average OS was 29.5 months. There was no difference between the groups in terms of DFS. However, OS was significantly better among the non-cirrhotics. Multivariate logistic regression analysis was done to predict the factors associated with the recurrence and mortality. For recurrence, the only factor which was significant on univariate analysis was capsular breach and on multivariate analysis, none of the factors were significant. For mortality, only recurrence of tumor was significant on both univariate and multivariate analysis. The disease-free survival probability in cirrhotics was 30.3% as compared to 45.6% in non-cirrhotics and the median DFS was 12 months for cirrhotics and 42 months for non-cirrhotics. The overall survival probability was 14.3% in cirrhotics and 36.7% in non-cirrhotics. The median survival time was 18 months in cirrhotics and 60 months in non-cirrhotics. **Conclusions:** Surgical resection of large HCCs offers relatively good short and long term outcome. Cirrhosis was found to independently affect OS of patients with large HCC, although it doesn't affect the DFS.

L23 3229

Outcome of live donor liver transplant in patients with co-existent or recently treated extrahepatic malignancies. Anisha Tiwari, Sanjay Goja, Amit Rastogi, Prashant Bhangui, Thiagrajan Srinivasan, Neeraj Saraf, Sanjiv Saigal, Narendra Singh Choudhary, Neelam Mohan, Dheeraj Gautam, Arvinder Singh Soin, Medanta- Institute Of Liver Transplant And Regenerative Medicine, Gurugram

Introduction: Patients with chronic liver disease with untreated/ incidentally discovered/ recently treated malignancies in other systems are often denied transplantation due to an inadequate remission period. This policy may be too harsh as many of these patients may die from their liver disease long before the extrahepatic malignancy proves fatal. **Methods:** Among 1844 consecutive LDLT in the period 2009-2016, we analyzed the short and long term outcomes of 14 patients with liver Cirrhosis and extrahepatic malignancies who underwent LDLT. All patients underwent routine liver transplant evaluation along with staging and metastatic work up for the malignancy. They were accepted for transplant if the extrahepatic malignancy was either treatable prior to/ at the time of liver transplant, or if it was in complete remission. The period of remission was not taken into consideration. **Results:** Among 14 patients, 7 were male and 7 female. Mean age was 44±20 years. Mean CTP was 8±2 and mean MELD was 15±4. Secondary malignancies included- Renal Carcinoma- 3; Breast carcinoma- 3; Thyroid carcinoma- 1, Endometrial Carcinoma- 1; Squamous cell cancer of skin- 1 and Hematologic malignancies- 5 (Langerhans Cell Histiocytosis-2, Acute Leukemia-1, Multiple Myeloma-1 and Hodgkin's Lymphoma-1). One patient had recently treated malignancy of breast (DCIS) and 8 patients underwent additional surgery for the extrahepatic malignancy with LDLT. 5 patients had postoperative complications >Clavien grade II. Mean ICU stay and hospital stay were 5±2 days and 14±5 days respectively. One patient died in postoperative period due to sepsis. At mean follow up of 51±25 months; remaining 13 patients are alive with good graft function without recurrence of their extrahepatic malignancy. **Conclusions:** Presence of extrahepatic malignancy is not a contraindication for LDLT. As long as the malignancy is treated with curative intent at the time or before the transplant, it is possible to achieve long-term survival.

L24 3253

Biliary complications and management in paediatric liver transplant: Outcomes from a high-volume living donor liver transplant centre. Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Randhir Sud, Sanjay Bajjal, Neelam Mohan, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: The aim of this study was to analyse factors associated with biliary complications and describe management and outcomes from a high volume paediatric living donor liver transplant (LDLT) centre. **Methods:** This study was a retrospective analysis of prospectively collected database from September 2004 to January 2016 of 181 paediatric patients who underwent LDLT. **Results:** Median age of the cohort was 55 months (range 4-212 months) and biliary atresia was the most common aetiology. Duct to duct anastomosis was done in 67 (37%) and bilio-enteric anastomosis in 114 (63%) patients. 28 (15.4%) patients had biliary complications; bile leak in 19 (10.4%) and biliary stricture in 18 (9.9%), 9 (47.3%) with bile leak developed biliary stricture. Bile leaks were managed with percutaneous drainage in 68% (13/19) patients and 3 (15.7%) required surgical revision. Biliary stricture following bilio-enteric anastomosis was managed by percutaneous trans-hepatic biliary drainage (PTBD) in 81% (9/11), one required surgical revision; stricture following duct to duct reconstruction was managed by endoscopic stenting in 57% (4/7), two required PTBD and one surgical revision. The type of biliary reconstruction was not associated with increased incidence of biliary complication ($p=0.87$). The concomitant occurrence of hepatic artery thrombosis was the only factor significantly associated with higher rate of biliary complication ($p<0.05$). The 1/3/5-year patient and graft survival for the entire cohort was 92.1%/87.5%/86.5% and 91.6%/86.2%/84.1% respectively. Those with and without biliary complications had 100%/94.4%/94.4% and 90%/85.5%/84.2% patient survival respectively ($p=0.131$); while graft survival was 100%/89.9%/84% and 90%/85.5%/84.2% respectively ($p=0.588$) with no statistical significant difference. **Conclusions:** Post-LT biliary complications add to post-operative morbidity but did not adversely impact graft and patient survival in paediatric LDLT in our series. The type of biliary reconstruction was not associated with increased risk of biliary complications and majority of patients were salvaged by non-operative measures.

L25 3268

Donor safety in Living Donor Liver transplantation at a Low volume center. Aravind Kidambi Seshadri, Sumana Kolar Ramachandra, Subramanyam Mahankali, Karthik Rao, Amit Rastogi, Sanjay Goja, Vijay Vohra, Arvinder Soin, Columbia Asia referral hospital, Yeshwanthpur and Medanta Medicity, Gurugram

Introduction: Donor morbidity (~30%) and potential mortality (~0.2-0.5%) are the biggest bugbears of living donor liver transplantation (LDLT). Donor safety is believed to be higher in high volume programs (HVP). We examined it at a low volume center affiliated to a HVP. **Methods:** We retrospectively analysed 20 LDLT donors from 2013 to 2016 at a community hospital program with affiliation to a HVP,

where its team was trained. Donor selection was stricter than at the associated HVP- upper limits of BMI 30 (vs 33), steatosis 15% (vs 20), age 50 (vs 55), minimum remnant 35% of standard liver volume (vs 30%). Hepatectomy was performed with standard technique, with senior surgical back up from the HVP. **Results:** Mean donor age was 37.05 ± 10.15 years, and mean BMI 24.26 ± 2.77 . Six (30%) had previous abdominal surgeries. Median liver attenuation index was 12 (>5 denoting no steatosis). Nineteen were right lobe (RL) [10 without middle hepatic vein (MHV) and 9 with partial MHV] and 1 left lateral sector donations. There was 1 artery in 17 and two in 3 grafts. Eighteen had Nakamura type A and 2 type B portal vein anatomy. The RL biliary anatomy was Huang A1-A4 in 9, 3, 4, 3 grafts respectively. The mean duration of surgery was 505.1 ± 128.6 minutes and blood loss 688.68 ± 128.6 ml. Three required blood transfusion. The mean remnant among RL donors was $39.15\pm 9.11\%$. INR became <1.5 in median of 3 days (2-6) and bilirubin normal in 7 days (5-18). Overall morbidity was 35%; 2 had Clavien grade 3 morbidity; one each had pleural effusion and abdominal collection drained. Median ICU stay was 1 day and hospital stay 7 days. There was no post-hepatectomy liver failure or mortality. **Conclusions:** Donor safety is enhanced at a low volume center with rigid donor selection, good patient care and affiliation to a high volume center.

L26 3270

Assessment of Fat Fraction on MRI as a Sensitive and Reliable Predictor of Sarcopenia in Liver Transplant Recipients. Sunil Dayanand Shenvi, David J Taber, AD Hardie, JO Botstein, John McGillicuddy, Medical University of South Carolina, SC, USA

Introduction: Sarcopenia is rapidly emerging as an independent predictor of outcomes after liver transplantation (LT). Currently, there is a lack of standardization of methods to define sarcopenia. As cross sectional imaging is done in nearly all of the patients before LT, estimation of skeletal muscle mass has been used as a surrogate marker of sarcopenia. We describe the utility of a simple and novel assessment using fat fraction, measured using MRI imaging. **Methods:** We conducted a retrospective longitudinal cohort study which included detailed clinical and biochemical data from patients that underwent liver transplantation at our institution between Feb 2008 and Aug 2014. Patients transplanted for a diagnosis of hepatocellular carcinoma were excluded from the study. The fat fraction of erector spinae muscles was estimated using the MRI at the point where the muscle volume was highest. After a detailed threshold analysis, sarcopenia was defined as a fat fraction of <0.8. **Results:** 180 patients were included, with a mean age of 56 ± 12 years, 85 (34%) were females and the most common etiologies of liver disease included Hepatitis C (42%), NASH

(11%) and EtOH abuse (10%). Sarcopenia was present in 29 (16.1%) patients. At baseline, those with sarcopenia were, on average, older, more likely to be female, and more likely to receive a multi-organ transplant ($p < 0.05$, Table 1). Patients with pre-transplant sarcopenia, as delineated based on fat fraction from MRI, had increased length of stay (Table 1), increased risk of graft loss (adjusted HR 2.07, 95% CI 0.92-4.64, $p = 0.0774$, Figure 1), and increased risk of death (adjusted HR 2.24, 95% CI 0.93-5.41, $p = 0.0733$).

Conclusions: Sarcopenia, as measured by a simple estimate of fat fraction on MRI prior to LT is associated with graft loss and mortality after transplant. Further studies are needed to standardize and validate this method of defining sarcopenia.

L27 3319

Ischemia Reperfusion Injury in Deceased Donor Liver Transplantation and its Effect on Outcome. Fadl H Veerankutty, Shiraz Ahamed Rather, Shabeer Ali TU, Varghese Yeldho, Bincy Zacharia, Venugopal B, Kerala Institute of Medical Sciences, Trivandrum

Introduction: Ischemia reperfusion injury (IRI) still holds a major share of morbidity and mortality in deceased donor liver transplantation (DDLT). As the use of marginal donors continues to increase, the incidence of severe IRI may also be expected to increase. Factors affecting the severity of IRI still remain debatable. Aim of our study is to find out the incidence of IRI and its effect on post-transplantation outcomes. **Methods: Study design-** It is a retrospective analysis of prospectively maintained database. **Inclusion Criteria-** Those patients underwent deceased donor liver transplantation from July 2013 to December 2017. **Exclusion Criteria-** Following categories of patients were excluded from the study. 1. patients with acute liver failure. 2. patients who had technical complications. **Methodology-** Postreperfusion biopsy was done in all patients before abdominal wall closure and IRI was graded histopathologically as nil, mild, moderate and severe as per standard definitions. Patients were categorized into group-1 with mild IRI and group-2 with moderate to severe IRI. Donor factors studied were age, sex, cause of death, AST, ALT and sodium (peak and at the time of procurement of the graft), number of ionotropes, and degree of graft micro and macrovesicular steatosis of the graft. Age and MELD score of recipients, warm and cold ischemia time were other factors considered for analysis. Post-transplant outcomes were measured in terms of presence of primary graft nonfunction, early graft dysfunction, length of hospital stay and 90-day mortality. Kaplan-Meier method was used for survival analysis. **Results:** The total number of patients met inclusion criteria was 42 and another 3 were excluded from the study. Mean age of the sample studied was 50.4 ± 10.9 (7-67) and median MELD score was 22 (11-40). Mean donor age, peak AST, peak ALT and peak sodium

of donors were 37.8 ± 18.6 (8-82), 107.5 ± 105.8 (21-450), 79.2 ± 82.5 (8-321), 158.1 ± 13.8 (121-192) respectively. Mean warm ischemia time was 54 ± 8 and mean cold ischemia time was 285.1 ± 81.5 . Incidence of mild, moderate and severe IRI were observed in 25, 16 and 1 grafts respectively. None of the donor or recipient variables studied was found to be significantly different in both groups or predictive of severity of IRI on the multivariate analysis (probably due to smaller sample size). However, moderate to severe IRI were found to be significantly associated with early graft dysfunction ($p = 0.01$), primary graft nonfunction listing criteria ($p = 0.02$) and 90 days mortality ($p = 0.02$). Survival analysis showed worse survival in the early posttransplant period for patients with moderate and severe ischemic reperfusion injury ($p = 0.01$). **Conclusions:** Pathophysiology of ischemic reperfusion injury seems to influence the early post liver transplantation outcome. Hence, factors affecting the severity of ischemic reperfusion injury and means to decrease its influence on the graft need to be studied further in order to increase graft and patient survival.

L28 3373

Right lobe live liver donation, MHV or no MHV-Tailored approach. Sanjay Yadav, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: The necessity of anterior sector drainage in Right lobe liver grafts (RLG) to provide adequate functional mass for recipient without compromising donor safety, is well-established. We present donor and recipient outcomes based on selective approach for MHV retrieval. **Methods:** From January 2013 to August 2015 in 665 adult right lobe LDLTs we adopted selective policy, based primarily on three factors: volumes, anatomy and metabolic demand of donor and recipient, to determine whether graft with subtotal MHV, partial MHV (Extended modified) or Modified right lobe (MRL) was taken. Donor parameters included were remnant volume, age, sex, BMI, IVa drainage, MHV anatomy and dominance, V and VIII vein size. Recipient factors were graft recipient weight ratio (GRWR), MELD score and severity of portal hypertension. **Results:** 347 patients received RLG with subtotal MHV, 117 partial MHV and 201 MRL. There was no significant difference in mean operating time (574, 576, 591 mnts respectively $p = 0.23$) blood loss ($p = 0.72$) among the groups in donors. Overall Clavien grade 2, 3a, 3b post-operative complications in donors were 7.1%, 1.8% and 1.5% respectively with no differences among groups. The cold ischemia time was significantly higher in non MHV group (40 vs 55 vs 75 minutes, $p = 0.02$, respectively). Mean MELD was significantly higher in MHV vs non MHV recipients (24 vs 17) with no significant difference in early allograft dysfunction (11.2% vs 7.7%, vs 9%, $p = 0.46$), small for size syndrome (2.9% vs 1.7% vs 1%, $p = 0.31$) and one

year patient survival (85.3% vs 86.3% vs 85.1%, $p=0.69$).

Conclusions: Selective and tailored approach for MHV retrieval in RLG, based on optimal functional volume and metabolic demands of both recipient and donor, addresses both key issues in LDLT, good recipient outcomes and donor safety.

L29 3377

Chronic Non tumoural portal vein thrombosis does not adversely impact outcome after living donor liver transplantation.

Sanjay Yadav, Rahul Roy, Neeraj Saraf, Sanjay Goja, Thiagrajan Srinivasan, Prashant Bhangui, Amit Rastogi, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: Chronic non tumoural portal vein thrombus (PVT) is not uncommon in patients with cirrhosis. Conventionally, it has been thought to be associated with poorer outcome after Liver transplantation. Aim: To evaluate the impact of chronic non tumoural PVT on outcome of living donor liver transplantation (LDLT) in adult patients with cirrhosis. Methods: From July 2010 to December 2015, 1208 patients with cirrhosis underwent LDLT, of these, 171 patients (14.15%) had chronic non-tumoural PVT. PVT was diagnosed on CT angiogram of liver and was classified based on Yerdel classification. None of the patients received anticoagulation prior to transplantation. Outcome of patients who underwent LDLT with PVT ($n=171$) was compared to those without PVT ($n=1037$). Results: Mean age was 42 (17-68) years. The etiology of liver disease was similar, and CTP and MELD score were comparable in both groups. There was no significant difference in graft recipient weight ratio, warm ischemia time and operative blood loss between the groups. Intra-operative management was by eversion thromb-ectomy (146), thrombus exclusion and anastomosis to the intimated eccentric lumen (22), meso-portal jump graft (2) or renoportal anastomosis (1). 81.3% patients had Yerdel Class 1 PVT, 13.5% Class 2, 4.7% Class 3 and 0.6% class 4 PVT. There were no significant differences in biliary stricture, CMV infection, sepsis and cellular rejection between the groups. Patients with PVT had significantly more hepatic artery thrombosis (4.1% vs 2.5%, $p=0.01$), post-operative PVT (4.1% vs 0.75, $p=0.01$) and re-exploration rates (12.3% vs 6.7%, $p=0.03$). However, there was no significant difference in one year post transplant patient survival (83% vs 87.9%, $p=0.07$). No death was directly related to PVT except one patient who had Yerdel class 4 PVT. Conclusions: Chronic non-tumoural PVT does not compromise patient survival after LDLT. However, these patients may have higher post-transplant vascular complications and morbidity.

L30 3391

Liver transplant in acute liver failure- looking back.

Shweta Mallick, Manoj Thillai, Pulkit Sethi, Sudhindran S, Amrita Institute of medical sciences and research, Kochi

Introduction: Acute liver failure (ALF) although relatively uncommon, tends to affect young individuals and is the leading cause for emergency liver transplantation (LT) the world over. We carried out this study to look at the disease spectrum and to identify the possible predictors of poor outcomes. **Methods:** We analysed retrospectively data of 69 cases (median age 24yrs, M:F 2:1) of LT performed for ALF at our institution from April 2007 to April 2017 [out of total of 560 (12%)]. **Results:** The aetiology was identified in 52 cases [HAV ($n=14$), HBV ($n=5$), HEV ($n=1$), ATT induced ($n=6$), Acute Wilson's ($n=3$), Autoimmune ($n=5$) and Zn Phosphide poisoning ($n=16$)] and remaining 17 cases were of indeterminate aetiology. Aetiology differed between adults (>12 years, $n=61$) and children ($n=8$). Whilst the most common aetiology in adults were indeterminate followed by HAV and Zinc Phosphide poisoning, equal incidence of indeterminate, Acute Wilson's and ATT induced liver failure were seen among children. Upon meeting King's College criteria, 68 had live donor LT (55 Right lobe grafts, 3 left lobe grafts, 4 lefts lateral segment grafts and 5 cases were APOLT) and 1 deceased donor LT. Post-operative morbidity seen were bile leak (23%), sepsis (17.3%), ACR (14.4%), AKI (13%), graft dysfunction (5%), HAT (2.8%) and PVT (1.4%). Overall mortality was 36% (50% in the paediatric and 34% in adults), vast majority of which (92%) occurred within 30 days of transplant. The major cause of mortality was sepsis with MODS. Risk factors for mortality included age less than 20 years, pretransplant renal dysfunction, Grade 4 encephalopathy and hepatitis A aetiology. Over a median follow up of 8 years, 95% of perioperative survivors are leading a normal life. **Conclusions:** LT for ALF carry high mortality (36%) in those presenting with renal dysfunction, Grade 4 encephalopathy, HAV aetiology and age less than 20 years. Nevertheless, if they survive the perioperative period, long term survival is excellent.

L31 3425

Evaluation Of HKLC Classification For HCC Patients Undergoing Surgery In Indian Contexts.

Sagar Ramesh Kurunkar, Tata Memorial Hospital, Mumbai

Aim: We aim to evaluate the prognostic HKLC classification scheme in Indian context by applying it to patients undergoing surgery for HCC at Tata Memorial Hospital. **Methods:** 102 patients of HCC who underwent surgery at Tata memorial hospital, Mumbai from Dec 2010 to June 2015 were evaluated from a prospectively maintained database. Data on patient performance status, Child-Pugh grade, tumor status (size, number of nodules, and presence

of intrahepatic vascular invasion), who underwent surgical intervention were included. The Hong Kong Liver Cancer (HKLC) classification was compared with the Barcelona Clinic Liver Cancer (BCLC) classification in terms of discriminatory ability and effectiveness of treatment recommendation.

Results: Out of 102 patients who underwent surgical intervention, 23 were HKLC stage 1, 64 were HKLC stage 2 and 12 belonged to HKLC stage 3. More importantly, HKLC identified subsets of BCLC intermediate- and advanced-stage patients for more aggressive treatments than what were recommended by the BCLC system, which improved our survival outcomes. In our series, BCLC-B patients who were classified as HKLC-2, the survival benefit of radical therapy namely surgery, compared with transarterial chemoembolization, was substantial (5-year survival probability, 77.1% v/s 18.7% reported in literature). In BCLC-C patients who were classified as HKLC-3, the survival benefit of surgical excision compared with systemic therapy was even more pronounced (5-year survival probability, 66.3% v/s 0.0%). At a median follow up of 35 months, the estimated 5 year DFS was 25% and OS was 74% across all the surgical resected patients. **Conclusions:** In the Indian setting, more patients present with larger tumors but with good child status where surgery remains a feasible option even though they fall out of BCLC criteria for operability. Outcomes of these patients validate HKLC as a more pragmatic scoring system in the Indian context.

L32 3447

Results From Live Donor Liver Transplants From Hepatitis B Core Antibody Positive Donors. Visagh PU, Krishnanunni Nair, Shweta Mallick, Sudheer OV, Puneet Dhar, Sudhindran S, AIMS, Cochin

Introduction: Utilization of hepatitis B core antibody (HBcAb) positive liver donors carry the risk of reactivation of hepatitis B virus when transplanted to hepatitis B surface antigen (HBsAg) negative recipients because of post transplant immunosuppressive therapy. **Methods:** This was a retrospective study of 32 patients who had received liver grafts from HBcAb positive donors out of 495 liver transplant from 2006-2016. After excluding 7 patients who died within 1 month, the remaining 25 patients were analyzed for Hepatitis B status. **Results:** Out of 25 recipients in this study (all males, Age range 16-70) 4 were already HBsAg positive and were already on nucleoside analogs at the time of transplantation (3 on entecavir, 1 on tenofovir). All preoperatively hepatitis B positive patients are surviving with no evidence of reactivation postoperatively. Hepatitis B surface Antibody (HBsAb) level was immune (>10mIU/ml) in 7 patients out of which 3 died within 3 years (1- chronic rejection, 2- sepsis). The other 4 patients are surviving and remain HbsAg negative without medications. The remaining 14 patients were not immune (<10mIU/ml) of whom 9 received lamivudine. Unfortunately 5 non-

immune patients did not received lamivudine out of whom 1 had acute hepatitis B, 1 became HbsAg positive 30 months after transplant, 1 remains HBsAg negative till date and the other 2 patients died. The two patients who died within 2 years was secondary to sepsis and unrelated to hepatitis B. **Conclusions:** HBcAb positive liver grafts can be safely used for live donor liver transplantation. However, it is extremely important to prophylactically treat the recipients with lamivudine, unless the patient has a high hepatitis B surface antibody titer.

L33 3459

Reasons for donor rejection prior to living donor liver transplantation. Sujeet Kumar Saha, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan S, Sanjiv Saigal, Neeraj Saraf, Narendra Choudhary, Sanjay Yadav, Arvinder Singh Soin, Medanta Institute Of Liver Transplant, Gurugram

Introduction: Living donor liver transplantation hinges on the identification of a suitable donor. Stringent donor selection criteria are necessary to ensure donor safety and good recipient outcomes. This inevitably results in the rejection of a significant proportion of evaluated donors. We present our analysis of the reasons for rejection of donors at our center. **Aims:** To analyse the reasons for rejection of donor for living donor liver transplantation. **Methods:** This is a retrospective study of prospectively maintained donor database from Jan 2012 to Oct 2016. Willing relatives between 18-55 years of age, BMI<30, of compatible blood group were considered as prospective donors and evaluated. GRWR<0.65, remnant<32% and those with >20% steatosis but not Hep B core antibody positive status were rejection criteria. A 6-step donor counselling was done by a surgeon, hepatologist, coordinator, psychologist, previous donor, and (later after evaluation) authorization committee. Then a formal 4-step evaluation was done. In phase 1, clinical exam, complete blood counts, renal and liver function tests, viral markers, and liver attenuation index (LAI) on plain CT scan were done. Donors with a liver attenuation index (LAI) < 0 were considered unfit. However if they improved their LAI after weight reduction, they were taken to phase 2, which consisted of CECT scan for volumetry and angiography, and MRCP. MR fat estimation and liver biopsy were done if two or more factors suggested metabolic syndrome. Phase 3 consisted of detailed systemic- including pulmonary and cardiovascular- evaluation. Phase 4 consisted of opinions from specialists of the multidisciplinary team. **Results:** For 1232 LDLT, 1927 donors were evaluated. 695 donors (36.06%) were rejected- 431 (62%) during phase 1 and 191 (27.5%) following phase 2. Interestingly, 50 (7.2%) donors backed out from donation after complete evaluation due to psycho-social reasons. Two donor operations were abandoned following intraoperative liver biopsy which showed >25% steatosis. The common causes of rejection

were liver steatosis alone in 283 (40.7%) based on LAI <5 and liver biopsy showing steatosis >20%, a combination of steatosis and low GRWR in 38 (5.46%), a combination of steatosis and low remnant in 60 (8.63%), due to low GRWR alone in (n=15, 2.1%) and due to low remnant alone in (n=78, 11.2%), and 22 (3.1%) prospective donors were found to be HBsAg positive. One donor was rejected based on biliary anatomy-had left sided gallbladder. **Conclusions:** Hepatic steatosis was the commonest cause of live donor rejection followed by low graft or remnant volumes and social reasons. Anatomical anomalies rarely resulted in donor rejection. Early and extensive counselling may reduce last minute refusals by donors for psychological or social reasons.

L34 3460

Parenchymal preservation in right lobe liver tumors by optimal utilization of right posterior sectorectomy.

Srikanth Thummala, Thiagarajan Srinivasan, Amit Rastogi, Sanjay Goja, Prashant Bhangu, Sanjeev Rohatgi, Arvinder Singh Soin, Medanta, Gurugram

Introduction: Right posterior sectorectomy (RPS) is relatively uncommon, due to limited indications, and technical difficulties related to right hepatic vein preservation, large tumors, caudate lobe involvement, and large transection surface. However, with careful selection and surgical planning, safe RPS can preserve right lobe parenchyma in posterior tumors, without compromising oncological clearance. We present our recent series of RPS at an established hepatobiliary and liver transplant center.

Aim: To analyse indications, evaluation and operative protocols, and outcome of RPS. **Methods:** Retrospective analysis of 18 patients who underwent RPS between July 2010 and June 2017 was done from a prospective data base. Pre-operative evaluation comprised a triphasic liver CECT for tumor/remnant volumetry, and vascular anatomy. Liver quality and functional studies included HVPG, steatosis on CT/MRI, ICG and Mebrofrenin scintigraphy. 3D Myrian scanning was selectively used. For malignant tumors, FDG-PET/DOA scan were done as relevant. R0 resection with a 5-10 mm margin was planned depending on the tumor type, proximity to RHV, and remnant venous drainage. Cranial or entire RHV was spared if possible, especially in benign lesions and cirrhotics. At operation, right and right posterior vascular inflows were identified/isolated, right lobe mobilised (except in anterior approach), IVC dissected anteriorly and posteriorly, RHV slung, and right posterior vessels clamped to identify the plane of transection. Subsequently, parenchymal transection was done using CUSA under low CVP. **Results:** A total of 18 patients were studied (13 males/5 females; mean age 48.9 years), with the following indications: HCC (8), hemangioma (4), liver metastases (3), hydatid (1), abscess (1) and ACTH secreting NET tumor (1). The anterior approach was adopted

for 2 patients, 3 had caudate resection along with the posterior sector, RHV was preserved in 10 patients, and non-anatomical segment 5 or 8 resection was combined with the RPS in 5 patients. The mean operative duration was 397 min, mean blood loss was 655 ml. All HCC patients had R0 resection. Per operatively, 2 patients developed pneumothorax which was managed by an intercostal drain. Post operatively, one patient developed cut surface bile leak which was managed conservatively and one patient developed pancreatitis which was also managed conservatively. Length of hospital stay was 7.7 days. There was no 90 day mortality. The mean follow up period was 17.1 months. **Conclusions:** With precise pre-operative planning and operative technical improvisation, right posterior sectorectomy is a safe and parenchymal-preserving alternative to right hepatectomy for tumors largely confined to posterior sector with or without extensions to segments 1, 5 or 8.

L35 3048

Health related quality of life in living donor liver transplant recipients: An Indian perspective.

Ankush Kalyan Golhar, Vinayak Nikam, Ushast Dhir, Saumitra Rawat, Suresh Singhvi, Sir Ganga Ram hospital, New Delhi

Introduction: End stage chronic liver disease severely affects all the aspects of patient's life including physical and mental health. With improvements in the outcomes of liver transplantation, focus has been shifted to the improvement of health related quality of life (HRQoL) after liver transplant. Several studies have evaluated this and found the significant improvement in HRQoL in liver transplant recipients. In India approximately 800 to 1000 liver transplants have been performed every year over the past decade. We for the first time evaluated HRQoL in Indian living donor liver transplant (LDLT) recipients. **Methods:** We prospectively assessed the HRQoL in sixty LDLT recipients from June 2013 to March 2015. HRQoL was evaluated using SF 36 health questionnaire before and three months post liver transplant. Statistical analysis was performed using SPSS statistical software, version 17.0. Categorical and continuous variable were analyzed using nonparametric sign test and paired t test respectively. Pearson correlation analysis was used to analyze the relationships between HRQoL and pre-transplantation severity of liver disease. **Results:** Sixty patients underwent LDLT with 83.3% of them being male with median age of 44.7 years. We found significant improvement in all the eight dimensions of SF 36 health score in recipients at 3 months post liver transplant compared to pre transplant. Pre transplant HRQoL scores significantly correlated with the severity of liver disease in vitality, physical functioning and mental component summary domains. There was no significant difference in post transplant HRQoL scores amongst the various etiologies and preoperative disease severity. **Conclusions:** Living

donor liver transplant significantly improves the HRQoL in recipients irrespective of the etiology of liver disease and preoperative disease severity.

E-video

EV15 3123

Laparoscopic left lateral hepatectomy for hepatocellular carcinoma (Edited surgical video). Keyur Suresh Bhatt, SIDS Hospital & Research Center, Surat

Introduction: Hepatocellular carcinoma (HCC) most commonly arises in setting of liver cirrhosis. Half of all cases of HCC are associated with hepatitis B virus infection, with a further 25% associated with hepatitis C virus. Other risk factors for developing HCC include alcoholic liver disease, nonalcoholic steatohepatitis, intake of aflatoxin-contaminated food, diabetes, and obesity. Not all the case of HCC will exhibit higher levels of alfa feto protein. The

Case: We report a 33 year female who was suffering mild abdominal pain and investigations found to have early arterial enhancing lesion of 4 x5 cm size in left lobe of liver in segment 2 & 3. Serum alfa feto protein level was normal. Liver function biochemistry tests were normal including hepatitis B and hepatitis C status. Patient was non cirrhotic and she had no common risk factor associated with her to develop HCC. She was posted for laparoscopic left lateral Hepatectomy, which was done successfully within one hour time without any need for blood transfusions and she was discharged on day 3 post operatively uneventfully.

Discussion: Left lateral segmentectomy seemed most suited for laparoscopic resection because of the thinness of the liver, the possibility of resection without hilar dissection, ease of stapling the left hepatic vein and portal pedicles of segment II and III by mechanical stapling Laparoscopic liver resections (LLR) are widely accepted as safe and effective procedures for the management of hepatocellular carcinoma (HCC) in the hands of experienced surgeons. The efficacy and extent of benefits of pure as well as hand-assisted laparoscopic and laparoscopy-assisted liver resection over open liver resection (OLR) have been investigated by numerous studies during the last 10 years. LLRs were found to be significantly associated with lower blood loss, need for blood transfusion, successful achievement of R0 resection as well as wider resection margin, shorter hospital stay, lower morbidity and 30-day mortality rates. In many studies it is been demonstrated that the laparoscopic resection is superior over the open approach for patients with small HCC.

Conclusions: Laparoscopic hepatic resection is feasible in current era with presence of modern gadgets. It is safe and effective modality to treat early stage cancers of liver especially for left lateral segments. <https://www.youtube.com/watch?v=dDCrIhnQs1o&index=2&list=PLQfd3yovARLNIJA5BI9XLnAgedGtvoxaf>

EV16 3505

Left hepatectomy with portal vein tumour thrombectomy for HCC with main and contralateral portal vein tumour thrombosis (Vp4). Chinthakindi Madhusudhan, Osmania General Hospital, Hyderabad

Introduction: Portal vein tumour thrombosis (PVTT) is an intractable condition but common phenomenon in hepatocellular carcinoma (HCC). In Western guidelines, patients are offered palliative treatment with sorafenib or other systemic agents because HCC with PVTT is grouped together with metastatic HCC during the planning of its management. But Asian countries, have demonstrated hepatic resection is a safe and effective for selected HCC patients with PVTT and preserved liver function when compared to nonsurgical treatment options. Here we present a video on Left hepatectomy with main portal vein tumour thrombectomy for HCC with main and right portal vein tumour thrombosis. **The Case:** A 65 years male patient presented with the pain abdomen and loss of appetite for the last 2 months. Triphasic CT Abdomen showed a mass lesion involving the segment IV, II, III with Tumour thrombus involving the main portal vein and right portal vein (Vp4).UGI endoscopy was normal. LFT was normal except mild elevation of SGPT. PT/INR was in normal limits. Viral markers were negative. S.AFP was 3.9 ng/dl. First diagnostic laparoscopy was done to rule out metastatic disease. Abdomen was opened through the makuuchi's incision. First left hepatic artery was ligated and divided. Then main portal trunk, rt portal branch and left portal branch were isolated and slings were applied. Left portal vein was divided and ligated. Then tumour thrombectomy was done from the main portal vein by direct incision on the vein. Fogarty catheter was used to remove right portal vein tumour thrombus. Left hepatectomy was completed with CUSA parenchymal transection and left hepatic vein division. Results: Total duration of surgery was 4 hours. Blood loss was 1200ml. patient had post hepatectomy liver dysfunction for 4 days (Ascites, prolonged INR and bilirubin went up to 4mg/dl) then recovered with the conservative treatment. Discharged on the 10th POD. Patient received Adriamycin based TAC post operatively. Patient is still alive without any recurrence in 7 months follow up period. **Conclusion:** Even though, Hepatic resections provide better outcomes for HCC patients with PVTT when compared to nonsurgical multimodality treatments the long-term overall survival after hepatic resection is still unsatisfactory because of the high rate of tumour recurrence or low rate of disease-free survival. On one hand, hepatic resection will eliminate the original tumour nodule and PVTT; on the other hand, eliminating the PVTT will improve liver function, consequently making a foundation for further treatment. Hence Hepatectomy-based multimodality treatment are effective options for many patients with HCC and PVTT

EV17 3320

Laparoscopic (subtotal) Assisted Right Lobe Donor Hepatectomy (Hybrid Procedure) – First Series from India. Thiagarajan Srinivasan, Sanjay Goja, Amit Rastogi, Arvinder Singh Soin, Medanta Liver institute, Gurugram

Introduction: There are very few reports of successful laparoscopic right lobe donor hepatectomies from India. We report surgical technique of first subtotal laparoscopic assisted midline (short incision) right lobe donor hepatectomies from South Asia. **Methods:** Out of 1680 right lobe LDLTs, 21 donors underwent laparoscopic assisted midline (12cm incision) right lobe donor hepatectomies. Donor selection criteria included liver volume<1200cc, Right lobe volume<800cc, GRWR>0.70, Remnant liver volume>32%, BMI<28 or LAI>5 with normal lipid profile & liver functions. Anatomical criteria included no big inferior hepatic vein and single right biliovascular pedicle. Recipient criteria included stable adult recipients with MELD<24 & without advanced hepatocellular carcinoma. Technique: After pneumoperitoneum by Veress needle and 5 port technique (12mm each umbilical, epigastric & Right midclavicular, 5mm each left midclavicular & Right anterior axillary) which enabled interchangeable camera (endoeye flex 3D Olympus) ports, assessment and Falciform division by harmonic ace plus 7, space was created between right and left hepatic vein. Mobilisation and caval dissection: Right lobe of liver is mobilised with harmonic shears & retracted with goldfinger and space is developed between caudate & inferior vena cava and caudate veins are clipped & divided. With blunt dissector and gold finger, space is created between right and middle hepatic vein and Nelaton catheter is passed above cava into this space. Portal dissection: After Cholecystectomy, right hepatic artery & portal vein were dissected, looped and slinged. Biliary bifurcation is marked. Transection line is marked by clamping ipsilateral inflow with laparoscopic bulldog clamps. Hepatic transection: Transection line extended from biliary bifurcation through gallbladder bed into space between right and middle hepatic vein. Transection was done by mixture of harmonic ace plus 7, laparoscopic CUSA and bipolar cautery. All biliovascular pedicles were dissected, clipped and divided. MHV retrieval was either modified, partial or subtotal depending on venous drainage of segment 5, segment 8 or segment 4a&4b. Then procedure was converted to open by 12cm midline incision from xiphoid downwards. Standard incision- 30cm. Hepatocaval ligament was divided under ligature/suture. The remaining transection was completed by hanging manoeuvre. The rightlobe graft was retrieved as per standard open technique. The biliovascular stumps were closed. Completion cholangiogram and methylene blue leak test were essential to confirm integrity of biliary tree. Abdomen was closed in layers with skin by subcuticular

sutures. **Results:** Conventional donor hepatectomies (Group A)– 1396, Midline donor hepatectomies-265. Laparoscopic assisted short incision midline donor hepatectomies (Group B)– 21. Donor Mortality, Biliary, Vascular complication was 0%, Mean Hospital stay was 4.6 d (Group B) vs 5.8 d (group A) ($p<0.032$), Mean VAS score was 2/10 (Group B) vs 3.5/10 (group A) ($p<0.022$), Time to oral acceptance– 2d (group B) vs 3d (group A) ($p<0.043$). Morbidity– 4% (Group B) All Clavien grade I & II vs 6% (group A). Recipient mortality– none. **Conclusions:** Laparoscopic assisted donor hepatectomy is safe and feasible without added morbidity or mortality with advantages being shorter hospital stay, better cosmesis, lesser pain and earlier recovery.

EV18 3342

Ex-vivo Organ Perfusion Technique for Deceased Donor Liver Transplantation (DDLT). Amit Rastogi, Rohan Jagat Chaudhari, Thiagarajan Srinivasan, Prashant Bhangui, Sanjay Goja, Vijay Vohra, Arvinder Singh Soin, Medanta Liver Institute, Gurugram

Introduction: The authors describe their technique of ex-vivo organ flush for liver procurement in deceased brain death (DBD) donors. **Methods:** This technique is similar to living donor hepatectomy, with dissection done in warm phase; inflow vessels are dissected and looped along with common bile duct. The inferior vena cava is looped superior to renal veins and above drainage of hepatic veins. Cholecystectomy is performed and bile duct is flushed with saline after division in the supraduodenal region. The donor is given 25000 units of heparin followed by division of the celiac artery at the origin, portal vein near pancreatic neck followed by removal of the graft after division of the infrahepatic and suprahepatic vena cava. Procurement time after clamping of inflow artery was 3 minutes. The graft is then flushed with 3-4 litre of cold UW solution through the portal vein and hepatic artery in back bench. **Results:** Nine procurements have been performed using this technique with average perfusion fluid volume of 3.4 litre and warm ischemia time during procurement of 3 minutes with no procurement injuries. Recipient median age was 52 years with median CTP of 9, MELD of 15 and average BMI of 26. Intra-operative mean prbc transfusion was 9 ± 4.8 units with mean CIT 145 ± 42 minutes and WIT 41.6 ± 10.6 minutes. All recipients were discharged with median hospital stay of 15 days (range 13–67). **Conclusions:** Our technique has not affected the outcomes in the recipient and has multiple benefits including less use of preservation solution, cutting down on the cost, decreasing backbench time and decreasing the propensity of procurement injuries by avoiding cold phase dissection. The limitation being that it can be performed only in stable donors. Multiorgan retrieval, including kidney and heart is possible, exception being pancreas and small bowel.

Oral Papers

P1 3055

Clinical profile and outcome of parathyroid adenoma associated pancreatitis. Aviral Jain, Mohsin Aslam, Upender Rao, Guduru Venkat Rao, D Nageshwar Reddy, Asian Institute of Gastroenterology, Hyderabad

Primary hyperparathyroidism (PHPT) caused by parathyroid adenoma presenting with pancreatitis as first manifestation is rare. The actual causal relationship between PHPT and pancreatitis has been a highly debated.

Aim: To study the clinical and biochemical profile of parathyroid associated pancreatitis patients and outcome following parathyroidectomy for adenoma. **Methods:** We retrospectively studied clinical and laboratory parameters of patients with acute, recurrent acute (RAP) and chronic pancreatitis (CP) who underwent parathyroidectomy for parathyroid adenoma at our centre between April 2008 and April 2017. **Results:** A total of 76 patients with parathyroid adenoma associated pancreatitis were included in this study. 42 (55.26%) had RAP. 34 (44.73%) had developed changes of CP. Serum calcium (12.4 ± 1.7 mg/dl) and parathyroid levels (367 ± 286.4 pg/ml) were elevated. Left inferior parathyroid adenoma (37.5%) was most common finding followed by right inferior parathyroid adenoma (34.7%) on neck imaging. Mean duration of disease was significantly longer in patients with CP (3.8 ± 5 years) than those with RAP (0.62 ± 0.7 years) ($p < 0.001$). Number of pain episodes were significantly less ($p < 0.001$) in patients with RAP (2.6 ± 2.7) compared to those with CP (10.7 ± 10.2). There was significant decrease in serum calcium (12.4 ± 1.7 mg/dl vs 9.7 ± 1.9 mg/dl; $p < 0.001$), serum PTH levels (367 ± 286.4 pg/ml vs 116.4 ± 47.1 pg/ml; $p < 0.001$), reduction in the severity of pain and pain episodes following parathyroidectomy. **Conclusions:** It is important to estimate serum calcium after an episode of unexplained pancreatitis. This will minimize the delay before the diagnosis of PHPT is made and prevent the progression of pancreatitis. Parathyroidectomy improves clinical outcome and prevent further recurrences of pancreatitis.

P2 3088

Clinical Relevance of Day 3 amylase measurements in predicting outcomes following Pancreaticoduodenectomy. Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteswaran C, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupathi

Introduction: In spite of the advances in surgical technique and post operative care, post operative pancreatic fistula (POPF) remains one of the most feared complication following pancreaticoduodenectomy. POPF is defined by International Study Group for Pancreatic Fistula based on POD 3 drain fluid amylase/serum amylase ratio. In recent literature there is a controversy on the timing of amylase estimation to define pancreatic fistula. **Materials and methods:** Data of all patients who underwent pancreaticoduodenectomy from Jan 2014 to Nov 2016 was collected retrospectively. Data collected included day 3 serum and drain fluid amylase values, day 5 serum and drain fluid amylase values, incidence of Grade B and Grade C fistula, incidence of delayed gastric emptying, duration of hospital stay and 30 day mortality. Patients who met ISGPF criteria for post operative pancreatic fistula on POD 3 were classified into two groups – those whose drain amylase values normalized by POD 5 (Group A), and those whose values remained elevated on POD 5 (Group B). Both groups were compared with respect to the aforementioned parameters. **Results:** A total of 110 patients underwent pancreaticoduodenectomy during the study period, out of whom 44(40%) patients met ISGPF criteria for Post operative pancreatic fistula. Among them, drain fluid amylase levels normalized by POD 5 in 36 (82%, Group A) and 8 (18%, Group B) patients had persistently elevated drain fluid amylases on POD 5. None of the patients in Group A required any post operative intervention whereas 2 patients in Group B required guided percutaneous drainage for collections. 2 patients in Group B required prolonged drainage (>3 weeks) whereas none required prolonged drainage in Group A. Incidence of clinically relevant pancreatic fistulas (Grade B, C) was significantly higher in Group B (0/36 vs 4/8, $p < 0.0005$). Incidence of delayed gastric emptying was significantly higher in Group B patients (33% vs 87.5%, $p = 0.0136$). Hospital stay was longer in Group B patients (12.79 ± 3.83 vs 13.75 ± 4.03) but this difference was not statistically significant ($p = 0.5228$). None of the patients required reoperation. There were 2 deaths in each group, there was no significant difference in mortality among both groups ($p = 0.1453$). All deaths were due to medical causes unrelated to pancreatic fistula. **Conclusion:** Majority of patients who meet ISGPF criteria for POPF have their drain fluid amylase values normalized by POD 5. Day 3 drain fluid/serum amylase ratio might not be a good predictor of clinically relevant pancreatic fistula and other post operative outcomes such as delayed gastric emptying.

P3 3170

Outcomes following enhanced recovery after surgery (ERAS) program in patients undergoing pancreaticoduodenectomy. Sri Aurobindo Prasad Das, Sujoy Pal, Nihar Ranjan Dash, Vimi Rewari, Peush Sahni, All India Institute Of Medical Sciences, New Delhi

Introduction: Decreased mortality following pancreaticoduodenectomy (PD) due to improved anesthetic and surgical care has been marred by the high postoperative morbidity rates of 30%–60%. This results in prolonged hospital stay and increased cost of hospitalization. The concept of ‘fast-track surgery’ or ‘enhanced recovery after surgery (ERAS)’ programs is to provide optimal perioperative care by reducing stress responses to surgery, which in turn lowers complication rates and allows for quicker postoperative recovery. These programs have been used successfully in colorectal, gastro-esophageal, orthopedic and gynecologic surgery. Few studies from India have evaluated the safety and efficacy of implementing an ERAS program in patients undergoing PD. We assessed the effect and feasibility of using the ERAS concept in patients undergoing PD.

Methods: This study was done prospectively in the Department of GI Surgery between December 2015 and December 2016. All consenting patients who required a pancreaticoduodenectomy (classic/pylorus preserving) were included. An ERAS protocol with 45 items was designed and implemented. This covered preoperative, intraoperative and postoperative care. A day-wise checklist was maintained to record adherence to the protocol. All complications were recorded and appropriate treatment given. We compared the outcome of 40 patients in the ERAS group to an age and sex matched cohort of 39 patients who had earlier received conventional care following PD. **Results:** We found the rate of postoperative pancreatic fistula (POPF) (19 vs 18; $p=0.9$) and postoperative pancreatic haemorrhage (POPH) (2 vs 5; $p=0.2$) were comparable between the two groups. The rates of delayed gastric emptying (DGE) were significantly less in the ERAS compared to the control group (9 vs 14; $p=0.004$). This could be because of early removal of the nasogastric tube on postoperative day (POD) 2. When assessed based on the grade of POPF (B, C: 7 vs 15; $p=0.01$) and POPH (B, C: 0 vs 5; $p=0.02$), patients in the control group had significantly more severe grades of complications when compared to the ERAS group. When compared based on Clavien–Dindo grade of complications patients in the ERAS group had significantly lower rates of complications ($p=0.01$) especially with regard to high-grade ($>3a$) complications (2 vs 19; $p=0.001$). The mean (SD) adherence to protocol was 86.8 (9)%. The median length of stay was significantly lower in the ERAS group when compared to the control group (12 vs 18; $p=0.001$). The readmission rates were comparable between the two groups (1 vs 4; $p=0.19$).

Conclusions: We conclude that implementation of an ERAS protocol is safe and feasible in patients undergoing pancreaticoduodenectomy. Implementation of the ERAS protocol may have reduced the incidence and severity of POPF, POPH and DGE. Compared with matched historical controls, ERAS reduced the postoperative length of stay significantly.

P4 3296

Clinicopathological Profile & Surgical Outcome of Pancreatic Neuroendocrine Tumours (PNET)– A single centre experience over 12 years. Manikandan Kathirvel, Manoj Thillai, Pulkit Sethi, Puneet Dhar, Sudhindran S, Sudheer OV, Amrita institute of medical sciences, Kochi.

Introduction: Pancreatic neuroendocrine tumours account for less than 5% of all pancreatic tumours. They are a separate group of neoplasms with distinct characteristics. Aim of this study was to describe a single centre experience in managing these tumours over a period of 12 years and assess clinic-pathological features of these tumours.

Methods: This study retrospectively reviews the patients who were managed for pancreatic neuro endocrine tumours at Amrita Institute of Medical Sciences, Kochi from 2004 to 2016. **Results:** There were totally 57 patients (31 males and 26 females) whose mean age was 47.3 (range- 13-73 yrs). Thirty eight patients (67%) had non-functional tumors, whereas nineteen (33%) had functional tumors: 12 (21%) insulinomas, 3 (5%) gastrinomas, one (1.8%) VIP-oma. Mean age of patients presenting with non-functional tumours were significantly high (51.8 years) when compared to that of functional tumours (38.3 years). All patients with functional tumors presented with appropriate signs and symptoms of hormonal excess. 42% of patients with non-functional tumors presented with abdominal pain/ discomfort and 8% of patients presented with obstructive jaundice. Commonest site of functional tumour was the tail (47.4%) followed by head of the pancreas (36.8%). Whereas the non-functional tumours were predominantly noted in head (50%) followed by tail region (31.6%). 40% of patients had lymph nodal disease and 22% of patients had distant metastasis (predominantly liver) at the initial presentation. Distal pancreatectomy & Whipple’s procedure were the commonest surgeries performed (33% & 28% respectively). Enucleation was sufficient in 16% of the patients. 2 patients required left upper quadrant evisceration. Three synchronous hepatic resections were performed for metastases. 22 patients (38.6%) had postoperative complications, the most common of which were pancreatic fistula (14%) (grade B & C), wound infection (7%), and delayed gastric emptying (7%). Most of the tumours were Grade 1 and 2 (42% & 45% respectively). Grade 3 PNETs was very uncommon (12%) and was virtually absent in the functional tumour group. There was only one in-hospital post-operative death. With a

mean follow-up of 35 months, there have been 9 additional deaths, 2 of which were due to tumour recurrence following an R0 resection. The mean survival of patients in our series was around 80 months. The overall 2-, 5-year survival rates were 86% and 79%, respectively. There were no significant survival differences between functional and non-functional tumors. **Conclusions:** Majority of the PNETs were non-functioning. Insulinoma was the commonest functioning tumour and mostly located in the tail. PNETs have good biological profile with majority presenting as Grade 1&2 tumours. Early surgery leads to good long term survival with acceptable post-operative morbidity.

P5 3316

Pancreaticoduodenectomy for presumed malignancy- Is a preoperative biopsy a must? Jacob Mathew, John Mathew Manipadam, Mahesh S, Abhishek Yadav, Lekha V, Venugopal Ambady, Ramesh Hariharan, VPS Lakeshore, Kochi

Introduction: The aim of this study was to retrospectively analyse patients who underwent PD for presumed malignancy at our center to determine the incidence of benign resections and better determine which patients would benefit from a pre operative biopsy. **Methods:** All patients who underwent PD for presumed malignancy at Lakeshore Hospital between January 2003 and December 2014 were retrospectively analyzed. The patients are assigned in one of three groups. Group A- This includes patients presenting with: Painless obstructive jaundice, Mass lesion on cross sectional imaging, Double duct obstruction. Group B- Some atypical clinical or radiological features may be present, Absence of jaundice or pain as the predominant symptom, Cystic pancreatic lesion with suspected malignant features, Absence of mass lesion or lymphadenopathy larger than the primary mass, No ductal obstruction or single ductal obstruction. Group C- associated with features of chronic pancreatitis. **Results:** 411 patients underwent pancreaticoduodenectomy for suspected malignancy between January 2003 and December 2014. 19 patients were excluded from the analysis. 204 (52%) patients had typical clinical and radiological presentation (Group A), 137 (35%) patients had atypical clinical or radiological presentation (Group B) and 51 (13%) patients had mass lesion in the head of the pancreas with suspected malignancy in the setting of chronic pancreatitis (Group C). Benign pathology on final histopathological analysis was seen in 30 (7.65%) patients. Group A: 204 (52%) patients. A preoperative biopsy was available in 126 (61.8%) of patients. 78 (38.2%) patients underwent PD without a preoperative biopsy. There was no significant difference in the incidence of benign pathology among the two. 4 patients (1.96%) had benign pathology. 8 patients who had a negative preoperative biopsy had malignancy on final histopathology (false

negative rate 6.35%). Group B: 137 patients. Preoperative biopsies were obtained in 82 patients (59.9%). 55 patients (40.1%) did not undergo a preoperative biopsy. 12/137 patients had benign pathology (8.8%). There was no significant difference in incidence of benign pathology between the groups. 7 patients (8.54%) who had negative preoperative biopsy eventually had malignancy in the final histopathology of resected specimen. Group C: 51 patients. 36 (70.6%) patients underwent preoperative biopsy. 15 patients (29.4%) underwent blind PD. The two groups were comparable. However, there was increased incidence of benign lesions in the group that did not undergo a preoperative biopsy and this was found to be statistically significant ($p=0.014$). 14/51 (27.5%) patients eventually had benign pathology. Out of the 5 patients whose biopsies were negative for malignancy preoperatively, 4 eventually had malignancy in the final histopathological specimen (false negative rate 11.1%). **Conclusions:** The suggested criteria better selects patients who would benefit from a preoperative biopsy.

Group	Recommendation
A (typical presentation)	No routine preoperative biopsy
B (atypical presentation)	Attempt a preoperative biopsy to rule out other diagnoses
C (chronic pancreatitis)	Preoperative biopsy mandatory

P6 3411

Long term outcomes following acute necrotising pancreatitis: An tertiary care experience. Sundeep Singh Saluja, Deepak Balachandra, Siddharth Srivastava, Phanikumar Nekarakanti, Pramod Mishra, GB Pant Institute of medical education and research, New Delhi

Introduction: Short term outcomes following necrotizing pancreatitis (ANP) has been studied well. There is paucity of data on long term outcome after ANP. Present study focuses on long term outcomes and survival in these patients. **Methods:** The records of patients with ANP managed from 2005 to 2016 were reviewed from the database of acute pancreatitis for etiology, presentation and hospital course during index hospitalization. These patients were followed-up prospectively. Details regarding endocrine, exocrine deficiency and morphological changes on MRI/MRCP were noted and correlated with etiology, amount of necrosis and need for necrosectomy. The amount of pancreatic necrosis was graded as Grade I<30%, Grade II 30-60% and Grade III>60% necrosis. **Results:** Of the 240 patients with acute pancreatitis managed, 99 patients had ANP, formed the study group. The mean age was 38.8 ± 12 years with three-fourth patients being male ($n=75$). The etiology of ANP was biliary and alcohol in 45 patients

each and idiopathic in 9 patients. The Grade I necrosis was seen in 18 (18%) patients, Grade II in 53 (53.5%) and Grade III in 28 (28.3%) patients. Open necrosectomy was performed in 54 patients (direct approach n=30 and step-up approach n=24). Twenty patients were treated by percutaneous drainage (PCD) alone while 25 patients were managed conservatively. Overall twenty patients died during index hospitalization (Necrosectomy:11/54, PCD: 3/20 and Conservative 6/25). At median follow up of 59 months, 5 patients died (diabetic ketoacidosis n=3, small bowel obstruction n=1). Grade 3 necrosis was the main predictor of death during index admission (p=0.03). The incidence of endocrine deficiency, exocrine deficiency and disconnected duct syndrome (DDS) was 39%, 16.5% and 17.7% respectively. The endocrine deficiency although higher in patients with increasing amount of necrosis but was not statistically significant (p=0.33). It was significantly more in patients who required necrosectomy (p=0.003) but similar in alcoholic vs non alcoholic (p=0.80). Whereas exocrine deficiency was higher in patients with increasing amount of necrosis and those who required necrosectomy (p=0.002) but similar in alcoholic vs non alcoholic (p=0.12). Of the 14 patients with DDS, 10 had prior necrosectomy compared to 4 who did not undergo necrosectomy (p=0.143) and 3 (28%) of them required surgical drainage. Presence of DDS did not have impact on exocrine or endocrine dysfunction. **Conclusions:** Patients with ANP develop exocrine, endocrine and ductal changes in long term. Those requiring necrosectomy were associated with higher incidence of endocrine and exocrine deficiency and DDS. Only one-fourth patients with DDS required surgical intervention.

Oral video

OV5 3113

Laparoscopic Transgastric Necrosectomy. Dhaval Odhavjibhai Mangukiya, SIDS Hospital & Research Center, Surat

Introduction: Endoscopic transgastric necrosectomy merits as a choice of procedure in walled of lesser sac necrosis in well selected cases. It often requires repeated endoscopies for lavage, additional tract dilation, stents, and endoscopic necrosectomy. Here we present case of laparoscopic transgastric necrosectomy. **The Case:** 68 year old female presented with sequelae of necrotising pancreatitis with symptoms of pain in abdomen, weight loss, low grade fever and persistent vomiting on day 62 of acute attack. Her CT scan showed large walled of cavity with moderate amount of pancreatic necrosis in lesser sac. Laparoscopic transgastric necrosectomy done after preoperative work up. Total four ports, two 5 mm & two 10 mm inserted where supraumbilical port used for camera. Anterior gastrotomy with fixing sutures

with anterior abdominal wall taken. Posterior wall along with necrotic cavity approached using ultrasonic energy device. Pancreatic fluid drained and necrosectomy done. Gastrotomy repaired after putting nasocystic drainage tube in single layer. Postoperative recovery was uneventful and she was discharged on postoperative day 4. **Discussion:** Treatment options for walled-off pancreatic fluid collections include surgical drainage, endoscopic transmural drainage, transpapillary stent placement (for pseudocysts), and percutaneous drainage. Endoscopic drainage should only be carried out if surgical backup is available in the event of a serious complication. In carefully selected patient Laparoscopic necrosectomy can be treatment of choice and done in single sitting. video source: <https://www.youtube.com/watch?v=SMQEHXWQIAI>

Poster session

P1 3047

Outcomes of pancreaticoduodenectomy in a tertiary care government hospital. Ravindra Nidoni, Jagjivan Ram Railway Hospital, Mumbai

Introduction: Pancreaticoduodenectomy (PD) is a formidable surgery, commonly performed for pancreatic head and periampullary tumors. Before 1980s, this was being performed infrequently due to concerns regarding the morbidity and mortality rates associated with this complex surgery. Since the 1980s, experience with this surgery increased and high volume centers were established. This along with improvements in perioperative and critical care management resulted in a steady and consistent fall in mortality rates and currently reported rates are below 5% in high volume centers. The morbidity, though, has not fallen significantly and reported rates in literature vary between 22 and 57%. Till recently, very few government hospitals were performing PD. Among these, very few have published their outcome results. The available published data shows that few centers have excelled over a time and achieved accepted mortality and morbidity rates. Few centers have shown unacceptably high mortality and morbidity due to non availability of expert surgeons and lack of all resources which are required to handle the complications. In total, the outcomes of PD in tertiary care government hospitals in India is not well documented and few available literature shows wide variable results from center to center. The aim of this study was to do a surgical audit of all PDs done at Jagjivan Ram Railway hospital with primary objectives being the morbidity and mortality rates and secondary objectives was to compare the outcomes with the available literature from Indian centers. **Aims:** The aim of this study is to record a surgical audit of all PDs done at our centre with primary objectives being the morbidity and mortality rates and secondary objectives was to compare

the outcomes with the available literature from various centres in India. **Methods:** All the patients who underwent Pancreatico-duodenectomy at Jagjivan Ram Hospital, Mumbai were included in the study. This is a prospective analysis of retrospective data of patients undergoing PD at our Centre between January 2009 to December 2016. Inclusion Criteria: All cases who underwent Pancreatico-duodenectomy during the period January 2009 to December 2016 were included in the study. Definitions of post operative complications- Postoperative pancreatic fistula, Postpancreatectomy haemorrhage and delayed gastric emptying were Defined according to the definition of the International Study Group of Pancreas^[31]. **Results:** The over all mortality was 8.53%, morbidity was 36.58%. The incidence of clinically significant POPF was 18.29%. 4.87% patients had post pancreatectomy haemorrhage & biliary leak each. Around 7.31% had DGE. Pulmonary complications were seen in around 14.63%. **Conclusions:** Outcomes of Pancreaticoduodenectomy in our center is comparable to well established centers in India. We have potential to bring down mortality rate to <5% provided we continue to work for improvisation of our techniques and adopt the modern Methods of managing complications.

P2 3061

A Complication That Does Not Kill but Definitely Cripples: Chyle Leak after Whipples. Ramalingam Trivikraman, Dhananjay Pandey, Lakshmi Kumari Kona, Global Hospitals, Hyderabad

Introduction: Pancreatic resections are well known for their morbidity. In addition majority of the patients undergoing pancreatic resections are elderly thus adding to the morbidity. Also many patients who presented with obstructive jaundice have undergone biliary stenting thereby increasing the inflammation in the retroperitoneum. While the major complications of Whipple's resection namely delayed gastric emptying, Postoperative Pancreatic fistula, Post pancreatectomy hemorrhage are well described in literature, Chyle leak gets the least attention. Here, we present a case of a 54 year old male patient who underwent Whipple's resection for periampullary carcinoma and developed chyle leak. The purpose of this report is to highlight the importance of identifying this particular complication, its management and review of literature. **The Case:** A 54 year old diabetic gentleman underwent Whipple's resection with us for periampullary carcinoma. He had previously undergone ERCP & stenting for obstructive jaundice. On the sixth postoperative day, he developed whitish drain discharge. His drain fluid triglyceride was 182. Based on this, a diagnosis of chyle leak was made. His average drain output per day was 850ml. He was put on Nil per oral,

octreotide and Total Parenteral Nutrition following which he was put on MCT diet after which his chyle leak subsided. Owing to hypoalbuminemia as a consequence of chyle leak, he developed bilateral pedal edema which subsided with nutritional rehabilitation. His drain output gradually reduced and was removed on POD 20.

P3 3100

Laparoscopic Cystogastrostomy a viable option between endotherapy and open surgery-Experience in a tertiary centre. Livin Jose, Prabakaran Raju, Rajendran S, Naganath Babu OL, Madras Medical College, Chennai

Introduction: Pancreatic pseudocyst occurs as a sequelae of acute or chronic pancreatitis. The common etiologies are ethanol related, gall stones and idiopathic. **Aim:** To analyze the outcomes of laparoscopic cystogastrostomy in pancreatic pseudocyst in a tertiary care centre. **Methods:** This is a retrospective study from a prospective maintained database between January 2012 to December 2016. There were 13 cases of pancreatic pseudocyst managed by laparoscopic cystogastrostomy. The factors analyzed include the demographics, presenting symptoms, comorbid illness and postoperative morbidity. **Results:** The age group is between 21 to 45 years. Out of 13 cases, 10 were males and 3 were females. Etiology was ethanol related in 8 cases, gall stone related in 2 cases, hyperparathyroidism in one case, idiopathic in 2 cases. Abdominal pain was seen in 10 patients and vomiting was the presenting complaint in 3 patients. Duration of symptoms ranged from 1 month to 1 year. Out of the 13 patients in the study two had diabetes and one had bronchial asthma. In all the patients the location of the cyst was retrogastric with obvious external impression made out by upper GI endoscopy. The surgical procedure done was laparoscopic cystogastrostomy in all the cases. Cystogastrostomy was done by stapler in 8 cases and by endosuturing in 5 cases. Necrotic tissues within cyst was debrided. Cholecystectomy was as an additional procedure done in two cases and parathyroid adenoma excision in one case. There was no postoperative wound infection, reoperation or mortality. There was early postoperative pain relief and enteral nutrition was well tolerated in all cases. The average length of hospital stay was 6 days. **Conclusions:** Laparoscopic cystogastrostomy offers the benefit of minimally invasive procedure for the management of pancreatic pseudocyst with reduced morbidity than open procedure. It offers the advantage of removing the necrotic tissue within the cyst that is not possible by endoscopic drainage. Associated pathology such as gall stones requiring cholecystectomy can be done in the same procedure. The better postoperative pain relief, early recovery and reduced hospital stay makes this a safe and feasible procedure.

P4 3129

Laparoscopic Distal Pancreatectomy: Our Experience in Tertiary Center. Mehul Vikani, Kartik Sutariya, CIGIS Gastroscopy Center, Rajkot

Aim: To evaluate feasibility, safety and ultimate outcome of laparoscopic distal pancreatectomy (DP) for patients with pancreatic neoplasms. **Introduction:** The technique of DP with or without en bloc splenectomy has been well described in literature. However, when performed laparoscopic, this procedure may be technically challenging. With advances in MAS, laparoscopic DP is slowly gaining acceptance as an alternative to open surgery. Over the recent years, the interest in spleen-preserving pancreatectomy is growing, the reason being preventing overwhelming post-splenectomy infection (OPSI), and to preserve the immunologic function. **Methods:** From 2010-2016, we performed eight DP by the laparoscopic approach. A 5 port approach was used. The specimen was divided using endo-GIA stapler (purple/green cartridge). The decision of spleen preserving was made if the splenic vessels and the splenic hilum were free. The specimen was retrieved in endobag using Pfannenstiel incision. The perioperative parameters, morbidity, and follow-up results were analyzed. **Results:** All eight patients were female. Two patients underwent spleen preserving DP. The mean operative time was 4 hours. The mean diameter of tumor was 4 cm. Two patients developed post operative pancreatic fistula which was managed conservatively. The mean hospital stay was 7 days. The final diagnosis was serous cystadenoma in one patient, mucinous cystadenoma in four patients, NET in one patient and solid pseudopapillary tumor in two patients. The mean follow up period was 3 years with no recurrence. **Conclusions:** Laparoscopic distal pancreatectomy is safe and technically feasible for selected patients with acceptable morbidity and clinical outcomes.

P5 3155

Superior Mesenteric Artery Thrombosis: A Rare complication after Pancreaticoduodenectomy. Satya Prakash Jindal, Adithya GK, Varun Madaan, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi

Pancreaticoduodenectomy (PD) is the treatment of choice for malignant lesions of the pancreas and periampullary region. PD consists of multivisceral resection and is associated with a high morbidity. Common complications after PD include delayed gastric emptying, pancreatic fistula, anastomotic leak and intra abdominal collections. Portal vein and superior mesenteric vein thrombosis has been reported after PD. As increased experience with vascular resections and reconstructions during PD for borderline resectable tumours is evolving, there is an

increasing trend toward vascular complications. There is a theoretical possibility of arterial thrombosis in patients with a history of vascular disease, which may precipitate after postoperative hypovolemia. We could not find any report of Superior mesenteric artery (SMA) thrombosis after exhaustive research of literature. SMA thrombosis is difficult to diagnose in the postoperative period due to nonspecific symptoms and is associated with a high mortality rate upto 80-90%. Although relatively less commonly seen in clinical practice, SMA thrombosis is the most common cause of acute mesenteric ischemia. Acute SMA thrombosis commonly occurs in a patient of chronic mesenteric ischemia and is frequently precipitated by intravascular volume depletion from dehydration. This dehydration can occur after severe diarrhea or vomiting associated with gastrointestinal diseases, postoperative fluid losses and sepsis or due to third space fluid loss, such as acute pancreatitis. Prognosis of acute thrombotic ischemia is poor even after restoration of mesenteric blood supply. Our patient was a 68 years old female with lower end cholangiocarcinoma without any other comorbidity. Intraoperatively, the lesion was well localized to periampullary region and there was no evidence of any vascular involvement. She underwent PD without any intraoperative complications. Thromboprophylaxis was given in perioperative period with LMWH and pneumatic pump. Her initial postoperative course was smooth and she was started on enteral feeding. On POD8 she suddenly became drowsy and developed abdominal distension and melena. CT abdomen was done which revealed SMA thrombosis without any evidence of bowel gangrene. In view of poor general condition, she was managed conservatively with anticoagulative therapy. But she progressively deteriorated and succumbed within 24 hrs of diagnosis of SMA thrombosis. In view of unusual presentation of complications, it is recommended that one keep a low threshold for CECT abdomen in a patient not recovering smoothly after PD.

P6 3157

Pancreatic adenocarcinoma in a patient with Renal cell carcinoma: A Case Report. Satya Prakash Jindal, Adithya GK, Varun Madaan, Vivek Tandon, Deepak Govil, Indraprastha Apollo Hospital, New Delhi

Multiple primary tumors involving different organs in a single individual, either synchronous or metachronous have been reported in literature with an incidence ranging from 1% to 20%. Some genetic mutations have been identified, which predispose to multiple primary tumors e.g. Lynch syndrome, BRCA, MEN etc. Multiple primary tumors in the sporadic setting are comparatively rare. However, this phenomenon is being seen with increased frequency due to increase life expectancy of cancer patients and better radiological imaging and evaluation.

Such a combination of renal cell carcinoma with pancreatic carcinoma has sparingly been reported in literature. We present a case of pancreatic carcinoma in a patient who was treated for renal cell carcinoma, ten years prior. A 65-year-old male presented to us with a history of left nephrectomy for renal cell carcinoma 10 years prior to presentation. Postoperatively, he received interferon therapy followed by sunitinib for 3 years for a metastatic lesion in the chest and left renal bed. He presented to us with obstructive jaundice of two weeks duration and on PET CT scan, a FDG avid nodular lesion of size 1x1.5 cms was detected in the periampullary region (this was a new finding compared to previous scan) and metastatic lesion in chest and left renal fossa, comparable to previous scan. He underwent endoscopic biopsy and biliary stenting in view of cholangitis. Histopathology of endoscopic biopsy revealed poorly differentiated adenocarcinoma, consistent with pancreatic origin. Immunohistochemistry for synaptophysin and chromogranin was negative which ruled out renal cell origin. He underwent curative pancreaticoduodenectomy with good postoperative recovery. He is doing well for a follow up period of 11 months. There is no evidence of metastatic disease from pancreatic origin and stable metastatic lesions from renal cell carcinoma. Sasaki et al first time reported a case of double cancer involving pancreas and the kidney in 1969. Thereafter, only few cases of dual malignancy involving pancreas and kidney have been reported in literature. The few cases, which have been published, have not established any specific reason for this combination. Nevertheless, we believe that there could be a new association between these two primary tumors. Further analytic epidemiological studies, including evaluation of gene-environment interactions, are needed to specifically identify reasons for double pancreatic-kidney tumors. We recommend considering a possibility of second primary in any patient with unusual symptoms different from the primary lesion and research for genetic association in these patients.

P7 3372

A rare case report of hemorrhagic Walled Off Pancreatic Necrosis (WOPN) spontaneously fistulizing into stomach. Srinivas Bojanapu, Ushast Dhir, Saumitra Rawat, Ishan Shah, Sir Gangaram Hospital, New Delhi

Introduction: Acute necrotizing pancreatitis (ANP), a severe form of Acute Pancreatitis (AP) is found to occur in 20-30% of patients of AP. Varied number of complications can occur with ANP, bleeding, infection, duct disruption among others. Bleeding either into the peritoneal cavity/fluid collection/pancreatic parenchyma occurs in 1-6.2% of AP. Spontaneous rupture of Walled Off Necrosis of Pancreas (WONP) into Gastrointestinal tract/peritoneum is even rarely reported. **The Case:** A 49-year gentleman, follow up case of ANP, admitted with new onset abdominal pain found

to have superior mesenteric artery thrombosis resulting in small bowel gangrene and underwent resection of gangrenous bowel with double barrel stoma. In the course of hospital stay patient had an acute onset abdominal pain with drop in haemoglobin, upon investigating CT angiography revealed bleed from pseudoaneurysm of arteria pancreatica magna superior into the WON which was managed with angioembolization. During his recovery patient had large volume melena, through the stoma. CT imaging and Upper GI Endoscopy revealed spontaneous fistulisation of the Hemorrhagic WON into stomach. **Conclusions:** Walled Off Necrosis of Pancreas is a late complication of AP, most cases do not need interference and patients do well without intervention unless infected. Serious complications of WONP are infection, bleeding and rupture. We report a rare case report of Walled off Pancreatic Necrosis developing SMA thrombosis with small bowel gangrene, and pseudoaneurysm rupturing into WON, followed by spontaneous rupture of WONP into stomach.

P8 3234

Solid Pseudopapillary Neoplasm of Pancreas: Surgical Challenge. Balram Goyal, Army Hospital (R&R), New Delhi

Introduction: Solid pseudopapillary neoplasm (SPN) has been described as rare neoplasm of pancreas constituting about 1% of all pancreatic malignancy. It was first reported by Virginia Frantz in a 2 years old male child in 1959. These tumors are usually encountered in young patients predominantly in females. In majority of cases they are discovered by chance during diagnostic imaging procedures for other condition; may be suspected in the presence of an asymptomatic palpable abdominal mass or in patients having vague abdominal pain. Only about 1000 cases have been reported in literature till date. However a steady increase in incidence has been noticed with about 2/3rd of these cases have been reported in last two decades. We have encountered and successfully managed 04 cases over a short period of 02 years. Synonyms: Franz tumor, Solid and cystic tumor, Solid and papillary epithelial neoplasm, Papillary cystic neoplasm, Papillary cystic epithelial neoplasm. **The Cases:** All 04 patients were female. Two of them were diagnosed incidentally while being evaluated for haematuria and persistent diarrhoea respectively. Another two patients had vague abdominal discomfort and jaundice respectively. Patients were evaluated further and possibilities of other cystic neoplasm excluded radiologically. **Surgery & Challenges:** The tumor comes as *a bolt from the blue* in well preserved otherwise healthy young patients. Surgery usually involve major undertaking like Whipple's pancreaticoduodenectomy or distal pancreatectomy with or without splenectomy. Specific surgical challenges include undilated pancreatic duct (PD), common bile duct (CBD), soft texture of

pancreas and bulky tumor distorting the anatomy. Extent of surgery was based on the tumor location. Two patients underwent 'Whipple' pancreaticoduodenectomy while distal pancreatectomy with splenectomy was done in other 02 patients. Histopathological examination confirmed in the diagnosis and on follow up all patients are doing well without any evidence of recurrence. **Conclusions:** To conclude, SPN affects young and otherwise healthy individuals mostly females. It requires potentially morbid major pancreatic surgery with increased risk of complications due to undilated PD, CBD, soft texture of pancreas and bulky tumor. It also carries a low risk of recurrence hence follow up is mandatory. Surgeon should be aware of this entity and should keep the diagnosis in mind in the appropriate clinical setting.

P9 3260

Autoimmune Pancreatitis Masquerading As Pancreatic Malignancy. Anmol Raj Gupta, Meenakshi Mission Hospital, Madurai

Autoimmune pancreatitis (AIP) is a rare chronic inflammatory disease of pancreas belongs to IgG4 related diseases and commonly presents as obstructive jaundice with or without pancreatic mass. It is diagnosed by combination of imaging studies (Computed tomography (CT) scan and pancreatography), laboratory analyses and response to steroid treatment. We are presenting two interesting cases of AIP. Presenting complains in both the patients were jaundice and loss of weight. In first case, lab reports suggestive of raised bilirubin level (Total-3.3, direct-2.9) with obstructive pattern, CT scan showed mass in uncinate process of size 4 x 3 cm abutting right lateral wall of superior mesenteric vein (SMV), dilated common bile duct (CBD) 13.8cm with Intrahepatic biliary radical dilatation (IHBRD). CA 19-9 was 18.3IU/L. Patient was taken for surgery in the suspicion of malignancy but it was unresectable mass of size 5 cm encasing Superior mesenteric artery, SMV and Portal vein. Triple bypass done and trucut biopsy taken from mass which later came out to be Lymphoplasmacytic Sclerosing Pancreatitis. Then Serum IgG4 was sent and it was 486 mg/dl (Normal<135mg/dl). Diagnosis of AIP made and patient started on steroids. In Second case, presenting bilirubin was 24.9 mg/dl and direct component of 14.7 mg/dl. Ultrasound abdomen showed mass of size 4.5cm X 3.3cmX 3.8 cm from head and uncinate process of pancreas. On MRI showed pancreatic head mass infiltrating CBD with IHBRD with para-aortic, paracaval and peripancreatic node enlargement. Endoscopic ultrasound guided FNAC was inconclusive. Endoscopic Retrograde Cholangio-pancreatography (ERCP) showed mid CBD stricture with CBD sludge. Sludge removal and biliary stenting done. CA19-9 was 18IU/L which was normal. To reach the diagnoses serum IgG4 was sent and it was 646 mg/dl. Patient started on steroid therapy with 40 mg Prednisolone. Both the patients responded well and are in regular follow-up.

P10 3275

Pancreatic Injury With Ductal Disruption Does Not Need Emergent Surgery. Sri Krishna Nataraj Bollineni, Meenakshi Mission Hospital & Research Centre, Madurai

We performed a retrospective review of all patients who presented to our centre in the last 5 year period with pancreatic ductal injury following blunt injury abdomen with or without other organ injury. Out of 17 patients with pancreatic injury following blunt injury to abdomen, one patient had grade I injury, one patient had grade II, nine had grade III injury, six had grade IV injury. Grade I and II injuries were managed conservatively. All of the nine patients with grade III injury were initially managed conservatively, six among the nine did not require any further treatment, three developed pseudocyst causing abdominal pain, which was managed by Endoscopic Cystogastrostomy. Out of six patients with grade IV injury, three were managed conservatively, two patients later required intervention, one patient underwent pigtail insertion for fluid collection causing pain and another ERCP with stenting of pancreatic duct. Remaining three patients of grade IV injury underwent laparotomy, all due to associated other organ injuries, one for liver laceration, one for splenic injury and another for gastric perforation. Non operative management of pancreatic ductal injuries following blunt injury to abdomen without other organ injuries can be considered as first and definitive line of management. The results of our study require validation by larger studies.

P11 3291

Percutaneous drainage for pancreatic ascites in failed pancreatic duct stenting patients. Suresh Kumar Sepuri, Osmania General Hospital, Hyderabad

Introduction: Pancreatic ascites is a rare complication seen in patients of chronic pancreatitis and pseudocyst. Despite various treatment options available like conservative therapy, pancreatic duct stenting and surgery, it presents a challenge to endoscopists and surgeons. **Methods:** Between october 2015 and January 2017, 12 patients were treated for pancreatic ascites. All the patients were initially managed conservatively. Non responders underwent ERCP and further stenting in possible cases. A retrospective analysis of the patients who underwent percutaneous drainage for ascites after failed conservative therapy with nil per oral and total parenteral nutrition and pancreatic duct stenting was done. The endpoints taken into account were either resolution of ascites and associated symptoms, requirement of surgery or death. **Results:** Among the 9 patients who were non-responders to conservative therapy, pancreatic duct stenting was possible in only one patient. The remaining 8 patients underwent percutaneous drainage for a median of 49 days, and were

followed up for a minimum of 6 months. One patient died due to malnutrition and 7 patients were relieved of ascites.

Conclusions: Long term percutaneous drainage is still a feasible option for pancreatic ascites management in cases of failed pancreatic duct stenting.

P12 3326

Central pancreatectomy: real clinical benefit. Nirjhar Raj Rakesh, N Bheerappa, GSR Varma, Venu Madhav, N Kishore, Jagan Reddy, NIMS, Hyderabad

Introduction: Central pancreatectomy (CP) is a parenchyma-sparing alternative resection to distal pancreatectomy, for benign and low malignant potential tumors located on the pancreatic isthmus and/ or body. The rationale of a CP is to preserve the postoperative pancreatic functions in bargain of high morbidity. However, the real clinical benefit of a CP is still controversial. **Methods:** The current study aims to know the real impact of CP on patient' life even after more postoperative complications. We did retrospective analysis of patients who underwent CP conducted in the department of Surgical Gastroenterology, NIMS, Hyderabad from 2013 to 2016 for various reasons with minimum 1 year follow up. Total 8 patients underwent central pancreatectomy, complaints, preoperative investigations, intraoperative findings, postoperative complications and their effects were analyzed. **Results:** Out of 8 patients 2 were male and 6 were female. Dunking was done in 2 patients, and 3 patients underwent external pancreatic drainage. Postoperatively 4 patients developed pancreatic fistula (1-grade II, 3-grade I) and 1 patient developed SSI, which is managed conservatively. All drains were removed till day 7. Average hospital stay was 6 days. HPE confirmed preoperative diagnosis in 7 patients; serous cyst adenoma but in 1 patient suggestive of very rare diagnosis; intestinal duplication cyst in pancreatic parenchyma, in all specimen margins were negative. After discharge one patient came with intraabdominal collection which is drained by pigtail. No patient developed new onset DM and pancreatic insufficiency. **Conclusions:** When it is a matter of clinical benefit, central pancreatectomy even with more complication rate in comparison to distal pancreatectomy, is a safer option in experienced hands for selected cases.

P13 3366

Portal Annular Pancreas: Rare Variant And Its Importance In Pancreatic Surgery. Anmol Raj Gupta, Meenakshi Mission Hospital, Madurai

Portal annular pancreas (PAP) is an uncommon and under-recognized congenital anomaly of the pancreas, which mostly remains asymptomatic but can have serious implications if a pancreatic surgery is being contemplated. In contrast to a conventional annular pancreas in which

the pancreatic tissue encircles the second part of the duodenum, portal annular pancreas is characterized by encasement of the portal vein or the superior mesenteric vein (SMV) by a ring of pancreatic parenchyma. Its exact incidence is unknown as only few cases have been reported in the literature. We have a case of 17 year old male, who presented to us with pain abdomen and diagnosed to have chronic calcific pancreatitis on imaging. All blood investigations were normal. Patient taken for Frey's procedure. During operation it was found that main pancreatic duct was running behind the portal vein and small tissue of pancreas was present anterior to portal vein. No accessory pancreatic duct encountered. Portal vein dissected circumferentially from pancreatic tissue and roux-en-y pancreaticojejunostomy done leaving the portal vein in place. On reviewing the computed tomography (CT) images this anomaly was not clearly visible. This pancreatic anomaly is very rare and have serious implications pancreatic surgeries.

P14 3399

Rare Pancreatic Neoplasms: A Case Series. Nikhitha D Shetty, Jayant Gul Mulchandani, Ashwinikumar D Kudari, Narayana Hrudayalaya Hospitals, Bangalore

Introduction: Pancreatic tumors can be broadly classified into epithelial tumors (including exocrine and endocrine tumors), mesenchymal tumors, lymphomas and secondary tumors. Pancreatic ductal adenocarcinomas comprise 85% of all pancreatic neoplasms. Neuroendocrine tumors and cystic neoplasms of the pancreas display a rise in incidence rates over the last two decades, but it is more likely due to more widespread use of cross sectional imaging and endoscopy. The objective of this study was to report our experience in diagnosis and treatment of patients with rare pancreatic neoplasms and to discuss clinicopathological characteristics of the disease as well as the role of surgery in their treatment. **Methods:** We describe a retrospective review of all pancreatic neoplasms operated in our department over a period of one year between July 2016 and June 2017. We encountered 24 cases of pancreatic neoplasms of which 21 cases were diagnosed to be ductal adenocarcinomas and 3 were rare tumors. All 3 patients were women, aged 34, 32 and 44 years diagnosed with metastatic insulinoma, solid pseudopapillary tumour and noninvasive mucinous cystic neoplasm with carcinoma in situ respectively. **Conclusions:** Data available to guide the detection and treatment of rare neoplasms of the pancreas are limited. Hence, identifying these tumors in the pancreatic region and timely intervention is of importance. It's also prudent to note that operative intervention remains the treatment of choice in these patients to arrive at the correct diagnosis and for further management.

P15 3406**Biliary complications after pancreatic Necrosectomy.**

Surya Ramachandra Varma Gunturi, Venu Madhav Thumma, Navakishore Kunduru, Jaganmohan Reddy Bathalapalli, Kamal Kishore Bishnoi, Nirjhar Raj Rakesh, Bheerappa Nagari, Nizams Institute Of Medical Sciences, Hyderabad

Background: Necrotising Pancreatitis is a challenging problem and pancreatic necrosectomy is associated with significant morbidity even in high volume centres. The aim of this study is to present our experience in general and to highlight the biliary complications in particular.

Methods: The clinical outcome of patients who underwent pancreatic necrosectomy in the last 6 years in our institute was studied. All our patients underwent open pancreatic necrosectomy **Results:** Four Patients had bile leak and three of them were detected on table and in one patient on Post op day2. three out of four were salvaged.

Conclusions: Management of Necrotising Pancreatitis requires Multidisciplinary team approach. Early detection of complications and timely intervention by experienced team is the key

P16 3440**Groove pancreatitis – an important differential diagnosis of pancreatic adenocarcinoma.** Praneeth Reddy

"Groove pancreatitis" is a form of segmental chronic pancreatitis affecting the "groove" between the pancreas head, duodenum and common bile duct.^{1,2} In three surgical series, this diagnosis was present in 2.7%, 19.5%, and 24.4% of duodenopancreatectomy specimens obtained from patients with chronic pancreatitis². New radiologic and endoscopic techniques have markedly improved the accurate diagnosis of pancreatic disease; however, it is still difficult to differentiate groove pancreatitis from pancreatic carcinoma^{3,4}. Here I present two case scenarios which we have treated in April 2017, which raised a suspicion of malignancy but EUS and CECT helped us in accurately diagnosing the present condition. A 44-year-old man, with a past history of chronic alcohol consumption, presented with epigastric pain radiating to the back, intermittent vomiting. Transcutaneous ultrasound of the abdomen showed diffuse thickening of the second and third parts of the duodenum raising the suspicion of malignancy. Upper gastrointestinal endoscopy revealed an edematous, shiny, reddish raised mucosa having a polypoid appearance which did not rule out malignancy. CT of the abdomen, showed thickened and edematous wall of D2 segment of duodenum with heterogenous attenuation of adjacent pancreas and surrounding fat stranding and fluid - features of groove pancreatitis. By doing CECT abdomen, we are able to differentiate the present condition from malignancy and managed conservatively. The other

case also showed similar findings which was managed conservatively. In most cases, given the inability to reliably exclude an underlying malignancy, patients ultimately undergo pancreaticoduodenectomy. However, in those cases where the imaging features are highly characteristic and the radiologist is able to strongly suggest the diagnosis on presentation, major surgery can potentially be avoided. Bibliography 1)Becker V, Bauchspeichel D. Spezielle Pathologische Anatomic Bd. VI. Doerr W, Seifert G, Uhlinger E, Eds. Springer, Berlin-Heidelberg-New York, 1973. 2) Stolte M, Weip W, Volkholz H, Rosch W. A special form of segmental pancreatitis. 3) Itoh S, Yamakawa K, Shimamoto K, Endo T, Ishigaki T. CT findings in groove pancreatitis: correlation with histopathological findings. J Comput Assist Tomogr 1994; 18:911-5. [PMID 7962798]. 4). Gabata T, Kadoya M, Terayama N, Sanada J, Kobayashi S, Matsui O. Groove pancreatic carcinomas: radiological and pathological findings. Eur Radiol 2003; 13:1679-84. [PMID 12835985]

P17 3493**A rare case of periampullary carcinoma with cystic atrophy of pancreas.** Neetesh Kumar Sinha, Saheer N, Sivasanker M, Prasanth Penumadu, JIPMER, Puducherry

We report a rare case of periampullary carcinoma with cystic atrophy of pancreas. A 56-year-old diabetic woman presented to our hospital with complaints of loss of weight and appetite. The endoscopy revealed periampullary growth and biopsy showed adenocarcinoma. Imaging revealed hypoechoic lesion in the second part of duodenum, abutting the SMV with absent pancreas. Intraoperatively 6 x 6 mass was present in the 2nd part of duodenum closely abutting the SMV- portal vein confluence. The pancreas appeared completely atrophic to the left of portal vein and duct was dilated to form a cyst. Classical pancreatoduodenectomy was performed followed by hepatico-jejunostomy and gastro-jejunostomy but the pancreatic anastomosis was not done due to its complete atrophy. Complete atrophy of pancreas in this age group without any history of chronic pancreatitis is a rare finding. This kind of presentation poses a unique challenge during surgery since pancreatic anastomosis is not feasible.

P18 3503**Metastatic Solid pseudopapillary epithelial neoplasm (SPEN) of the pancreas - Diagnostic Dilemma and challenge in surgical management.** Rajkumar Subramaniam, MMC, Chennai

Solid-pseudopapillary epithelial tumors are very uncommon neoplasms of low malignant potential, generally occurring in young women often detected initially on imaging. Of uncertain histogenesis, it has a low-grade malignant potential and excellent post-surgical cure rates. Despite

advances in imaging, pseudocysts and other pancreatic cystic neoplasms feature in the differential diagnosis. Pathological and/or cytological evaluation remains the gold standard in reaching a definitive diagnosis. On morphology alone, other primary pancreatic tumors and metastatic tumors pose a diagnostic challenge. Recent advances in the immunohistochemical characterization have made histopathologic diagnosis more specific and, in turn, shed light on the likely histogenesis of this rare tumor. Even though, presence of multiple metastasis, will lead to great diagnostic dilemma and challenge in aspects of management. We report a case of solid pseudopapillary epithelial neoplasm of the pancreas with multiple liver metastases that was suspected on radiology and diagnosed preoperatively with the biopsy from the liver.

P19 3051

Factors predicting postoperative complications following salvage surgery for failed endoscopic management in chronic pancreatitis. Gautham Krishnamurthy, Vikas Moond, Srinath Rathod, Rajesh Gupta, PGIMER, Chandigarh

Introduction: Chronic pancreatitis management is multimodal involving pharmacological, radiological, endoscopic and surgical interventions. Patients are operated late in the disease process due to the increasing indications and expertise of endoscopic management. The progressive inflammatory process and repeated interventions could complicate the definitive surgery for failed endotherapy. **Methods:** Present study is a retrospective analysis of prospectively maintained data base of chronic pancreatitis patients managed surgically between July 2012 to July 2016. Analysis was performed based on the clinical, radiological and perioperative course of these patients. Patients were divided into two groups based on presence (group 1) or absence (group 2) of prior pancreatic ductal stenting. **Results:** 48 patients with chronic pancreatitis were included. 23/48 did not have demonstrable etiology and 23 had alcohol as etiology. Pancreatic divisum and post-traumatic sequelae were the causes in one patient each. Prior endoscopic management was present in 22/48 patients. 18 had pancreatic ductal stenting alone whereas 3 had biliary stenting alone. One patient had both. Apart from jaundice, there was no significant difference between the group 1 and group 2 among the preoperative clinical, radiological and biochemical parameters. Frey's procedure, Modified Frey's (head and body coring) procedure and partial pancreaticoduodenectomy were performed in 32, 12 and 4 patients respectively. 6 patients had postoperative complications with 3 of them succumbing to the complications. Of the six, 5 were bleeding related and one patient had intra-abdominal collection. Among the study population, history of acute pancreatitis ($p=0.03$) and elevated amylase ($p=0.02$) at the time of surgery were

associated with increased postoperative complications. No significant difference was present between group 1 and group 2 in this regard ($p=0.58$). Among group 1 patients, prior history of jaundice ($p<0.01$) and CT features of collaterals were commoner in the patients with postoperative complications. Duration of pain, etiology, exocrine or endocrine insufficiency, biliary stenting and various pancreatic pathologies on preoperative imaging did not have impact on perioperative outcomes. After excluding pancreaticoduodenectomy, there was no difference between group 1 and group 2 with respect to duration of surgery and blood loss. Incidence of pancreatic ductal stricture and pseudocyst was higher in group 1 with patients undergoing 4 or more sessions of endoscopic stenting having higher rates of pancreatic ductal stricture when compared to those with less than 4 sessions ($p=0.01$). Pain control at 3 months and 6 months was better in group 2 ($p=0.02$, $p=0.05$). No impact of PD stenting on endocrine and exocrine functional status was present till 6 months of follow up. **Conclusions:** Endoscopic stenting does not have impact on the immediate outcome of surgery. However, endoscopic stenting, especially more than 3 sessions is associated with increased presence of pancreatic ductal stricture and poorer pain control at 3 months and 6 months after surgery. Impact of stenting and pancreatic ductal stricture on long term pancreatic functional status needs to be assessed.

P20 3077

Effect of local factors and nutrition on outcome following surgical necrosectomy. Suresh Babu D, G V Rao, Pradeep R, Upender Rao, Asian institute of Gastroenterology, Hyderabad

Introduction: Pancreatic necrosectomy is associated with high mortality and morbidity. It is proven beyond doubt that post operative mortality depends type of surgery, organ failure, sepsis. Step up approach – PANTER trial was successful in improving the outcome in managing infected pancreatic necrosis. Studies evaluating the local factors namely extent of necrosis, enteric communication, hemorrhage, pre operative interventions, type of nutrition and pre operative nutritional status on post operative mortality and morbidity are few. This study is intended to evaluate these factors. **Methods:** Single centre retrospective study carried out in a tertiary care centre from period of Jan 2010 - Nov - 2016. Pre operative nutrition status, type of nutrition, extent of necrotic collection, enteric communication, hemorrhage, pre operative interventions were evaluated. SPSS 21 and MET-CAL C softwares were used for analysis. **Results:** 140 cases who underwent surgical necrosectomy were analysed. Patients were in the age group ranging from 22 – 72ys with mean age of 34yrs. Alcohol being the most common etiological factor followed by gall stones. 22% cases had colonic communication while

bleed was seen in 9%. 52% of cases had pre – operative drainage procedures which include percutaneous catheter drainage, endoscopic drainage and surgery. Poor pre operative nutrition, hemorrhage, extension of collection to infracolic and pelvis, parenteral nutrition were predictors of poor post operative outcome. **Conclusions:** Mortality and morbidity following necrosectomy depends on nutritional status, extent of necrosis, hemorrhage.

P21 3118

Which approach is better for Pancreatic Necrosectomy– Comparing Our Own Data. Keyur Suresh Bhatt, Dhaval O Mangukiya, SIDS hospital, Surat

Introduction: The aim of this study was to evaluate the outcomes of minimally invasive treatment including endoscopic Methods for necrotizing pancreatitis in comparison with open necrosectomy in our own data. Conventional open surgery for infected pancreatic necrosis is associated with significant surgical morbidity like wound complications, facial dehiscence, intestinal fistulae, intra abdominal bleeding and pulmonary complications. **Methods:** We analyzed 1860 patient who were admitted with acute pancreatitis in our care from between October 2010 to March 2017, out of which 572 patients had acute necrotizing pancreatitis and 266 patients with pancreatic necrosis underwent pancreatic necrosectomy by various Methods including endoscopic necrosectomy. Open surgery, Endoscopic transgastric approach & Minimal access Necrosectomy (MAN) which included retroperitoneal videoscopic approach, laparoscopic approach, transgastric approach, laparoscopic transabdominal, hybrid (open surgery + retroperitoneal approach). No relook laparoscopy/surgery was required in patients who underwent MAN to assess for residual necrosis. Four patient in open group required re-look surgery & all patient of endoscopic approach underwent re sessions for the procedure. We compared the outcome and data in all three groups retrospectively, with total follow up from 6 years to 3 months. **Results:**

Type	Number of Procedures
Endoscopic necrosectomy	162
Trans gastric surgery	18
Laparoscopic surgery	10
Retroperitoneal minimal access surgery	20
Retroperitoneal videoscopic +laparoscopic/open	8
Conventional open surgery	48

All the patients tolerated the procedure well, and there was no mortality in endoscopy group. Bleeding was found in 3 patients in endoscopy & Open surgery each and 1 in MAN group. Endoscopic procedures were abandoned and patient were subjected to laparoscopic transabdominal surgery, Rest all 4 patients were angioembolized from the bleeding vessel of which 1 patient died. Wound infections were found in 42 vs 8 in open and MAN group, intestinal fistulae 4 vs 1 in open and MAN (Controlled retroperitoneal fistula treated conservatively without ileostomy); other 4 were treated with Laparotomy and ileostomy. Pulmonary complications were 24, 6 and 2 in open, MAN & Endoscopy group respectively. The average length of ICU stay in MAN group was 3.57 vs 8.14 days in case of open vs 2.04 days in Endoscopy group. The average length of hospital stay after ICU was 11.33 vs 12.7 vs 11.8 days in open vs MAN vs endoscopy group respectively. Mortality was nil (0%) in Endoscopy vs 3 (5.35%) in MAN vs 12 (25%) in open group. Incisional hernia occurred 8 vs 3 patient in open vs MAN group. Average time of doing intervention in Endoscopy was 60th day, while Man group was 34th day and Open was 33rd day of illness. **Conclusions:** Later the necrosectomy better the outcome. Endoscopic necrosectomy is technically feasible and should be preferred over other modalities whenever possible. However this is not randomized trial but still in carefully selected patients minimally access necrosectomy appears to be a better technique in compare to open surgery when endoscopic surgery is not feasible.

P22 3125

A Study To Assess The Clinical Predictors For Delayed Local Complications In Acute Pancreatitis. Santosh C Gudimani, Mohan Narasimhan, Ramesh Ardhanari, Meenakshi Mission Hospital, Madurai

Introduction: Acute pancreatitis is a common disease with wide variation in clinical severity. Several scoring systems and biomarkers have been established in detecting the severity, organ failure, and necrosis in acute pancreatitis. This study aimed to assess the clinical profile of acute pancreatitis, to derive clinical predictors for delayed local complications. **Methods:** In this prospective study, conducted from July 2015 to March 2017 a total of 186 cases were diagnosed with acute pancreatitis were included. Along with routine laboratory parameters serum amylase, lipase, arterial blood gas analysis (ABG) done, and patient's APACHE II (acute physiological and chronic health evaluation) score was calculated. After 48 hrs of admission CRP (C reactive protein) levels were done. These patients were observed throughout admission for progression of disease, development of complications, treated in step up approach and followed up beyond 4 weeks to look for development of delayed local complications i.e. pancreatic pseudocyst (PP) or walled of pancreatic necrosis (WOPN).

Results: Of 186 patients 62 patients (33.3%) developed delayed local complications. Statistically significant cutoff values for prediction of complication were APACHE II>8, hematocrit>44%, PaO₂/FiO₂<300 (ratio of partial pressure arterial oxygen to fraction of inspired oxygen), serum creatinine>1.9 mg%, and CRP>0.6 mg/dl. APACHE II, CRP, serum creatinine, and PaO₂/FiO₂ predicted development of delayed local complications, which was statistically significant with P value<0.05. Hematocrit prediction was not significant. APACHE II and CRP showed high sensitivity (58.06% and 61.20% respectively), PaO₂/FiO₂ and serum creatinine showed high specificity (79.03% and 89.52% respectively). Positive predictive value was highest for PaO₂/FiO₂ and serum creatinine (56.67%). Negative predictive value was highest (77.78%) for PaO₂/FiO₂. **Conclusions:** Assessment of initial parameters like APACHE II, CRP, PaO₂/FiO₂ in ABG, serum creatinine could be relevant in predicting delayed local complications.

P23 3128

Factors Determining Outcome In Management Of High Grade Pancreatic Injuries-Single Center Experience.

Karthikeyan Ragupathi Ragavan, villalan Rex, Prabhakaran Raju, Naganath Babu, Rajiv Gandhi Government General Hospital Chennai

Aim: Traumatic injuries to the pancreas is a rare event and very difficult to diagnose and manage. It has an incidence of 5-6% in blunt injury to abdomen. The aim of this study is to present the factors determining the outcome in management of high grade pancreatic injuries. **Methods:** We prospectively analyzed 12 patients managed in our center. Patients demography, timing of admission, general condition of patient, mode of injury, presence of other associated injuries, nature of treatment given were taken into consideration. Grade 1 pancreatic injuries were excluded from this study. **Results:** The age group of the patients was between 10-35 years. Male patients were 10 and female patients were 2. All of them had blunt injury abdomen. Grade 3 pancreatic injuries present in 10 patients and grade 2 injuries in 2 patients. Five patients were initially managed conservatively elsewhere and later referred to our center. Among these five patients MRCP was taken in 4 patients in addition to CECT abdomen. Rest of the patients all were evaluated by CECT. One patient was so poor to go for investigation. Among the 12 patients one patient was in sepsis shock and rest were hemodynamically stable and not in sepsis. In addition to pancreatic injury patients had associated liver (4), transverse colon (3), duodenal (1), jejunum (1), spleen (2), renal injuries (2), and faciomaxillary injuries (2). Among the 5 who were initially conservatively managed patients 3 patients underwent PCD insertions, 1 patient went for distal pancreaticosplenectomy subsequently, 1 patient underwent pancreatic duct stenting. The treatment modality we followed in rest of

the patients were distal pancreaticosplenectomy (4), distal pancreatico jejunostomy with serosal closure of pancreatic head (1), debridement and external drainage (2). Two patients who had associated renal injuries underwent nephrectomy. Post operatively patients had pancreatic leak (5) which was managed conservatively. The mean hospital stay was 25 days. One patient had abdominal collection following distal pancreaticosplenectomy and it was managed by PCD. There was one mortality in a patient who presented late along with frank sepsis. **Conclusions:** Management of high grade pancreatic injuries needs technical expertise. Early diagnosis and appropriate surgical management in high grade pancreatic injuries carries favorable outcome even in setting of multi visceral injuries. Delayed presentation with sepsis associated with high mortality

P24 3132

Options In Management Of Complications In Chronic Calcific Pancreatitis – An Observational Study In Single Centre.

Prasanna Gopal, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Sivakumar, Rajendran.S, Naganath Babu OL, Madras Medical College, Chennai

Introduction: Surgery is the treatment of choice for intractable pain in chronic calcific pancreatitis. In addition to pain group there is another subgroup of patients who present with complications who must be treated expeditiously to obviate morbidity and mortality due to natural course of complication. Here we have analyzed complications in Introduction of CCP and it's management outcomes. **Methods:** This is a retrospective study of prospectively maintained database of complications of CCP from 2010-2017. The incidence, etiology, presentation, type of complications and their management, outcomes related to intervention were studied in detail. **Results:** Total of 318 patients had CCP. Patients in pain group were excluded. 124 patients (38.9%) had complications in Introduction of CCP. Male to female ratio was 262:56. Most common cause of CCP was alcohol (N=260, 81.7%). Most common complication noted was pseudocyst (N=37, 29.8%). Next most common complication is jaundice (N=36, 26.8%) other complications were pancreatic ascitis (N=18, 14.5%), Vascular complications (N=13, 10.4%) & pancreatic carcinoma (N=4, 3.2%) and duodenal obstruction (N=1, 0.8%). For patients with pancreatic pseudocyst main procedure includes Frey's procedure with external drainage of cyst, depending on location of cyst, Frey's with cystojejunostomy or Frey's along with distal pancreatectomy and splenectomy. For patients with CCP & jaundice most common procedure done in addition to Frey's procedure was choledochoduodenostomy (CDD), For patients with coexisting carcinoma, palliative bilio digestive bypass was done. Vascular complication includes arterial N=9 and venous N=4 complication, for arterial

complication angioembolisation, angioembolisation followed by surgery or surgery alone was done. For venous complication Frey's with splenectomy was done. **Conclusions:** Complications of CCP account for significant subset of patients with CCP. They have a protracted course and are usually symptomatic. Patients with complications of CCP may need additional procedures done in addition to Frey's procedure which can be done in high volume centre with acceptable morbidity and mortality.

P25 3133

Laparoscopic Vs Open Cystogastrostomy – A Comparative Study In A Tertiary Center. Karthi.M, Prabhakaran.R., Amudhan.A, Gnanasekar.M, Rajendran.S, Naganath Babu.O.L, Madras Medical College, Chennai

Aim: To analyse the merits of laparoscopic cystogastrostomy in comparison to open cystogastrostomy using a retrospective analysis of the primary and secondary outcome measures. **Methods:** The patients who underwent operative management for pseudocyst of pancreas in the form of cystogastrotomy from January 2012 to December 2016 were included in the study. Those patients who required an external drainage or cystojejunostomy were excluded from the study. The primary outcome measures was mean hospital stay. The secondary outcomes were analgesic requirement, post operative pancreatic fistula, time taken to ambulate and cost. **Results:** In the 4 year study period, 38 patients underwent cystogastrostomy for pseudocyst of pancreas. The age of these patients ranged from 13-67 with a mean age of 33. 39 of the patients were males and ethanol was the most common aetiology accounting for 27 cases, followed by an equal incidence of biliary and idiopathic pancreatitis and one case of traumatic pancreatitis. All patients presented with pain and upper gastrointestinal scopy showed wall indentation in stomach in 26 patients. The average size of the pseudocyst was 10.4 cm with a comparable mean wall thickness of 5.2 mm in the open group and 5.4 mm in the laparoscopic group. The most common location was lesser sac, found in 22 patients and in one patient there was mediastinal extension of the pseudocyst. Necrosis

was seen only in 16 patients. 4 patients underwent a trial of conservative management and the rest were taken for operative management upfront. The reason for failure of conservative management was persistent pain in all the 4 patients. 38 patients underwent cystogastrostomy of which 13 were done using laparoscopy. The mean hospital stay in the laparoscopic group was 6 days as against 10.2 days in the open operation group. The analgesic requirement was much less in the laparoscopic group and none of the patients developed pancreatic fistula and pain relief was adequate in all patients. **Conclusions:** There is a definite shortening of hospital stay, reduced analgesic requirement and early ambulation in the laparoscopic group. The absence of pancreatic fistula and adequate pain relief in both groups suggests that laparoscopic approach for pseudocysts is as safe and efficacious as open operation. However to show statistical significance we will need more patients in the laparoscopic arm and this may be done via a prospective randomised trial.

P26 3135

Addition of a Braun entero-enterostomy decreases the frequency of postoperative pancreatic fistula and delayed gastric emptying after standard pancreaticoduodenectomy. Nivas V, Satinder Pal Bains, Mahesh S, Venugopal A, Ramesh H, VPS lakeshore hospital and research center, Cochin

Introduction: Despite continuous refinements in the technique of pancreaticoduodenectomy, postoperative pancreatic fistula (POPF) and delayed gastric emptying (DGE) continue to cause significant morbidity. **Aim:** Compare the data of patients who have undergone the Braun enteroenterostomy during reconstruction with those who have not, and analyse the frequency and severity of POPF and DGE. **Methods:** The prospective data of 51 patients who underwent the Braun entero-enterostomy during reconstruction (group 1) were compared with those of 61 patients did not (control period during 2014- 2015; group 2); Fisher's exact test was used for analysis. **Results:** The demographics of the two groups were similar (table 1)

Parameter	Group 1 (Braun) n=51	Group 2 (no Braun) n=61	P value
Age (median, years)	58	61	NS
Sex	26:25	34:27	NS
Comorbidities	37	45	NS
Jaundice	31	29	NS
Preoperative ERCP/stenting	21	17	NS
Soft pancreas	25	33	NS
PD diameter >4 mm	25	26	NS
Head cancers: periamp cancers: NET	15: 24:3	19: 22:8	NS

Postoperative pancreatic fistula occurred in 33 patients overall and DGE in 32 patients. The outcomes in the two groups are shown in table 2

Parameter	Group 1 (Braun) n=51	Group 2 (No Braun) n=61	P Value
POPF (ISGPF) (Grade B+C)	10 (19%)	23 (37%)	0.0402 (CS)
Grade B	6	13	NS
Grade C	4	10	NS
DGE (Grade B+C)	9 (17%)	23 (37%)	0.0220 (CS)
Grade B	5	17	0.0183 (CS)
Grade C	4	6	NS
Tolerating full oral diet (Days)	9	11	0.0351 (CS)
Total number of complications	16	33	0.0216 (CS)

Conclusions: Reduced post-operative complication rate and early tolerance to full oral diet were also noted in the study. The addition of a Braun entero-enterostomy decreased the incidence of clinically significant POPF and DGE after standard pancreaticoduodenectomy.

P27 3143

Management of chronic pancreatitis with tail predominant disease – Single centre experience. Bala murugan Srinivasan, RGGGH, Chennai

Aim: To determine the indications and various types of surgery for chronic pancreatitis with predominant tail disease. **Introduction:** Surgery for chronic pancreatitis is done for intractable pain and complications. Pain is usually due to head mass, ductal hypertension, and parenchymal disease. But tail disease also contribute to pain in certain group of patients as a single factor or with other factors. These tail related problems are not addressed by the conventional procedures. In our centre we address the tail disease with surgical interventions in the aim of improving pain and quality of life. Tail disease may present as simple pseudocyst in the tail, infected cyst, focal chronic pancreatitis, tail mass, calcification in the tail, ductal stricture in the tail or with ductal disruption, pseudo aneurysm of splenic artery, splenic vein thrombosis and splenomegaly. There are variable options available for management of tail disease from resections like distal pancreatectomy to drainage procedures or hybrid procedures which are attended by variable success rates. **Methods:** It is an observational study of 31 patients who underwent surgical management for tail disease over the period of 5 years, with a mean postoperative follow-up of 30 months. Pancreatic function was measured before and after operation in all patients by looking at glycaemic control and steatorrhea. **Results:** All patients were tried with conservative management atleast for a period of 2 months failing which have been taken up for surgical management. 5 patients had previous attempt of endotherapy but failed to respond. These patients

with predominant tail disease were managed with Freys procedure with distal pancreatectomy with or without splenectomy in 14/31 patients (tail mass – 9, infected cyst -1, pseudocyst -1, ductal disruption – 1, stricture with mass -1, left sided portal hypertension – 1). 4/31 patients had isolated tail disease like isolated tail calcifications and tail mass which are managed with distal pancreatectomy and splenectomy alone in whom one patient recurred with head calcifications and pain managed with endotherapy. Tail cyst of size less than 4 cm are managed with Freys procedure alone with lay opening it. 2 patients who had previously been managed surgically presented with severe abdomen pain, in one Freys procedure had been done for head mass whereas tail disease was unattended and in another distal pancreatectomy for infected tail cyst had been done whereas head mass was unattended. Both of them were managed with completion distal pancreatectomy and freys procedure respectively. **Conclusions:** Chronic pancreatitis with tail disease is a specific group of diseases which are rare when comparing with head mass and hence its management is less discussed. They may occur as an isolated tail pathology or with concomitant head disease. They need to be addressed failing which they may recur even with Freys procedure. Hence tail resection may be an option in isolated or predominant disease which are managed with distal pancreatectomy or freys procedure with distal pancreatectomy with good pain control at the cost of developing diabetes in few patients as most patients with tail disease have already developed endocrine deficiency.

P28 3183

Pancreatico Pleural Fistula - Surgery The Last Option. Aravinda K N, Bangalore Medical College & Research Institute, Bengaluru

Introduction: Pancreatico pleural fistula results from posterior discontinuity of the main pancreatic duct or the side branch of the main pancreatic duct resulting in the extravasation of the pancreatic enzymes into the pleural

cavity. This has varied presentations like pleural effusion, empyema, lung abscess etc. The incidence of pancreatico pleural fistula in acute pancreatitis is 0.4% and due to rupture of pancreatic pseudocyst is 4.5%. The diagnostic clue is persistent thoracic symptoms in a known case of pancreatitis and the confirmation is by high pleural fluid amylase concentration, ERCP and MRCP. Conservative line of management by drainage of the pleural effusion and suppression of the pancreatic enzymatic secretions are the successful management strategy in ablating the fistulous track in nearly 31% - 65% of the patients. ERCP guided pancreatic duct stenting and cysto enterostomy, pancreatic resections are rarely needed in the treatment of this disease. **Aim:** To analyse the treatment response for pancreatico pleural fistula with conservative management. **Methods:** Prospectively collected data between 2015-2017 of the patients diagnosed with pancreatico-pleural fistula was analysed with regard to Etiology, patient characteristics, thoracic symptomatology, sensitivity of the radiological imaging modality in identifying the fistulous tract, response to conservative line as well as need for endoscopic and surgical management. **Results:** During the study period 20 patients were diagnosed of pancreatico pleural fistula. Alcohol being the predominant Etiology (95%, n=19). Left hemi thorax (13/20) being most common side involved. On diagnosis ICD drainage and Inj octreotide 100 microgram TID for 15 days was given to all patients as per our institutional protocol. Two patients (10%) required ERCP and pancreatic duct stenting because of persistent ICD drainage. Two patients (10%) were treated with open cysto gastrostomy in view of large symptomatic pseudocysts who improved symptomatically for pancreatico pleural fistula also. One patient (5%) underwent left inferior lobectomy because of persistent lung abscess. Recurrence in 2 (10%) patients. No mortality was recorded. **Conclusions:** Pancreatico pleural fistula are uncommon thoracic manifestations of the pancreatitis and pancreatic trauma. They usually present with left side pleural effusion. Significantly raised pleural fluid amylase level is the most important diagnostic clue. Most of them respond to conservative line of management with ICD drainage and pancreatic enzyme suppression. ERCP and pancreatic ductal stenting and pancreatic resections are rarely required.

P29 3201

Pancreaticogastrostomy : A technique revisited. Varun Madaan, Satyaprakash Jindal, Adhya GK, Vachan s Hukkeri, Vivek Tandon, Deepak Govil, BML Kapur, Indraprastha Apollo Hospital, New Delhi

After Pancreaticoduodenectomy/Pancreatic resection pancreatic reconstruction can be achieved by either a pancreaticojejunostomy or pancreaticogastrostomy. Pancreaticogastrostomy traditionally has been a less

preferred Method as compared to pancreaticojejunostomy. Clinically relevant post operative pancreatic fistula and delayed gastric emptying (grade B and C of the ISGPS definition) remains the most troublesome complications after Pancreaticoduodenectomy. The type of reconstruction of pancreatic remnant via some form of pancreatico-enteric anastomosis is one of the factors which may determine the incidence and severity of clinically relevant post operative pancreatic fistula. Currently there is no clear consensus regarding the ideal Methods of pancreatico-enteric anastomosis. We describe our preliminary data of pancreaticogastrostomy after Pancreaticoduodenectomy/Pancreatic resection and our results achieved with this techniques in the context of clinically relevant pancreatic fistula and incidence of Delayed gastric emptying. Our technique involves splaying of the pancreatic duct and subsequent dunking of the pancreatic remnant in to posterior stomach wall with the anastomose done in two layers. In our unit 10 patients had undergone pancreatic-gastric anastomosis out of which 9 was after Pancreaticoduodenectomy and 1 patient had Central Pancreatectomy. Out of 10 Patients none of the patient developed clinically relevant (Grade B, C) pancreatic fistula and clinically relevant Delayed gastric emptying (Grade B and C) was found in 3 out of 10 patients. Preliminary results obtained with this Methods shown low incidence of clinically relevant pancreatic fistulas which leads to decreased overall morbidity after Pancreaticoduodenectomy.

P30 3208

Management of Postoperative Pancreatic Fistula.

Suhail Farooq, Seth GS Medical College and KEM Hospital, Mumbai

Introduction: Postoperative pancreatic fistula (POPF) is a potentially serious complication. Its incidence is 2 to 20%. It is defined as a drain output of any measurable volume of fluid on or after postoperative day 3 with amylase content greater than 3 times the serum amylase. We present our data highlighting management of POPF. **Methods:** This is a prospective analysis of a retrospectively maintained data of three years from Jan 2014 to December 2016. Patients with POPF following Whipples Pancreatico-Duodenectomy or Distal Pancreatectomy were identified. These were stratified into A, B and C, depending on their severity. Data was analyzed with respect to: 1) Intra-operative texture of the Pancreas. 2) Intra-operative assessment of Pancreatic duct size. 3) Type of anastomosis. 4) Amount of drainage. 5) Duration of drainage. 6) Management. 7) Outcome. 8) Survival. All patients were operated by the same group of surgeons, following standardized technique of anastomosis. Pancreatico-Jejunostomy was done by Blumgarts Duct to Mucosa technique, Pancreatico-Gastrostomy by Invagination of the Pancreatic stump into

the stomach and Dunking of the Pancreas into jejunum by telescoping the pancreatic remnant into the lumen of jejunum. **Results:** 119 patients underwent surgery for malignancy of Pancreas, 112 underwent Whipples Pancreatico-duodenectomy, and 7 Distal Pancreatectomy. Of these, 12 patients (10.08%) were identified to have POPF, 10 (8.9%) following Whipples and 2 (28.57%) following Distal Pancreatectomy. 10 had Grade A fistula (8 following Whipples and 2 following Distal Pancreatectomy), 2 following Whipples had Grade B and none had Grade C. In Whipples group, the median drain output in was 100ml, (50-200ml) lasting for median of 10 days (range 7-14 days). The median duct size was 4mm (range 2-6 mm). While 4 had hard pancreas on palpation, 6 had soft and friable pancreas. 7 patients had undergone Pancreatico-jejunostomy, 1 Dunking procedure and 2 Pancreatico-Gastrostomy. All patients were managed conservatively with one requiring CT guided percutaneous drainage. There was no mortality. In the Distal Pancreatectomy group, the average drain output was 100ml (25-75 ml) lasting for average 25 days (10-40 days), with the texture of pancreas being soft in both. They were managed conservatively with no mortality. **Conclusions:** POPF is not uncommon. Majority of them are Type A or B. Though common in soft pancreas it can also occur in hard pancreas. Type of Pancreatico-enteric anastomosis performed does not influence its occurrence. They can be managed successfully with conservative treatment without morbidity.

P31 3209

Predictors of Malignancy in Chronic Calcific Pancreatitis with Head Mass. Bhushan B Chittawadagi, Senthilnathan P, Sandeep C Sabnis, Nallankilli VP, Anandvijai N, Srivatsan Gurumurthy, Palanivelu C, GEM hospital & Research centre, Coimbatore

Introduction: Pancreatic head mass in chronic calcific pancreatitis (CCP) is most often inflammatory but malignancy needs to be ruled out, which at times can be difficult. A variety of non-invasive and invasive diagnostic modalities are available for differentiation, which have to be used in combination for considerable accuracy. Despite remarkable technical advancement in diagnostic procedure over the last decade, there is potential for misdiagnosis. Current study was aimed to identify possible clinical, biochemical & radiological parameters which can predict the associated malignancy in CCP. **Methods:** This prospective observational study enrolled 31 patients, who had chronic calcific pancreatitis with focal head mass, during 2015-2017. Baseline demographic, clinical, biochemical and radiological parameters were collected in all patients. Details of surgery, radiological intervention, complications and the final pathological diagnosis were recorded. All the analysis was performed using MedCalc, version 14.8.1, statistical software. **Results:** The study included 23 men

(74.2%) and 8 women (25.8%). Seventeen patients had TCP (Tropical Calcific pancreatitis) (54.8%) and 14 (45.2%) had alcohol related CCP. Histologically, it was confirmed that 10 of the 31 patients (32.3%) had malignant head mass and the remaining 21 (66.7%) had an inflammatory lesion. Baseline characters were similar. Among the clinical history parameters, the sudden worsening/ new onset of diabetes, could qualify as predictor for malignancy. Comparison of the laboratory parameters and radiological features shows that serum bilirubin, CA 19-9 (Carbohydrate Antigen 19.9), MPD (Main pancreatic duct) size and CBD (Common bile duct) size were the factors that are significantly higher in malignant mass in CP. Receiver Operating Characteristic (ROC) analysis showed the sensitive and specific cut-off values for predicting malignancy, namely: CA 19-9:>94 U/ml; serum bilirubin:>4.6 mg/dl; CBD:>11 mm; and MPD:>10 mm. Multivariate analysis using logistic regression tests identified CA 19.9 as the most significant factor in predicting malignancy. The sensitivity, specificity and predictive values for each of the markers, the correct order of their preference in the diagnosis of malignancy is: CA 19-9>S. Bilirubin>MPD>CBD. Multiple regression analysis of the various combinations of the four independent variables and it was concluded that in most of the patients with malignant head mass, CA 19-9 can be the most predictive malignancy marker, as compared to those with inflammatory head mass, followed by serum bilirubin, and MPD size. **Conclusions:** In patients with chronic calcific pancreatitis with head mass, a history of sudden worsening or new onset of diabetes, raised values of CA 19-9, S. Bilirubin, MPD size & CBD size are useful in predicting malignancy.

P32 3300

Early and Late Post Operative Outcomes of Dunking Pancreatojejunostomy. Shashikiran MS, Ramesh Rajan, Sindhu RS, Bonny Natesh, Raviram, Jacob Mathew, Medical College, Trivandrum

Introduction: There is no gold standard Methods for pancreatico-enteric reconstruction. In our Department, Dunking Pancreatojejunostomy (DPJ- Invagination) and Duct to mucosa PJ technique are done as per surgeon's choice. In this study, we evaluate the early and late postoperative complications following Dunking pancreatojejunostomy based on ISGPS definitions. Comparison between the two technique has not been done in the study as the two groups may not be comparable vis a vis duct size, texture of the gland in a retrospective study. **Methods:** Retrospective analysis of prospectively collected data from January 2008 to December 2015. Detailed information on these patients was maintained on a prospective computerised database. Routine drain amylase estimations are being done on POD 3 & 5 for all patients undergoing pancreatic resections. Patient postoperative

characteristics were carefully recorded. Long term outcomes were studied on patients who have completed 2 years follow up. Fasting blood glucose and Faecal Fat globule identification by qualitative Methods used for identifying Endocrine and Exocrine deficiency respectively. For those with preoperative diabetes, worsening of glucose control was taken as Endocrine deficiency. Chronic pancreatitis with head lesions & Cirrhotics were excluded from the study. Details of patients who have undergone pancreatic resection with duct to mucosa type of pancreatointestinal anastomosis during the same period (64) were collected prospectively and analysed. DPJ and Duct to mucosa groups were not comparable with respect to age, duct size, pancreatic gland texture and comorbidities. Hence direct comparison between two has not been carried out. **Results:** A total of 75 patients were studied, 19 out of 75 (25.5%) developed Grade 'A' POPF, 5 out of 75 (6.6%) developed Grade 'B' POPF and 3 out of 75 (3.3%) developed Grade 'C' POPF. 20 out of 75 (26.6%) had Grade 'A' DGE, 5 out of 75 (6.6%) had Grade 'B' DGE. PPH occurred in 4 out of 75 (5.3%), 2 out of 4 were early PPH, 1 managed by coiling and other by re-laparotomy, 2 were late PPH both managed by coiling of the pseudo aneurysms. There was no 30 day mortality. Out of a total number of 53 patients eligible for assessment of long term outcome, 17 were lost to follow up and 14 had expired on follow up. 2 patients with chronic pancreatitis were excluded due to inherent nature of chronic pancreatitis to develop exocrine and endocrine deficiency on long term. Hence, a total of 20 were studied for long term outcomes. 7/20 (35%) developed exocrine deficiency & 6/20 (30%) developed fresh or worsened Endocrine function. **Conclusions:** Ducting Pancreatojejunostomy has acceptable PF, DGE & PPH rates. The results are comparable with those of Duct to Mucosa PJ mentioned in literature. On median follow up of 5 years, 30% and 35% developed Endocrine & Exocrine deficiency respectively.

P33 3317

Immediate post-operative complications after pancreaticoduodenectomy in relation to the percentage of acinar cells at the cut edge of pancreas - An observational study. Fadl H Veerankutty, Anil Chacko, Sidarth Chacko, Vipin I Sreekumar, Prasad Krishnan, Deepak Varma, Prakash K, Aster Medcity, Kochi

Introduction: Although recent advances in surgical techniques and postoperative care have decreased postoperative mortality after pancreaticoduodenectomy, postoperative complications are still extremely common. As widely reported by previous studies, texture of pancreatic stump and pancreatic duct diameter are often considered as major risk factors for postoperative pancreatic fistula. Recent studies have suggested that a large number of acinar cells (>40%) at the cut edge of

pancreas increases the incidence of complication after pancreaticoduodenectomy. **Aim:** The aim of our study was to analyze the incidence of immediate postoperative complications after pancreaticoduodenectomy in relation to the amount of acinar cells at the cut edge of pancreas. **Methods:** Study Design: It is a retrospective analysis of prospectively maintained database. Inclusion Criteria: All patients who underwent pancreaticoduodenectomy from July 2016 to May 2017 at our institution. Exclusion Criteria: Patients who underwent major vascular reconstructions were excluded from the study. **Methods:** Histological analysis was performed retrospectively by a single dedicated pathologist, who assessed blindly, with optical microscopy. The areas of different cell types were calculated from the entire hematoxylin-eosin stained section of cut edge. Fibrosis were graded from no fibrosis (grade 0) to subtotal fibrosis (grade 4). Patients were categorized into Group A -with more than 40% acini and Group B with less than 40% acini at the cut edge of pancreas. Drain amylase was routinely measured on postoperative day 3 and 5. The primary end points were overall complication rate, delayed gastric emptying (DGE), postoperative pancreatic fistula (POPF), postpancreatectomy hemorrhage and wound infection. **Results:** Among 20 patients who satisfied inclusion and exclusion criteria, 17 patients had >40% acini and 3 patients had <40% acini at the cut margin. All group B patients had grade 4 fibrosis and none of Group A patients had grade 4 fibrosis. Mean age, BMI and pancreatic duct diameter were comparable. Nearly all patients in group A (acinar group) developed some complication (14/17-82.3%) while none of patients in Group B (fibrosis group) had any complication. Mean Day-3 amylase of Group A patients (33±10.5) was significantly higher than that of Group B (2669±3632.7) patients (p=0.009). In Group A, 13/17 (76.5%) patients had biochemical (grade A) POPF, but no clinically relevant POPF (Grade B or C) developed in any patient. Incidence of DGE, PPH and wound infection in acinar group were 47%, 12% and 6% respectively. **Conclusions:** High frequency of acinar cells at the cut margin of pancreas significantly increases the incidence of complication after pancreaticoduodenectomy.

P34 3323

Effect of bactibilia on the outcome of patients who underwent Whipple's Pancreaticoduodenectomy-A retrospective study. Sree G Kumar, Manikandan Kathirvel, Puneet Dhar, Amrita Institute of Medical Sciences, Kochi.

Introduction: Multiple studies have shown that bactibilia is associated with increased morbidity and mortality following Whipple's pancreaticoduodenectomy. **Aims:** To correlate between bile culture positivity and postoperative morbidity and mortality in patients undergoing Whipple's pancreaticoduodenectomy and compare it with those without bactibilia. **Methods:** 200 consecutive patients who

underwent Whipple's pancreaticoduodenectomy in the department of Gastrointestinal Surgery in Amrita hospital during the period 2010 to 2017 were analyzed in this study. The correlation between the bactibilia and postoperative outcomes were analyzed using appropriate statistical tools. **Result:** Out of 200 patients, 127 patients were males and 73 were females. Mean age group was 57.45 years. Periampullary Carcinoma (39%) was commonest indication of Whipple's pancreaticoduodenectomy in our series. 16.5% of patients required preoperative biliary drainage in the view of cholangitis. Mean duration of surgery was 8 hours 52 minutes. Mean ICU stay and hospital stay were 5.03 and 14.91 days respectively. Pancreatic fistula (61%) was the commonest postoperative complication followed by wound infection (23.5%). Incidence of mortality in our case series was 12% (24 patients). Most of the pancreatic fistulas were Grade A (48.4%). Group B and Group C fistula constituted 27.4% and 24.2% respectively. 88 patients (44%) had positive bile culture. Preoperative biliary stenting significantly increased the incidence of bactibilia. E Coli was commonest isolated organism in the bile. There were no significant association between positive bile culture and duration of surgery, ICU stay, hospital stay, Post-operative wound infection & mortality. There was a significant association between bactibilia and postoperative pancreatic fistula although we couldn't find significant association specific to grade B and grade C fistulas. **Conclusions:** Bactibilia have no significant impact on postoperative morbidity and mortality in patients undergoing Whipple's pancreaticoduodenectomy. Preoperative biliary stenting increased the chances of bactibilia.

P35 3344

Delayed gastric emptying following pancreaticoduodenectomy : Prospective analysis of 120 consecutive patients. Abhinav Sengar, Adarsh Chaudhary, Amanjeet Singh, Azhar Perwaiz, Dinesh Ramaswamy, Medanta - The Medicity, Gurgaon

Introduction: Postoperative delayed gastric emptying (DGE) is one of the most common complications after pancreaticoduodenectomy (PD) and is an event that leads to increased hospital stay, cost, hospital re-admission and significant patient discomfort. Exact pathogenesis of DGE still represents a medical conundrum. Aim of this study is to find out and evaluate the incidence and risk factors influencing DGE following PD. **Methods:** 120 consecutive patients who underwent PD between December 2015 to March 2017 were prospectively analyzed for the demographic data, intraoperative, preoperative and postoperative factors. DGE was defined as per the ISGPS consensus criteria. Chi square test, independent student t test and multivariate logistic regression analysis were applied to assess the factors associated with development

of DGE. Patients who developed DGE and those who did not were compared. **Results:** DGE occurred in 27.5% of patients, with clinically relevant DGE occurring in 13.4% (Grade B-9.2% and Grade C-4.2%) of patients. Univariate analysis shows intra-abdominal collection (p value – 0.0005), pancreatic fistula (p value – 0.004) and surgical site infection (0.020) to be significantly associated with DGE. On multivariate analysis predictors of DGE included pancreatic fistula (p value – 0.018) and surgical site infection (p value – 0.029) and intraabdominal collection though not statistically significant (p value -0.086) on multivariate analysis, has odd's ratio (OR) of 3.01 showing positive correlation with DGE. Need for total parenteral nutrition, hospital and intensive care stay were significantly higher in DGE patients. **Conclusions:** DGE is a frequent complication and remains a significant cause of increased hospital stay and cost after PD. Our findings indicate that pancreatic fistula, intraabdominal collection and surgical site infection are the clinical risk factors predicting DGE.

P36 3348

Prevalence of Sarcopenia in patients with Pancreatic and Periampullary Cancer. Deeksha Kapoor, Dinesh Ramaswamy, Tarun Piplani, Adarsh Chaudhary, Medanta - The Medicity, Gurugram

Introduction: Sarcopenia is increasingly being recognised as the best available marker of malnutrition. Sarcopenia is associated with poor clinical outcomes including risk of postoperative complications and also poor long term outcomes. **Aim:** To study the prevalence of sarcopenia in patients with pancreatic and periampullary cancer being evaluated for surgery. **Methods:** Study was conducted at Medanta – The Medicity hospital from January 2016 to June 2017. Prospective data was collected of patients being considered for surgery for pancreatic and periampullary cancers. Assessment for sarcopenia was done on the CT scans with measurement of the TPA (total psoas area) and TPD (total psoas density). For greater comparability, all measurements were normalised for height. Simultaneously, a database of healthy liver donors was maintained which formed a baseline normative of psoas muscle index with which the sarcopenic patient indices were compared. **Results:** A total of 160 patients were analysed, out of which 124 patients proceeded to curative resection. The prevalence of sarcopenia was found to be 35.6% in this cohort of patient. Sarcopenia was found in 17/36 (47.2%) patients who were found to be either metastatic or locally advanced. On subset analysis, it was found that patients with malignancy of head of pancreas had a higher incidence of sarcopenia as compared to ampullary and duodenal tumour. **Conclusions:** Loss of muscle mass is significantly associated with a malignant process. The prevalence of sarcopenia is more in patients with pancreatic malignancies than the normal population, and appears to be more in patients with unresectable disease.

P37 3353

Referral Pattern in Acute Pancreatitis to Surgical unit and outcome. Gopal Sharma, Rajesh Gupta, Surinder Rana, Mandeep Kang, Vishal Sharma, PGIMER, Chandigarh

Introduction: Patients have been routinely referred to surgical services once diagnosis of infected pancreatic necrosis was made. However with the increasing use of step-up approach at many centers, referral pattern for in these patients has changed with very sick patients getting referred to surgical services. This study was aimed to look at the referral pattern in these patients. **Methods:** In this prospective observational study, 90 patients were referred to surgical services in 18 months time. 24 patients were referred for interval cholecystectomy following acute phase of pancreatitis and 66 were referred for further management in the acute phase of disease. **Results:** 66 patients were given surgical consultation during this period and 4 patients were excluded from the study. 55 patients had severe disease and 7 had moderately severe disease. 40 patients were managed with PCD only, 1 patient was referred after endoscopic necrosectomy, and 16 patients required surgery of which 15 were on PCD. Overall Sepsis reversal with PCD was seen in 55.3% patients. Curative efficacy of PCD alone was 46.4%. Overall mortality was 40.3% in this study. On univariate analysis, transferred patients had significantly higher mean MCTSI score, complete pancreatic necrosis ($P=0.000$), total number of interventions, total number of antibiotics and GI fistulas. On comparing patients managed with PCD and PCD with surgery, complete pancreatic necrosis, bleeding complications ($P=0.000$), need for DSA were associated with the surgical group. Bleeding complications were seen in 22.5% of the patients. None of the patient developed enterocutaneous fistula after surgery in this study. **Conclusions:** In the step-up era, there has been a change in referral pattern in acute pancreatitis with patients being referred in the later part of the disease process. In this study, early referral to the surgical unit with respect to PCD placement has shown reduced mortality and higher sepsis reversal with PCD. Bleeding complications and complete pancreatic necrosis require timely referral to surgical services.

P38 3358

Step-up approach in the management of Acute Pancreatitis-Initial experience. Rugved Vasant Kulkarni, Vishal Gupta, Pradeep Joshi, Vivek Gupta, Saket Kumar, Rakesh Yadav, Amit Dangi, Pavan Kumar G, Abhijit Chandra, King George's Medical University, Lucknow

Introduction: Step - up approach is the current standard of care in the management of acute necrotizing pancreatitis, when intervention is required. We hereby present our initial experience using this approach in the management of pancreatitis. **Methods:** Hospital records

of patients admitted with moderate to severe acute necrotizing pancreatitis from January 2015 to May 2017 were retrospectively evaluated and considered in the present study. Demographic profiles of patients, clinical course, details of interventions (surgical and non-surgical) were recorded and final outcome was analyzed with respect to use of step up approach. **Results:** 28 patients diagnosed as moderate to severe acute necrotizing pancreatitis were admitted in 2.5 years. Most were males (67.8%) with median duration of attack of 7 days [Range: 1-150 days]. Acute biliary necrotizing pancreatitis was most common etiology with median CT severity index of 8 [Range: 3-10]. 65.4% (n=17) patients had at least 30% pancreatic necrosis, with 34.6% patients (n=9) having more than 50% necrosis. Ultrasound guided percutaneous drainage of peri-pancreatic fluid collections was the most commonly performed procedure with a median of two interventions per patient [Range: 1-6]. Between two consecutive procedures, there was a median interval of 9 days [Range: 2-105 days]. Total leucocyte count and C- reactive protein (inflammatory marker) decreased significantly after percutaneous drainage of acute necrotic collections ($p<0.001$). In thirteen patients (46.4%) organ dysfunction resolved after percutaneous drainage; while in 35.7% (n=10) patients, organ failure persisted despite drainage procedures. There was no organ dysfunction / failure in remaining 5 patients during their entire clinical course. Sequential organ function assessment (SOFA) score decreased significantly after percutaneous drainage (1 vs 0; $p<0.001$). Out of 28 patients, 21 patients (75%) recovered with percutaneous drainage procedures only and did not require additional surgical intervention. Six patients (21.4%) underwent video assisted retroperitoneal drainage (VARD) with median of 1 session per patient. [Range: 1-4]. Open necrosectomy was required in 1 patient only after failure of minimally invasive techniques. Bleeding (4.4%, n=3) was the most common complication after percutaneous drainage procedures, while colonic fistula (n=1) and bleeding (n=1) (requiring multiple VARD sessions) were seen after VARD. Median hospital stay was 32.5 days [Range: 5-97 days] with only one mortality in our series due to malnourishment and debility. **Conclusions:** 96.4% patients (n=27) were managed by minimally invasive techniques and in 75% patients (n=21), surgical necrosectomy with its inherent risks was avoided, thus supporting the pivotal role of step-up approach in management of necrotizing pancreatitis.

P39 3408

Drain amylase levels in the first postoperative day predict pancreatic fistula in chronic pancreatitis patients undergoing Frey procedure. Vijayaraj Pavankumar, Raja Kalayarasan, A Sandip Chandrasekar, Pottakkat Biju, Gnanasekaran Senthil, JIPMER, Puducherry

Introduction: Pancreatic fistula (PF) is a major cause of morbidity and mortality after pancreatic surgeries. Fistula rates are generally low in chronic pancreatitis (CP) patients. Postoperative drain amylase levels help to detect the fistula early and to assess its severity. Early prediction of PF can facilitate early drain removal and avoid drain related morbidity in patients with low risk of PF. We aimed to study whether POD-1 drain amylase value predicts PF in CP patients undergoing Frey procedure. **Methods:** This is a retrospective study which included fifty-five patients who underwent Frey procedure in a single center between August 2013 and April 2017. A standard technique of head coring using electrocautery was followed in all cases. Pancreato jejunostomy (PJ) was done using single layer continuous (using either 3-0 polydioxanone (PDS) or 3-0 Prolene) sutures in all the patients. A closed tube drain was placed near the PJ site in all patients. Drain amylase levels were recorded on postoperative days (POD) 1, 3 and 5. Postoperative pancreatic fistula (POPF) was defined and graded as per International Study Group of Pancreatic Fistula (ISGPF) guidelines. **Results:** Mean age of the patients was 36 years (range: 13-68). Male to female ratio was 2.5:1. Preoperative serum amylase levels of all of them were normal. Six patients had soft pancreas and rest of them had firm or hard pancreas. None of the patients had blood loss more than 500 ml. There was no postoperative mortality. Seven patients developed POPF- three had grade A, three grade B and one grade C. Considering the sensitivity and specificity of amylase values in drains on POD1 in detecting POPF, an area under the ROC (receiver operating characteristic) curve of 0.924 was obtained ($P < 0.001$; 95% CI: 0.826-1.000). Best cut off value of 326 U/l was obtained with the sensitivity, specificity and accuracy of DFA1 to predict POPF being 100%, 75% and 92.4% respectively. Out of the 19 patients who had DFA-1 > 326 U/l, seven patients had POPF (Grade A-3, Grade B-3, Grade C-1; Positive predictive value- 36.84%). Of the remaining 36 patients who had DFA1 < 326 U/l, none had POPF (Negative predictive value- 100%). The median DFA1 of patients with a POPF (8210; range 338-25150 U/L) was significantly higher than in patients without a POPF (143; range 12-3280 U/L; $p = 0.001$). **Conclusions:** Measurement of DFA-1 can be considered a good clinical practice as it can help predict POPF with good accuracy. DFA-1 > 326 U/L can be used as the cut-off value for identifying patients at high risk of POPF. Drains can be safely removed on POD-1 after Frey procedure in patients with DFA1 < 326 U/L.

P40 3409

Management and Outcome of patients with Pancreatic injury- A tertiary center experience. Harjeet Singh, Narendra Pandit, Gautham Krishnamurthy Rajesh Gupta, Ganga Ram Verma, Rajinder Singh, PGIMER, Chandigarh

Introduction: Pancreatic involvement in blunt trauma abdomen is uncommon. The management of pancreatic injury depends upon various factors such as the site of injury, grade of injury etc. However, no guidelines exists. Post-operative complications associated with pancreatic surgery has to be weighed against possible faster recovery after surgery in deciding the appropriate management option. **Methods:** A retrospective analysis of prospectively collected data of patients admitted with pancreatic injury in tertiary center in North India from June 2012 to March 2017 was done. The diagnosis was made on the best modality available, which included Computed Tomography (MDCT) scan and intraoperative findings. **Results:** 45 patients were included in the study. Mean age at the time of injury was 32.27 ± 9.1 years and 40 patients (89%) were male. Thirty eight patients had injuries (84%) secondary to motor vehicle collision. Twenty five (55.5%) patients had isolated pancreatic injury. Among associated injuries, liver, kidney, spleen, colon and duodenum were involved in 11, 6, 6, 3 and 2 respectively. The most common site of injury was the pancreatic body in 24 (53.3%) and AAST grade III pancreatic injury was the most common grade of injury ($n = 28$). Based on the management instituted, patients were classified into three groups of management: operative resection (OR) ($n = 13$), operative drainage (OD) ($n = 17$) and non-operative management (NOM) ($n = 15$). Patients in the OR group were treated with distal pancreatectomy \pm splenectomy (spleen preserving - 8). All these patients were operated within 48 hours of trauma. In the OD group, 11/17 patients (64.7%) were managed with closed lesser sac drainage and 6/17 patients (35.3%) had cyst-enterostomy for pseudocyst pancreas. 8/15 patients in the NOM group had grade III injury. 5 had low grade injuries (grade I and II) and 2 had grade 4 injuries. Percutaneous drainage was done in 6 patients and 3 required pancreatic ductal stenting. The mean total hospital stay and ICU stay was 19.12 ± 19.57 and 7.43 ± 6.53 days. The readmission rate was 10 (22.2%). Six patients in the operative group had re-exploration. The grade of injuries were similar in the patients with operative intervention compared to non-operative intervention ($p = 0.09$). On analysis, there were no significant difference in pancreas associated morbidity, total hospital stay, ICU stay, readmission and non-pancreas associated morbidity between operative and non-operative management group. Among the OR group, patients with early presentation had shorter hospital stay than patient who presented late ($p = 0.01$). There were 8 deaths (17.7%). Sepsis was the cause of death in 5 patients. There was no significant difference between the operative group and NOM group ($p = 0.58$). Shock at the time of presentation ($p = 0.001$) and presence of multiple intraabdominal injuries ($p = 0.013$) were significantly higher in the mortality group. No mortality was seen in isolated pancreatic injury. **Conclusions:** Operative management of pancreatic injury has similar outcomes to that of non-operative management. Surgical

resection in patients presenting less than 48 hours of injury have better outcome than patients presenting more than 48 hours since injury. Management tailored on patient related and trauma related factors can help in achieving optimal outcome.

P41 3142

Early Intra Abdominal Hypertension- A Reliable Bedside Prognostic Marker For Acute Pancreatitis. RN Naga Santhosh Irrinki, Post Graduate Institute of Medical Education And Research, Chandigarh

Introduction: Acute pancreatitis (AP) is a significant medical and surgical problem with high mortality even in tertiary care units. Raised intra abdominal pressure (IAP) is considered an important factor for organ dysfunction, leading to high mortality. The aim of this study was to evaluate the role of IAH as a prognostic marker in AP. **Methods:** A prospective observational study of 50 consecutive patients of AP between January 2013 and June 2014. IAP measured using intra-vesicular route from day 1-5 from admission. Mean IAP and peak IAP were calculated and correlated with markers of severity in AP (APACHE II score- admission, maximal SOFA score, infective complications, organ failure, hospital stay, parenteral nutrition supplementation. **Results:** Of 50 patients recruited, 47 survived and 3 died during index admission. IAP was noted in all patients along with their mean IAP and peak IAP. Study population was divided into Intra-Abdominal hypertension (IAH) group (IAP>12mm Of Hg) with 23 patients (46%) and No IAH group (IAP 5-12 mm of Hg) with 27 patients (54%). Alcohol was most common etiology in both IAH and Non IAH groups (39.1% and 48.1% respectively). APACHE II scores (admission) were significantly correlating with mean and peak IAH values ($p=0.001$). Mean modified CT severity index (mCTSI) score in the study population was 6.38 ± 2.61 and patients with higher mCTSI score had higher mean IAP and Peak IAP values. Maximal CRP levels were significantly higher in IAH (775 ± 110.93 ng/dl) than in No IAH group (164 ± 224 ng/dl) ($p=0.001$). Mean SOFA score (admission) was 3.70 ± 2.98 . IAH group had significantly higher SOFA score (5.57 ± 3.01) compared to No IAH group (2.11 ± 1.82) ($p=0.03$). Incidence of organ failure, number of organs failed was also significantly higher in IAH group vis-à-vis non IAH ($p=0.01$). Incidence of infective complications and need for percutaneous drainage (PCD) was more in IAH group (48.5%) $p=0.001$. Need for parenteral nutrition ($p=0.01$), duration of hospitalisation (IAH- 28.91, Non IAH- 10.56 days, $p=0.02$) and duration of ICU stay ($p=0.01$) were higher in IAH group of patients. **Conclusions:** Early identification of IAH correlates well with proven indicators of severity (APACHE II score, maximum SOFA score, mCTSI, maximum CRP and infective complications). It can be a simple and effective bedside prognostic marker and help predict outcome of acute pancreatitis.

P42 3172

Management of Pancreatic Injury- Single Institution Study. Gautham SL, BMCRI, Bengaluru

Aim: Traumatic injury to the pancreas is rare and difficult to diagnose. In contrast, traumatic injuries to the liver, spleen and kidney are common and are usually identified with ease by imaging modalities. Injuries to the pancreas may result in considerable morbidity and mortality. The purpose of this study was to review our institutional experience in regard to this relatively infrequent injury. **Methods:** The study design was a retrospective chart review of all adult patients with blunt pancreatic injuries treated at Dept of SGE, BMCRI from 2014-2016. The radiologic and operative findings were used to ascribe the American Association for the Surgery of Trauma (AAST) pancreatic injury grade score for each patient. In patients treated non operatively, the diagnosis was primarily based on clinical examination and CT findings. **Results:** Twenty patients (18 men, 2 women); were treated during the study period. 8 patient had American Association for the Surgery of Trauma (AAST) grade 3, 7 had AAST grade 2 pancreatic injuries. One patient with grade 4 injury treated conservatively, presented with acute intraperitoneal bleed and required laparotomy evacuation of hematoma+ ligation of GDA. Another patient who was posted for left nephrectomy (non functioning kidney) underwent distal pancreatectomy following intra op finding of pancreatic injury. Of the 20 patients, pancreas-specific complications occurred in two patients (pseudocyst). These two patients were later treated with laparoscopic cysto jejunostomy. Ten patients had combined liver injury, however none of them required surgical management. The overall mortality rate in our series was zero. **Conclusions:** Pancreatic injury is uncommon and usually difficult to diagnose. Because of the subtlety of the ultrasound findings, computed tomography is the preferred Methods for evaluating suspected pancreatic trauma; however, pancreatic duct injury may not be detected on computed tomography scan except when there is through and through laceration. Low grade injury in a hemodynamically stable patient can be managed conservatively. High grade injuries can also be managed conservatively provided they are hemodynamically stable. However they should be under constant follow up as they are more prone for complications.

P43 3215

Pancreatic Attenuation Index as a Predictor of Postoperative Pancreatic fistula. Bincy Merin Zacharia, Anandakumar M, Venugopal B, Shabeerali TU, Shiraz AR, KIMS, Trivandrum

Introduction: Postoperative pancreatic fistula (POPF) is an important determinant of patient morbidity following pancreatic surgery. Pancreatic texture has been suggested to be a risk factor for POPF. Singling out patients at risk for POPF is crucial. **Aims:** The aim of the study was to assess the usefulness of pancreatic attenuation index (PAI) in predicting POPF following pancreaticoduodenectomy (PD). The secondary objectives were to predict 90 day morbidity and mortality and to identify other factors affecting POPF. **Methods:** The study was conducted in the Department of SGE, KIMS, Trivandrum between January 2012 to June 2016. It was an observational bidirectional study on patients undergoing PD. Patients were analysed based on demography, preoperative hemoglobin, bilirubin, pancreatic duct (PDd) diameter, pancreatic texture, primary histopathology, postoperative course. PAI was calculated as the ratio of attenuation of pancreas and spleen on non-enhanced CT. Data was analyzed using SPSS version 16. **Results:** 62 patients were analyzed and 48 included. The mean age was 60.4 (± 11.5) years with 35 males (73%) and 13 females (27%). 29% were overweight and 15% were obese. 58.4% patients had Diabetes, and 41.6% had multiple co-morbidities. Mean haemoglobin level was 11.5gm/dl with 42% anemic. Mean bilirubin level was 7.2mg/dl. Periampullary adenocarcinoma was the most common histology at 62.5%. 10% had clinically relevant POPF (CR-POPF)- ISGPF grade B in 4, grade C in 1, no POPF in 33 patients (69%), grade A POPF in 10 patients (21%). Overall incidence of POPF was 31.2%. Delayed gastric emptying occurred in 7 (14%) patients- grade A in 4 (8%), grade B in 2 (4%) and grade C in 1 (2%). Postpancreatectomy haemorrhage occurred in 2/48 (4%). PAI ranged from 0.5 to 1. Mean PAI was 0.8 (± 0.1). The mean PAI in patients with CR-POPF was 0.8 (± 0.2). The PAI of patients with CR-POPF (grades B+C) showed no significant correlation with POPF ($p=0.82$). The PAI of all patients with POPF (grades A+B+C) showed no significant correlation with POPF ($p=0.65$). The PD diameter ranged from 2 to 18mm. The mean PD diameter was 4.1 mm (± 2.7 mm). The mean PD diameter in the CR-POPF group was 4.6 mm (± 2.2 mm). Pancreatic texture was assessed intraoperatively by the operating surgeon and classified as soft, firm or hard. No CR-POPF was seen in patients with hard pancreas. However no significant correlation was found between pancreatic texture and POPF ($p=1.0$). On univariate analysis, preoperative severe anemia had significant correlation with POPF ($p=0.03$). BMI, multiple co-morbidities, preoperative albumin and bilirubin levels, size of PD, PAI, pancreatic texture, blood loss during surgery, duration of surgery had no significant correlation with the occurrence of POPF. As per the Clavien Dindo classification, 56.3% had grade I, 31.2% grade II and 12.5% grade III complications. In-hospital and 90-day mortality was 0%. **Conclusions:** Presence of severe anaemia has significant correlation with the occurrence of POPF. PAI as measured on preoperative unenhanced CT may not be a significant predictor of POPF, though a larger study population may be required to establish the same.

P44 3241

Role of main pancreatic duct diameter and remnant pancreatic volume in predicting pancreatic fistula after pancreato duodenectomy (PD).

Aditya Atul Kulkarni, Vijay Chetan Jha, G R Verma, Ajay Gulati, Lileshwar Kaman, Rakesh Kochhar, Rajinder Singh, PGIMER, Chandigarh

Introduction: Post PD mortality has declined in the recent past; however, the morbidity continues to remain high due to high incidence of POPF. A number of risk factors have been studied earlier. We studied the role of remnant pancreatic volume (RPV) and the main pancreatic duct diameter (MPDd) in predicting POPF. **Methods:** A total of 58 consecutive patients undergoing pancreatoduodenectomy were recruited. After the exclusion criteria, forty three patients were included in final analysis. The diameter of pancreatic duct at neck of pancreas (MPDd) on CECT scan and the presumed RPV from left border of SMV was calculated using Siemens CT Volumetric Software. Postoperative progress was monitored till the discharge. **Results:** There was no significant difference in patient demographics, incidence of preoperative cholangitis, biliary stenting or CA19.9 levels between patients with or without POPF except that fistula group of patients had significantly high incidence of pruritis. (0.0187). The overall incidence of POPF was 46.5% (20/43). (Clavien- Dindo Grade1=13 (65%), Grade2=3 (15%), Grade3=4 (20%).The (MPDd) varied from 1 mm to 12.5 mm. (mean 4.87 ± 2.86 mm) and the residual pancreatic volume from 12.95 cm³ to 78 cm³ (mean 39.17 ± 16.71 cm³). The incidence of POPF was sig. high, 72.7% (8/11) in patients with non dilated PD (<3 mm) than those with dilated duct 37.5% (12/32) ($p=0.078$) The mean RPV of 43.93 ± 14.62 in fistula group of patients was more than 35.04 ± 17.60 in patients without fistula. ($p=0.123$). Patients with RPV>35 cm³ had fistula rate of 56.5% compared to 35% in RPV<35 cm³ ($p=0.223$). The non dilated pancreatic duct in soft pancreas (subjective risk factor) predicted the development of POPF in 71.42% cases while non dilated pancreatic duct with RPV>35 cm³, (objective risk factor) predicted the development of POPF in 83.3% cases. **Conclusions:** It may be concluded that patients with non dilated PD had significantly high incidence of POPF than dilated PD in patients undergoing pancreatoduodenectomy. There was no significant difference in the RPV of patients with or without POPF. Measuring RPV, an objective criteria is better than soft pancreas (subjective criteria) in predicting the development of POPF in patient with non dilated pancreatic duct.

P45 3368

Factors Affecting Outcome of Salvage Surgery Following Endoscopic Management for Chronic Pancreatitis. Gautham Krishnamurthy, Vikash moond, Srinath Singh Rathod, Surinder Rana, Deepak Bhasin, Rajesh Gupta, PGIMER, Chandigarh

Background: >50% patients undergoing endoscopic stenting have ductal and parenchymal changes. Difficult to differentiate whether changes are stent induced or chronic pancreatitis related. Improvement of these changes is not uniform and some patients develop irreversible morphological changes of chronic pancreatitis. Present study designed to study the impact of endoscopic pancreatic duct stenting on the outcome of surgery for chronic pancreatitis. **Methodology:** Retrospective analysis of prospectively maintained database at Division of Surgical Gastroenterology, Department of General Surgery and Dept of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh, India from July 2012 to July 2016. **Results:** Of the 48 patients undergoing surgery, prior pancreatic duct stenting (n=19) (concomitant biliary stenting in 1) while 29 patients had no pancreatic stenting. In patients with duration of pain >5 years was associated with significant prolonged analgesic and enzyme replacement therapy ($p<0.01$), significantly prolonged surgery ($p=0.03$). 3 patients had postoperative complication but there was no association with prior PD stenting or the number of PD stentings. Increased incidence of the pancreatic duct stricture noted in PD stent group ($p=0.02$) and was significantly more in the subgroup having undergone 4 or more stenting procedures ($p=0.01$). Presence of stricture did not have impact on the postoperative or short-term outcomes. Better pain control was observed in patients with no prior endoscopic stenting at 3 months and 6 months. **Conclusions:** There was significant increase in frequency of MPD stricture following endoscopic stenting. Prior pancreatic duct stenting does not have an impact on immediate postoperative outcomes and short term pancreatic functional status. However, we noted poorer pain control following surgery in patients with prior endoscopic stenting.

P46 3390

Evaluation of the step-up approach for management of Acute Necrotizing Pancreatitis: A single tertiary centre experience. Manish Ahuja, Gaurav Kulkarni, Sudeep Shah, Devendra Desai, Vinod Chandiramani, Philip Abraham, Tarun Gupta, PD Hinduja Hospital & Research Centre, Mumbai

Introduction: The step up approach has been advocated as the best treatment modality for acute necrotizing pancreatitis (ANP) with infected necrosis. We present our data on 38 patients managed by this approach. **Methods:** Analysis of clinical information and medical records of 38

consecutive patients with infected ANP showed a total of 158 interventional procedures required for management of 41 attacks of ANP. We assessed need for open surgery, ICU stay, mortality and need and ease of subsequent surgery in this cohort. **Results:** Patients presented with Mean CTSI score of 7.82, Mean BISAP score 2.7 and Mean APACHE II score of 12.1 in the 22 Patients who required ICU. 15 patients had a left sided VARD procedure performed with two patients requiring Repeat VARD for necrotic collections that were on the Right side of the abdomen. Open Necrosectomy was performed in 13 patients after pigtail drainage/ Endoscopic procedures. ANP of 9 patients was able to be managed with purely Pigtail drainage + Endoscopic assistance. 9 patients developed pancreatic fistulae, 5 developed enteric fistula. 5 patients had bleeding requiring intervention. Mean length of stay (LOS) was 37.4 days and Mean LOS in ICU was 14.2 days. All-cause mortality rate has been 5/38 with 4/38 as pancreatitis-related deaths. Subsequent Elective Resurgery was done in select patients (cholecystectomy n=10, colectomy n=3, Whipples Procedure n=1, choledochal cyst excision n=1). **Conclusions:** The step up approach could avoid surgery (VARD or Necrosectomy) in 35% of patients (13/38). VARD was feasible in 15 of 25 patients requiring surgery with acceptable morbidity and mortality. Subsequent surgery for etiology of pancreatitis was facilitated by VARD. Pancreatitis cause-specific mortality rate was low at 11%.

P47 3394

The Spectrum of Microbiological Infections in Acute Necrotizing Pancreatitis (ANP). Manish Ahuja, Gaurav Kulkarni, Sudeep Shah, Vinod Chandiramani, Camilla Rodrigues, Anjali Shetty, PD Hinduja Hospital & Research Centre, Mumbai

Introduction: The infection of pancreatic necrosis or peripancreatic fluid collections has been shown to be the single most important determinant of morbidity and mortality in severe ANP. However there has been little in literature about the culture results and sensitivity of organisms that were isolated /grown from the samples of necrosis and fluid from these patients. **Methods:** We present a retrospective case series analysis of the culture results of 70 such patients managed at our institute from year 2000 to 2017. 38 patients were managed between 2010-2017 by the "step-up" approach while 32 patients between 2000-2010 had been managed by the traditional approach of necrosectomy. Average duration between onset of attack and culture was 48.8 days SD 44.1 days. Carbapenems were the most commonly used antibiotics. In case the offending organism was found to pan-susceptible, antibiotic delivery was stepped down appropriately. **Results:** 33 patients out of 38 in Step-up group and 21 of the 32 in the Open group (Total 53/70=75.7%), had a positive initial cultures. A total of 10 different genus of bacteria and 3 different species

of fungus were isolated. Enterobacteriaceae (n=49.3% of all cultured bacteria from all cultures) comprised of the maximum number of organisms, other organisms such as streptococcus anginosus, MRSA and Streptococcus Raffinosus & citrobacter also were isolated. In the 1 pediatric patient, VRE (*E. Faecium*) grew in 1st culture itself. In first culture 11/70 were ESBL producing and 6/70 were CRE while in subsequent cultures, 16 were ESBL and 9 were CRE. There was also an observed trend towards resistant forms of the same organisms isolated on subsequent cultures. Fungal infection was seen in 4 patients on initial and 12 on subsequent culture. All-cause Mortality was 18/70 while Pancreatitis Related Cause specific Mortality was 16/70 (22.9%). There was no co-relation between organism isolated and mortality. **Conclusions:** Enterobacteraceae were the commonest isolated organism. First cultures were relatively susceptible in many cases. Fungal infections were seen on initial culture in 6% of cases and in 17% cases on subsequent cultures.

P48 3413

Fatty liver in chronic pancreatitis is it innocent bystander or red herring? Sundeep Singh Saluja, Aravinda PS, Ajay Kumar, Pramod Mishra, Kshitij Sisodia, Ganesh Agrawal, GB Pant Institute of medical education and research, New Delhi

Introduction: Fatty liver in chronic pancreatitis is not uncommon and its pathogenesis is multi-factorial in patients with chronic pancreatitis. The clinical implication of fatty liver in patients with chronic pancreatitis is not known. We analyzed incidence, risk factors associated and outcome of chronic pancreatitis patients with fatty changes in liver.

Methods: Records of patients with chronic pancreatitis undergoing surgical intervention with liver biopsy from 2012-16 were evaluated from the prospectively maintained chronic pancreatitis database. Patients with evidence of malignancy, chronic liver disease/cirrhosis on biopsy were excluded from the study. Patients were divided into two groups, fatty liver (FL) and non-fatty liver (NFL) group based on liver biopsy. The risk factors such as diabetes mellitus, steatorrhea, body mass index (BMI) and alcohol intake were recorded. Outcome parameters include recurrence of pain, indigestion and malnutrition. **Results:** Of the 49 patients included in the study, 13 patients had fatty liver (FL) while 36 patients had normal liver biopsy (NFL). Among 13 patients with fatty change, 7 patients had 5-30% steatosis, 4 patients had >30% steatosis and 1 patient had steatohepatitis. The mean age of the entire cohort was 31.3 yrs and male female ratio was 33: 16. The incidence of fatty liver was significantly more in females as compared to males (9/16 vs. 4/33; p=0.002). Fatty changes were more common in patients with idiopathic pancreatitis (9/26) as compared to alcoholic pancreatitis (4/23) but not statistically significantly (p=0.20). The incidence of risk factors were similar in both groups (diabetes mellitus: 2/13 vs. 9/36; p=0.7, steatorrhea:

2/13 vs. 6/36 p=1.00 and alcohol: 4/13 vs. 19/39; p=0.2). The mean BMI was higher in patients in FL group as compared to NFL group (22.7 vs. 19.9; p=0.05). At median follow up of 30 months 3 patients died in FL group (females: n=3; idiopathic pancreatitis: n=3; malnutrition related death: n=2) and 2 patients died in NFL group (males n=2; unrelated deaths: tuberculosis (p=0.16). **Conclusions:** In chronic pancreatitis fatty liver was more common in females and non alcoholic pancreatitis without known risk factors. Malnutrition related deaths in these patients warrant further study to investigate etiopathogenesis of fatty change especially in patients with idiopathic chronic pancreatitis.

P49 3293

Impact of treatment of bactibilia on postoperative outcomes after pancreaticoduodenectomy.

Pavankumar V, Vijaykumar Bada, Department of Surgical Gastroenterology, Gleneagles Global Hospitals and KIMS, Hitech City, Hyderabad

Background: Even with the advent of modern surgical techniques and improved postoperative care, the mortality rates of pancreaticoduodenectomy have decreased but still carry a significant morbidity, and infective complications are the most common contributors of such morbidity. Bacterial contamination of bile is an important negative factor responsible for morbidity. Culturing the bile at the time of surgery can diagnose bactibilia and culture-directed treatment of bactibilia was associated with a significantly decreased incidence of postoperative wound infections.

Methods: Our study was a prospective, observational study of 30 patients who underwent pancreaticoduodenectomy. Intraoperative bile cultures were obtained in all patients and standard microbiological assays were performed. Patients were grouped based on bile cultures as 1. Patients with sterile bile 2. Patients with asymptomatic bactibilia 3. Patients with bactibilia with cholangitis. Prophylactic preoperative antibiotics were continued until intraoperative bile culture results were available. Bile was considered sterile if there was no growth by 48 hrs, and antibiotics were discontinued. Patients with bactibilia continued to receive postoperative antibiotics according to culture reports. All postoperative complications, occurring within 30 days of the index operation, were documented using standardized definitions and compared. Statistical data was analyzed by using SPSS software 17.0. For normally distributed variables, data was expressed as mean standard deviation, unpaired student t- test was used to compare means. The chi-square test was used for nominal data and Fischer's exact test was used in the case of a small expected frequency. **Results:** Bactibilia was found in 80% of patients. The most common organisms isolated from bile cultures were *E.coli*, *Klebsiella pneumoniae*, *E.feacalis* and PBD had significant association with bactibilia. Overall antibiotic sensitivity was 62.5 % for amikacin, followed by 50% for imipenem and linezolid each and 33.3% for piperacillin

and tazobactam. Patient demographics, comorbidities, clinical parameters, and intraoperative variables were similar between the three groups. Treatment of bactibilia significantly reduced the mean ICU stay in asymptomatic bactibilia group. Wound infection rates were reduced in bactibilia group when treated with bile culture directed therapy. Rest of the non infectious complications like DGE, pancreatic fistula and mortality were similar between bactibilia and sterile groups. There was no statistically significant correlation between bile culture organisms and organisms isolated from other infective cultures. **Conclusions:** Routine intraoperative bile cultures should be obtained in cases of pancreaticoduodenectomy as one third of patients with bactibilia had no symptoms and the only way of identifying these patients will be by obtaining bile culture. Antibiotic should be tailored according to the bile cultures as treatment of bactibilia reduces the ICU stay and infectious complications.

P50 3354

Comparison of intra-operative bile culture-sensitivity with post-operative peritoneal fluid and blood culture-sensitivity in stented patients undergoing pancreaticoduodenectomy. Avidip De, Sudeep Banerjee, Robin Thambudorai, Subir Sinha, Gaurav Goel, Manas Kumar Roy, Tata Medical Center, Kolkata

Aims: To study the microbiology and sensitivity pattern of intra-operative bile cultures and post-operative peritoneal fluid and blood cultures, in stented patients undergoing Whipple operation. **Methods:** Data of the stented patients who underwent pancreaticoduodenectomy were maintained prospectively in electronic database (REDCAP). Study period was October 2011 to May 2017. Intraoperative bile cultures were routinely obtained. Blood cultures and peritoneal fluid cultures were obtained as clinically indicated in case of post-operative complications. The antibiotic-sensitivity pattern of the isolated organisms were analyzed and compared. **Results:** Total number of patients in the study was 82. Out of 82 bile samples taken during operation, 76 (92%) showed positive cultures. 26 patients (31.7%) showed positive blood culture and 43 patients (52.4%) had positive peritoneal fluid culture in the post-operative period. Most common organisms were *E. coli* (46.3% in bile, 26.9% in blood and 30.2% in peritoneal fluid), *Klebsiella* (56.1% in bile, 34.6% in blood and 46.5% in peritoneal fluid) and *Enterococcus* (62.1% in bile, 15.4% in blood and 27.9% in peritoneal fluid). Moreover, 7.7% of post operative blood cultures and 4.7% of peritoneal fluid cultures also showed *Acinetobacter*, suggesting hospital acquired infection. *Candida* was isolated in 7.3% of intra-operative bile culture, and 7% of peritoneal fluid culture. The antibiotic sensitivity pattern of the two most common gram-negative organisms found in intra-operative bile, post-operative blood and peritoneal fluid are shown in the table -

Organism	Cefuroxime	Piperacillin+ Tazobactam	Amikacin	Meropenem	Colistin
<i>E. coli</i>					
in bile	8/29 (27.5)	21/38 (55.2)	33/38 (86.8)	31/38 (81.5)	37/37 (100)
in blood	0/6 (0)	2/7 (28.5)	4/7 (57.1)	3/6 (50)	7/7 (100)
in peritoneal fluid	2/10 (20)	6/13 (46.2)	10/13 (76.9)	8/13 (61.5)	10/13 (76.9)
<i>Klebsiella</i>					
in bile	10/38 (26.3)	23/46 (50)	35/46 (46.1)	31/46 (67.3)	45/45 (100)
in blood	1/5 (20)	3/9 (33.3)	4/9 (44.4)	4/9 (44.4)	8/8 (100)
in peritoneal fluid	1/13 (7.6)	4/20 (20)	11/20 (55)	6/20 (30)	19/19 (100)

Conclusion: In the setting of post-operative complications after pancreaticoduodenectomy, more antibiotic-resistant organisms are identified.

E-video

EV5 3124

Migrated metal stent with peritonitis treatment-following endoscopic necrosectomy of WOPN (Edited surgical video). Keyur Suresh Bhatt, SIDS Hospital & Research Center, Surat

Introduction: Endoscopy guided retroperitoneal cysto gastrostomy and necrosectomy are coming up as the modalities of choice whenever possible. Patient are

selected for the same whenever possible in a single cystic lesions limited to lesser sac. The Case: We report a 46 year male who was suffering from sequelae of acute necrotizing pancreatitis and had a large pseudocyst in lesser sac. Patient was subjected to endoscopic necrosectomy with endoscopic Sonography guidance and NAGI metal stent was kept transgastrically to perform necrosectomy. Procedure was tolerated well by the patient but on the next day patient developed distension of abdomen, tachycardia and hypotension. Patient was investigated on next day & found to have free intraperitoneal air, fluid collection all around the abdomen and migrated portion of distal end of stent intraperitoneally. Patient was taken up for laparoscopy and similar findings were noted. Distal

end of the stent was noticed intraperitoneally coming out of greater curvature of stomach. Stent was retrieved and gastric perforation was closed with multiple interrupted sutures. Lesser sac opened and pancreatic necrotic cavity rinsed with saline and external drainage was kept. Rest of the abdomen lavaged with normal saline. Patient recovered well following surgery and was discharged on postoperative day 5 with drain in situ and normal diet. Discussion: Endoscopic necrosectomy is safe in selected cases but at the same time high vigilance is needed to perform and select the case. Puncture in posterior wall of stomach is safe but puncture near lesser or greater curvature may lead to migration of stent and free peritonitis. Surgery with laparoscopy is feasible in such cases in experienced high volume center and if detected early. Conclusions: Endoscopic necrosectomy can be an effective technique for infected WOPN. However, serious complications can arise, including death. Therefore, patients should be carefully selected, and knowledgeable, skilled, and experienced operators should perform the procedure and back up from surgical side is always desired. Further research into safer technologies is required in order to reduce the associated morbidity and mortality. <https://www.youtube.com/watch?v=nTyFmW5Bgm&t=98s>

EV6 3203

Pancreaticogastrostomy technique: Video Presentation. Varun Madaan, Satya Prakash Jindal, Adithya GK, Vachhan S Hukkeri, Vivek Tandon, Deepak Govil, BML Kapur, Indraprastha Apollo Hospital, New Delhi

Abstract: Pancreaticogastrostomy traditionally has been a less preferred Methods as compared to pancreaticojejunostomy after Pancreaticoduodenectomy. We describe our technique of pancreaticogastrostomy after Pancreaticoduodenectomy. Our technique involves splaying of the pancreatic duct with subsequent dunking of the pancreatic remnant in to posterior stomach wall. The anastomose is done in two layers, the outer with Non absorbable 2-0 silk and the inner with running 2-0 absorbable Catgut sutures.

EV7 3265

Laparoscopic Splenic vessel Distal pancreatectomy. Prasanna R, Kamalesh NP, Kartik K, Prasanth R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin

A 52 year old presented with yellowish discoloration of sclera, high colored urine and generalized itching of 3 week's duration. On examination she was icteric and base line blood investigations revealed obstructive jaundice pattern. She was evaluated with a triphasic CT abdomen and endosonography, which revealed an obstructing ampullary neoplasm, with dilatation of both the pancreatic and biliary ducts, along with few significant periportal lymph nodes. A Whipple's pancreaticoduodenectomy was planned and she underwent a Laparoscopic Whipple's

pancreaticoduodenectomy. We present a video, which details the port positions and technique involved. She made an uneventful recovery and was discharged on the seventh postoperative day.

EV21 3131

Video Presentation On Laparoscopic Cystogastrostomy. Mehul Vikani, Kartik Sutariya, CIGIS Gastroscopy Center, Rajkot

Aim: To demonstrate the technique of laparoscopic cystogastrostomy for management of pseudocyst pancreas. **The Technique:** *Anterior Transgastric Approach:* A gastrotomy was made on the anterior gastric wall using harmonic scalpel. The incision site was chosen on the location of the cyst's bulge at the posterior gastric wall. The PP was confirmed by laparoscopic needle aspiration and presence of cyst was confirmed by dark coloured fluid. Posterior wall of stomach and cyst wall was incised using harmonic scalpel. Cyst contents were aspirated and the opening was enlarged to 5-6 cm, debris was removed, cyst was cleaned with saline. Biopsy of cyst wall was taken. Margin of the opening was sutured with V-Loc No. 1, continuous. Anterior wall of the stomach was closed with Vicryl 2-0, continuous, single layer and drain placed anterior to stomach. Conclusions: Laparoscopic cystogastrostomy is an effective and safe treatment of pancreatic pseudocysts with minimum morbidity.

EV22 3261

Laparoscopic Distal pancreatectomy with Splenectomy. Kartik K, Kamalesh NP, Prasanth R, Prasanna R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin

A 36 year old lady presented to us with incidental detection of cystic neoplasm body and tail of pancreas during ultrasound abdomen for non specific abdomen pain. She underwent a CECT abdomen, that showed features suggestive of a mucinous neoplasm of pancreas. She was evaluated elsewhere with endosonography guided cyst fluid analysis, this showed high cyst fluid CEA, favouring a mucinous neoplasm of body of pancreas. She was planned for distal pancreatectomy with splenectomy. Here we present a video describing the technical details of laparoscopic distal pancreatectomy and splenectomy.

EV23 3285

Laparoscopic spleen preserving distal pancreatectomy. Kamalesh NP, PVS Memorial Hospital, Cochin

A 70 yr old lady presented to us with abdomen pain and was evaluated and diagnosed with acute pancreatitis and managed conservatively. On subsequent evaluation she was diagnosed a branch duct IPMN of the pancreatic tail. She underwent a laparoscopic spleen preserving distal pancreatectomy and discharged after an uneventful postoperative period. We present an E video to describe the port placement and technique of the procedure.

Biliary

Oral papers

B1 3134

Long-term Results of Percutaneous Biliary Balloon Dilatation and Sequential upsizing of Silastic transanastomotic stents for Benign Hepaticojejunostomy Strictures: A Tertiary care centre experience. Yogesh Ashokkumar Bang, KN Nagabhushan, Jagadessh R Singh, R Pradeep, GV Rao, Asian Institute of Gastroenterology, Hyderabad

Introduction: Benign biliary strictures are efficiently managed by creation of Hepaticojejunostomy (HJ). Stricture at HJ anastomotic site are common (upto 12.5%) presents a difficult problem in management. To determine the safety, efficacy, and long-term results of percutaneous biliary balloon dilatation (PBBD) and sequential upsizing of Silastic transanastomotic stents (STS) for benign HJ strictures.

Methods: A total of 130 patients (53 male, 77 female; age range, 6-71 yrs; mean age 42 yrs), who had underwent HJ were recruited for study between 2007-2014. PBBD was performed after traversing HJ strictures under Ultrasound and fluroscopy guidance, followed by placement of STS from multiple ducts. These silastic catheters are fashioned as transanastomotic stents and are upsized sequentially over a period of one year at 3 months interval. Two patients had undergone retrograde placement through transjejunal puncture. Hepatolithiasis without obvious stricture (n=28) were also managed similarly after balloon sweeping of calculi. Mean maximum diameter achieved at the end of one year 34.5 F. Mean procedure time and mean Fluroscopy time were 49.5 minutes (31-64 minutes) and 15.33 minutes (13.6- 18.2 minutes). Whitaker Manometric Perfusion tests and cholangiograms were done before removal of silastic tubes ensuring adequate decompression of strictures. The primary outcome measure was the absence of clinical biliary obstruction symptoms at 24 months. **Results:** The overall Technical and clinical success rates were 98.5 and 97.7%, respectively. The primary outcome measure was achieved in 97.7% of patients. The mean follow-up period was 43.6 months. Mean primary patency durations was 42.5 months. Procedure-related mortality and major morbidity rates were 0% and 3.8%, respectively. Weight gain by the patients during upsizing in year was significant p (< 0.005) range (7.5-11 kg), mean of 8.7 kg. **Conclusions:** PBBD and sequential upsizing of silastic transanastomotic stents of benign HJ strictures is a safe and effective procedure with excellent outcome measures.

B2 3196

FLT PET CT scan can avoid radical surgery in masquerading pancreatobiliary lesions. Gautham Krishnamurthy, PGIMER, Chandigarh

Introduction: CECT scan is the standard of care in diagnosis of biliopancreatic lesions. However benign pathologies like XGC, resolving acute cholecystitis, groove pancreatitis and head mass in chronic pancreatitis may mimic malignant pathology, hence undergo radical surgery. FDG-PET scan, a non-specific functional scan improves the accuracy of detecting metastatic disease, may give fallacious result in inflammatory diseases. 18F-3-deoxy-fluoro-L-thymidine (FLT), a radiolabeled thymidine analog biomarker that provides a measure of DNA synthesis and tumor cell proliferation has been reported to be useful in differentiating benign from malignant disease. The purpose of this study was to evaluate the efficacy of this marker (FLT-PET CT scan) and to compare it with FDG-PET scan in differentiating benign from malignant diseases in suspected bilio-pancreatic tumors. **Methods:** It is a prospective observational study from July 2013 to April 2017. The inclusion criteria were asymmetric wall thickening/soft tissue lesion in the gallbladder, pancreatic head mass, suspicious of malignancy ± locoregional spread or chronic pancreatitis with head mass ± raised tumor markers. FDG-PET CT and FLT-PET CT was done in all these patients. Management was guided as per standard surgical practice. Surgeons were blinded to the results of FLT-PET CT. Histopathology of the resected specimen or fine-needle aspiration cytology (FNAC) in unresectable cases, was considered the gold standard for diagnosis. **Results:** A total of 42 patients harboring 44 suspected lesions of pancreatobiliary malignancy were included in this study. Two patients had synchronous lesions in gall bladder and pancreas. Majority of patients (73.8%, 31/42) had gall bladder carcinoma, nine had pancreatic adenocarcinoma and remaining were diagnosed as cholangiocarcinoma. Twelve patients were found to have unresectable or metastatic disease (at laparotomy=5, imaging=7). Thirty five patients underwent laparotomy, thirty of them were resorted to radical surgery. A total of thirteen lesions (29.5%) were confirmed as benign (XGC + Chr. Cholecystitis=9, Ch. Pancreatitis + Pancreatic lipodystrophy=4) on histological examination. The result of FLT-PET CT scan were better than FDG-PET CT scan. The sensitivity, specificity, PPV and NPV & accuracy of FLT-PET CT was 90.3%, 100%, 100%, 81.3% and 74.2% respectively. The sensitivity, specificity, PPV and NPV & accuracy of FDG-PET CT was 93.5%, 15.4%, 72.5%, 50% and 96.8% respectively. Overall accuracy of FDG-PET CT and

FLT-PET CT in identifying malignancy in gallbladder lesions was 74.2% and 96.8% respectively. The mean SUVmax in FLT-PET CT was significantly higher in the malignant lesions compared to the benign lesions (3.15 ± 0.86 vs 1.45 ± 0.46 , $p < 0.01$). In the FDG-PET CT, the mean SUVmax showed a non-significant higher values in the malignant lesions (6.77 ± 2.26 vs 5.32 ± 1.53 , $p = 0.06$). On analyzing with ROC, at SUVmax=2 on FLT-PET CT, the sensitivity and specificity for detecting malignancy in all pancreaticobiliary lesions was 66.7% and 99.3% respectively (AUC=0.852). AUC for FDG-PET CT in pancreaticobiliary lesions was 0.624. **Conclusion:** FLT-PET CT is better than FDG-PET CT scan in differentiating benign pancreaticobiliary lesions. By employing FLT-PET CT as the diagnostic tool, it is predicted that 43.3% of radical surgery done for benign bilio-pancreatic lesions can be avoided.

B3 3310

Surgical Management of Hilar Cholangiocarcinoma- A Case Series from a Tertiary Hospital. Kumara Swamy, Viniyendra Pamecha, Senthil Kumar, Asit Arora, Nikhil Agarwal, Chattopadhyay TK, ILBS, New Delhi

Aim: To analyse the profile, management and outcomes of patients with hilar cholangiocarcinoma, who were treated surgically. **Methods:** A Retrospective review of 36 patients with suspected hilar cholangiocarcinoma who were considered for surgical resections between 2010-2017 at the Department Of HPB Surgery And Liver Transplantation, Institute Of Liver And Biliary Sciences was done. **Results:** Of the 36 patients who were considered for surgical resection which included 26 male and 10 female patients, median age group of 56 yrs (27-79 yrs). Of this 27 patients underwent resections (EHBDR-3, Hepatectomy-24); 9 patients were not resected (metastasis-6, macronodular cirrhosis-1, Locally advanced disease-2). The Bismuth-Corlette distribution was: Type I- 2 patients, Type II- 7 patients, Type III- 20 patients, Type IV- 7 patients. Pre-operative biliary drainage was done in 28 (77%) patients (ERCP- 6, PTBD-26). Portal vein embolisation was done in 8 patients (28%). Twenty four patients underwent liver resections, (right hepatectomy- 11, extended right hepatectomy- 9 patients and left hepatectomy- 4). Portal vein resections were done in 6 patients (21%), 4 segmental resections and 2 wedge resections. Of the 27 resections, histopathology was benign in 5 (2-pseudotumor, 1- xanthogranulomatous, 1-traumatic neuroma, 1- IgG4 Cholangiopathy) and 1 patient was reported to have HCC with bile duct thrombus. Of the 21 resections for hilar cholangiocarcinoma, R0 resection was seen in 14 patients (66%) and R1 resections were seen in 8 patients (34%). 14 patients had N1 involvement. There were 4 in-hospital deaths (11%), causes being Post hepatectomy liver failure in 2 patients and bleeding in 2 patients. Overall morbidity was seen in 33%. 1 year survival in R0 resection group is 75%. **Conclusion:** Surgical management is the

curative treatment of hilar cholangiocarcinoma, which is associated with morbidity and mortality. Careful selection, Pre-operative planning (pre-operative biliary drainage, portal vein embolisation) and post-operative management is important for successful management.

B4 3330

Is surgery a better treatment for strictured Roux en Y Hepaticojejunostomy? Peeyush Varshney, Ajit Mishra, Abhishek Rajan, Anu Behari, R K Singh, Ashok Kumar, VK Kapoor, Rajan Saxena, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow

Introduction: Roux en Y Hepaticojejunostomy (RYHJ) is the standard of care for most bile duct injuries/strictures, with a failure rate of 1-5%. Failed RYHJ is a complex situation requiring meticulous planning and multimodality treatment involving surgery and radiological intervention for success. Herein, we present our experience of managing failed RYHJ over 25 years. **Methods:** Retrospective analysis of a prospectively maintained database. Between 1990 and 2015, 56 patients (11 male, 45 female mean age 36 years) were managed for strictured RYHJ done for post cholecystectomy bile duct strictures. Median time interval from index repair to presentation of symptoms was 50 months (3.7-117 months). 41 of the 56 patients had undergone the primary repair at our center and 15 were referred from elsewhere. Most patients presented with cholangitis (n= 50 patients, 89%), pain (n=45, 80.3%) and/or pruritus (n=40, 71%) alone or in combination. Patients were managed by surgical treatment (Group I) or percutaneous balloon dilatation (PBD) (Group II) and the final outcome of the two groups was compared. **Results:** The patients were divided into two groups for the purpose of analysis- Group I (Upfront Revision Surgery n=21) and Group II (Upfront PBD n=33). 2 patients planned for percutaneous intervention were lost to follow up and are excluded from analysis. Revision surgery (n=21) included- 16 upfront revision HJ, and 5 right hepatectomy and left duct RYHJ. The type of anatomy as per Bismuth classification in the two groups (I/II) was as follows: Type II 8/1, Type III 6/15, Type IV 7/15 and Type V 0/2 (p=NS). There was no mortality in either group. PBD required a median of 3 admissions (and 3 sessions) (range 1-4) whereas surgical intervention required a median of 1 admission (range 1-3). PBD succeeded in 25/33 patients (75%) and surgery was successful in 20/21 patients (95%), $p < 0.01$. Failures of PBD were treated surgically and failures of surgery were managed by PBD. Post procedure morbidity was observed in 17 of the 33 PBD patients (51%) and 6 of the 21 surgical patients (28%), $p = 0.034$. The morbidity after revision HJ was 31%. (Bile leak n=2, bleed n=2, cholangitis n=1) and hepatectomy was 20% (bile leak n=1) while it was 51% in percutaneous intervention group (bleed n=6, cholangitis n=3, Intra abdominal collection n=6, hemobilia n=1). After

a median follow up of 41 months, failure rate (Terblanche IV) in Group I was 5% (n=1) vs 25% (n=8) in Group II, $p < 0.01$.

Conclusion: Both surgical and percutaneous approaches are useful in the management of failed RYHJ, but surgical patients fared significantly better than patients treated with radiological intervention, at a high volume center.

B5 3350

Outcome Of Patients Undergoing Biliary Repair In Post Cholecystectomy Bile Duct Injury. Kavita Agrawal, Department of General Surgery, PGIMER, Chandigarh

Introduction: Biliary injury is the major concern while performing cholecystectomy either by laparoscopically or by open technique. The incidence of biliary injury by open technique is 0.1%–0.2% that had been maintained throughout the era of the open technique while incidence of biliary injury laparoscopically is 0.2–0.7%. **Aim:** To measure the outcome of patients who have undergone Hepaticojejunostomy (HJ) post cholecystectomy common bile duct injury in terms of (1) Trend of reversal of abnormal liver function tests (2) Reversal of liver fibrosis/cirrhosis on fibroscan (3) Impact on quality of life. **Methods:** It was a prospective observational study conducted in department of General Surgery, Hepatology, Radiology and Pathology at PGIMER, Chandigarh from 1/1/2014 to 30/6/2015. All patients who have undergone biliary enteric anastomosis after biliary injury at least 6 months before and new patients operated during the study period were included in the study as per inclusion and exclusion criteria. All patients were subjected to fibroscan of liver to evaluate degree of fibrosis. A quality of life questionnaire (SF-36) was given to all patients. **Results:** Forty patients were analyzed in this study with male: female ratio = 1:7. Thirty-nine patients (97.5%) underwent HJ and 1 patient (2.5%) underwent Redo HJ. Mean duration between injury and repair was 10.48 ± 15.4 months (range 1–72). Mean duration of normalization of LFT was 3.63 ± 2.4 months (range 1–6). By 6 month of surgery, 27 patients (67.5%) showed normalization of LFT. Four patients had normal LFT before the surgery and 9 patient's LFT didn't get normalize even after surgery. Rise of Albumin with time after surgery was statistically significant (p value=0.006). Fourteen patients (35%) underwent pre as well as post op fibroscan and there was significant decrease in pre to post op mean LSM with p value being borderline significant (p value= 0.05). Thirty-one patients (77.5%) underwent intraoperative liver biopsy. Stage 1 fibrosis showed the maximum no. of patient i. e. 19 (61.2%) and stage 2 fibrosis was present in 10 patients (32.2%). On comparing the QOL in pre and post op period, it was found to be statistically significant (p value=0.00). **Conclusion:** Normal biliary functions can be achieved following bilio-enteric anastomosis in patients

with iatrogenic Bile Duct Injury. Fibroscan is a significant tool to assess the grade of fibrosis in pre and post op patients of bile duct injury. QOL certainly can be improved following surgery in patients of IBDI.

B6 3401

Retrospective Analysis Of 70 Cases Of A Malignant Masquerade- Xanthogranulomatous Cholecystitis.

Rakesh Kumar Yadav, Saket Kumar, Amit Dangi, Vishal Gupta, Pradeep Joshi, Vivek Gupta, Abhijit Chandra, King George Medical University Lucknow

Introduction: Xanthogranulomatous cholecystitis (XGC) is an uncommon variant of chronic cholecystitis that is difficult to differentiate from malignancy, by both clinically and imaging. This study aimed to studied XGC and its incidence with gallbladder cancer and discuss the differential diagnoses and surgical options. **Methods:** Retrospective data of XGC patients from 2010 to 2017 from department of Surgical Gastroenterology, KGMU, Lucknow was collected and analysed. Chi square test and logistic regression analysis was performed for dichotomous data, t test and linear regression analysis was performed for continuous data with the help of STATA statistical package. **Results:** Xanthogranulomatous cholecystitis patients (n=70) were enrolled in the study. Means age was 49.7 years (range=22–70 years) with a male to female ratio of 1:2.04 for XGC. Abdominal pain (95.7%, n=67), fever (22.9%, n=16) and jaundice (24.3%, n=17) were most common complaints in patients with XGC. Gall stone (95.7%, n=67), wall thickening (64.3%, n=45), liver infiltration (21.4%, n=15) and adjacent organ infiltration (21.4%, n=15) were radiological findings in XGC patients. Gall bladder carcinoma was present in 11.43% (n=8) XGC patients. Patients with carcinoma presented with palpable abdominal mass having an Odds ratio (OR) of 5.2 ($p=0.03$, 95%CI=1.11–24.3). Operative findings in patients with carcinoma were palpable mass (OR=10; $p < 0.01$, 95%CI=2.7–36.7) and lymph node involvement (OR=10.2; $p < 0.01$, 95%CI=1.86–56.7). Preoperative biliary drainage was performed in 8.6% (n=6) patients. Extended cholecystectomy was performed in 50% (n=4) patients with carcinoma of gall bladder and extended cholecystectomy was performed in 7% (n=5) patients. Postoperative hospital stay was 6.9 days (range 2–21 days) and surgical wound infection (31.4%, n=22) and bile leak (2.9%, n=2) were most common complications after surgery without any mortality. **Conclusion:** Preoperative and intraoperative differential diagnosis of XGC from gallbladder carcinoma remains a challenge. Since gallbladder carcinoma and XGC may coexist, extended cholecystectomy is justified when malignancy cannot be completely ruled out.

Oral video

OV1 3441

Laparoscopic Roux-en-Y hepaticojejunostomy for post cholecystectomy benign biliary stricture with aberrant ductal anatomy. Nikhil Agrawal, Ankur Vagadiya, Asit Arora, Tushar Kanti Chattopadhyay, Institute of Liver and Biliary Sciences, New Delhi

Introduction: The bile duct injury is a known complication of laparoscopic cholecystectomy with incidence ranging from 0.3% to 0.5%. Benign biliary stricture (BBS) is a consequence of major bile duct injury. The definitive management of benign biliary stricture is re-establishment of bilioenteric continuity by Roux-en-Y hepaticojejunostomy (RYHJ). Though laparoscopic approach is in vogue in many complex hepatobiliary surgeries, open approach is still preferred for BBS. We present a video of laparoscopic RYHJ in post cholecystectomy benign biliary stricture (Type 3) with aberrant insertion of right posterior sectoral duct (RPSD) into common hepatic duct at the site of stricture. **The Case:** 20 year old lady presented to us with obstructive jaundice and cholangitis. She had undergone laparoscopic converted to open cholecystectomy eight months back for symptomatic cholelithiasis. A T-tube and drain were placed during surgery and were removed later. MRCP revealed a type 3 biliary stricture with aberrant insertion of RPSD at the site of stricture. **Technique:** Port placement: 10 mm camera port at umbilicus, 10 mm at right anterior axillary line and 5 mm ports at epigastric and right sub costal region. Omental adhesion to anterior abdominal wall and inferior surface of liver & gall bladder bed were lysed with harmonic scalpel. Colonic adhesion to inferior surface of liver and perihepatic adhesion released. Hepatoduodenal ligament (HDL) and hilar structures were delineated. Hilum was approached, hilar plate was lowered and biliary confluence exposed. Biliary confluence was confirmed by aspirating with a spinal needle. Duct was opened with scissors and opening was extended onto left hepatic duct and RPSD. 2 cm stoma created with all ducts opening in single stoma. 45 cm length of Roux loop was prepared using endo GIA stapler and brought up through mesocolon to supracolic compartment. A 2 cm stoma made at ante mesenteric border on loop of jejunum for RYHJ. RYHJ was done by intracorporeal suturing between bile duct and jejunum using PDS 5-0, interrupted sutures. Right abdominal drain was placed through right lateral port. Result: The patient had uneventful postoperative course. All Intravenous analgesics were stopped on POD2. Right abdominal drain was removed on POD3 and she was discharged on POD4. Liver function test normalized after 15 days and remained normal till last follow up (6 months). **Conclusion:** Laparoscopic approach is feasible in selected benign biliary strictures. Creating a good duct to mucosa anastomosis of adequate length is of paramount

importance. Laparoscopic RYHJ might have advantage similar to other laparoscopic procedures such as early recovery and discharge and avoiding wound related complications.

Poster session

B1 3056

Incidental Gall Bladder Cancer following Laparoscopic Cholecystectomy: A South Indian tertiary care center experience. Ramalingam Trivikraman, Dhananjay Pandey, Lakshmi Kumari Kona, Global Hospitals, Hyderabad

Introduction: Carcinoma of the Gall Bladder (GBC) is the most common malignancy of the biliary tract and sixth most common gastrointestinal malignancy worldwide. Laparoscopic cholecystectomy has become the most commonly performed major surgery worldwide. Due to this trend, the incidence of unsuspected or incidental gall bladder cancer is also increasing. The overall incidence of GBC is around 0.2-2.9%. **Methods:** A retrospective study was done by reviewing records of patients who underwent Laparoscopic cholecystectomy at our center between 2012-2016 (5 years). A total of 2758 cases were included in the study. Their mode of presentation, duration of symptoms, pre-operative imaging, intra operative findings and histopathological reports were analyzed. **Results:** A total of 6 cases of incidental GBC were identified. The overall incidence was around 0.2%. The mean age of the group was 60 years of which 4 were females and 2 were males. On pathological analysis, one patient had a background of acute cholecystitis, one had chronic cholecystitis and one had a polyp and the remaining had unremarkable histology in the remainder of the gall bladder. The staging was T₂N₁M₀ in two patients, T_{1b}N₀M₀ in two patients and T₃N₁M₀ in two patients. Of these only one patient in our series underwent re-resection and the rest were lost on follow up. In addition about 11 cases of mild to moderate dysplasia were also identified. **Conclusion:** Incidental GBC should be suspected in elderly patients with thickened Gall Bladder. Imaging forms a very important part in pre-operative diagnosis. All patients with incidental gall bladder cancer should be actively sought and followed up to avoid drop outs and to complete therapy.

B2 3081

Definitive Treatment In Index Admission For Acute Cholangitis Following Non Operative Biliary Decompression. Madeswaran Chinnathambi, Senthil Kumaran Sadhasivam, Tamil Selvi Subbaiyan, GKNMH, Coimbatore

Introduction: Index admission definitive surgery is the ideal treatment of choice for patients with acute biliary symptoms after non operative biliary decompression, but

is performed less in these admissions. We analysed our results for Cholecystostomy for decompressing the biliary system followed by definitive treatment to treat the cause of Biliary obstruction in patients with comorbidities. Delaying the definitive operation results in additional morbidity to the patient and require readmission because of recurrent severe symptoms. We aimed to explore the results of Cholecystostomy followed by Definitive treatment in Index admission in our patients with multiple comorbidities.

Method: Prospective Analysis of 3 patients with acute cholangitis with varying spectrum of disease admitted from January 2017 -May 2017. We performed Percutaneous Transhepatic Cholecystostomy to decompress the biliary system initially to stabilise the patient along with standard treatment. One patient is 83 yrs old female with multiple large CBD stones with dilated biliary system presented with Septic shock. Second patient 70 yrs old male patient with acalculous cholecystitis having multiple comorbidities. Third patient 70 yrs male patient with perforated gall bladder with recent MI. **Results:** The patients admitted for acute biliary symptoms have been evaluated with by laboratory and imaging studies in ER, confirmed that there is no associated pathology. The patient with hypotension have been treated with inotropic agents and higher antibiotics. Percutaneous Cholecystostomy has been done as a bedside procedure under ultrasound guidance to decompress the biliary system non operatively. Patients improved satisfactorily after drainage and inotropic support withdrawn in 48-72 hrs. In patients with calculous etiology, the definitive surgical treatment is carried out. One patient with dilated CBD and multiple large stones has been treated with cholecystectomy and choledochoduodenotomy as a definitive treatment. By open method. Another patient with perforated gall bladder has been treated with Open Cholecystectomy. Both the patients recovered well and they are under our regular follow up. **Conclusion:** Definitive surgery can be performed safely in patients with Acute biliary symptoms with low biliary obstruction and should be considered the gold standard for management of these patients thus avoiding readmissions and morbidities. It is the severity of disease rather than timing of surgery which most probably predicts complications and conversions. We reiterate that after nonoperative biliary decompression, the sooner the definitive management in selectively is better for the patient in terms of cost effectiveness and disease control.

B3 3098

Spectrum of lymph node involvement after extended cholecystectomy and its correlation with pT Stage in carcinoma gall bladder patients. B Madhu Narayana, T. D. Yadav, Vikas Gupta, Rajesh Gupta, Ashim Das, PGIMER, Chandigarh

Aim: To determine the spectrum of lymph node involvement after extended cholecystectomy and its correlation with pT stage in carcinoma gall bladder patients. **Methods:** A total of 57 patients who were suspected/ diagnosed to have Carcinoma gall bladder were studied prospectively. They had undergone extended cholecystectomy with systematic lymphadenectomy over a period of January 2014 to December 2015 in Dept. of General Surgery, PGIMER, Chandigarh. If Aortocaval lymph node frozen was reported as negative then extended cholecystectomy along with cystic, pericholedochal, peripancreatic, periportal, coeliac artery, Common Hepatic Artery, Left Hepatic Artery, Right Hepatic Artery, Hepato-duodenal lymph nodes were sent separately for evaluation. **Results:** Out of 57 patients, 8 were excluded (5 were reported as xanthogranulomatous cholecystitis, 2 as chronic cholecystitis, 1 as IgG4 related disease). In remaining 49 patients, 6 were incidental carcinoma gall bladder. A total of 555 lymph nodes were examined in 49 patients with range of 0 to 26 and median of 11.79 lymph nodes were positive in 19 patients (38.7%). Overall most common lymph nodes involved were peripancreatic (n=9/49; 18.4%), common hepatic artery (n=7/49; 14.3%), periportal (n=7/49; 14.3%), hepato-duodenal (n=5/49; 10.2%), pericholedochal (n=4/49; 8.2%), cystic (n=3/49; 6.1%), coeliac (n=2/49; 4.1%), LHA nodes (1/49; 2%) and RHA lymph nodes (1/49; 2%). pT1 stage (n=5/49; 10.2%) had periportal lymph nodes involved (n=1/5; 20%). pT2 stage tumors (n=12/49; 24.5%) had involved pericholedochal (n=3/12; 25%), cystic (n=2/12; 16.6%), peripancreatic (n=2/12; 16.6%), Common Hepatic Artery nodes (n=1/12; 8.3%), periportal (n=1/12; 8.3%), hepato-duodenal nodes (n=1/12; 8.3%). pT3 stage tumors (n=32/49; 65.3%) had involved peri-pancreatic (n=7/32; 21.9%), Common Hepatic Artery (n=6/32; 18.7%), periportal (n=5/32; 15.6%), hepato-duodenal (n=4/32; 12.5%), coeliac (n= 2/32; 6.25%), pericholedochal (n=1/32; 3.1%), LHA nodes (n=1/32; 3.1%), RHA nodes (n=1/32; 3.1%), cystic lymph nodes (n=1/32; 3.1%) with p>0.05. **Conclusion:** Peripancreatic lymph nodes were the most common involved irrespective of 'pT' stage. Extended cholecystectomy with lymphadenectomy plays critical role for R0 resection irrespective of 'pT' stage.

B4 3103

An interesting case of Mirizzi syndrome with bile duct anomaly. Karthikeyan Mahalingam, Naganath Babu Babu OL, Rajiv Gandhi Govt. General Hospital, Chennai

Introduction: The Mirizzi's syndrome is an uncommon condition characterized by obstructive jaundice secondary to a gallstone impacted in the gallbladder's infundibulum obstructing the common bile duct. Pre-operative diagnosis is very difficult since clinical findings, laboratory data and radiological features are not specific. Generally the diagnosis is intraoperative as in our case. **The Case:** 36 year old female

with repeated episodes of cholangitis over past 6 months diagnosed with cholelithiasis and choledocholithiasis had undergone ERCP thrice with sphincterotomy and CBD stone removal and stent placement. In spite of these interventions, she continued to have abdominal pain and hence referred to our department. On evaluation her counts and LFT were normal. MRCP revealed a linear stent in LHD, CHD and CBD with multiple calculi in GB, cystic duct, CHD and proximal CBD with dilated proximal CBD of 19mm. It also revealed a type C2 bile duct anomaly wherein Right posterior duct was found to join the CHD. So with a preoperative diagnosis of cholelithiasis and choledocholithiasis with failed endoscopic intervention, the patient was taken up for surgery. Intraoperatively, GB was contracted with multiple stones impacted in the neck with features s/o type 4 Mirizzi's syndrome. Type C2 bile duct anomaly was also confirmed. Cholecystectomy was done. CBD exploration was done with removal of the stent and stones. Roux en Y hepaticojejunostomy was done including the CHD and Rt posterior sectoral duct in a single anastomosis. The patient had an uneventful postoperative course and was discharged on the tenth postoperative day.

Conclusion: This case is presented for its rarity since the occurrence of Mirizzi's syndrome with bile duct anomaly is a very rare event. Establishing a pre op diagnosis is difficult since imaging is less accurate. MRI is the imaging modality of choice. Hence appropriate planning if encountered during surgery is essential for optimal treatment. Open approach is preferred to laparoscopy. These cases can be managed at an expert centre without much morbidity.

B5 3139

An Interesting Case Of External Biliary Fistula. Prakashen OK, Madras Medical College & RGGGH, Chennai

Introduction: Though the diagnosis of choledochal cyst is straightforward, rarely it presents as a diagnostic dilemma. Here we are presenting such a rare presentation and its management. **The Case:** A 30 year old male from the north east was diagnosed to have liver abscess for which he underwent laparotomy there. The details of the procedure were not clear. Later he developed bilioma for which USG guided foley's tube insertion was done at the same centre. He had high output controlled external biliary fistula of about 500 ml daily. When he presented to our centre, his LFT was normal. MRCP showed clear visualisation of LHD, RHD & CHD. However, the CBD could not be visualised clearly. ERCP showed dye flowing in subhepatic space and into foley's drain kept during the previous percutaneous drainage. During laparotomy, the CBD was distended and pre op diagnosis of choledochal cyst was made. To our surprise, the foley's catheter was found inside the choledochal cyst. As the cyst was posteriorly adherent to

portal vein lysis technique was done. CBD transected close to hilum and roux en Y hepaticojejunostomy done. Biopsy showed features of choledochal cyst. Patient improved well and is on regular follow up. **Conclusion:** Choledochal cyst has varied presentation. An accurate pre op evaluation is needed for correct management. This case is reported for the rare presentation of choledochal cyst as an external biliary fistula.

B6 3149

Spontaneous choledocho-choledochal fistula after T-tube choledochostomy for Strasberg E1 iatrogenic bile duct injury: A case report and literature review. Namita Gangaram Chavan, Prasad Pande, Gunjan Desai, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai

Introduction: Laparoscopic cholecystectomy is the most common cause of biliary injury. Management options include drainage of collections, percutaneous transhepatic biliary drainage with delayed repair or early primary repair. We present a case where T-tube choledochostomy was done during laparotomy followed by a spontaneous choledocho-choledochal fistula and review the literature in brief. **The Case:** A 38 year old gentleman presented with a 15 day history of recurrent fevers, abdominal pain and distension post- laparoscopic cholecystectomy for acute cholecystitis at a hospital. Examination revealed peritonitis and patient was taken up for laparotomy. Due to intense biliary peritonitis, lavage followed by closure of distal end of CBD and T-tube placement across right and left duct through the proximal end with fixation of the tube at hilar plate was done. T-tube cholangiogram 8 weeks later showed complete disappearance of collection with contrast going spontaneously into duodenum. On laparotomy, the proximal and distal CBD stumps had merged through a tract grown over T-tube. Roux-en-Y hepaticojejunostomy [RYHJ] was done for the patient. The patient recovered uneventfully. **Discussion:** Management of biliary injury after laparoscopic cholecystectomy is challenging and includes careful consideration of all the available management options. To our knowledge, this is the first reported case of spontaneous recanalisation of bile duct over an indigenously placed T-tube across the proximal bile duct thereby avoiding a percutaneous biliary drainage – A procedure not devoid of complications. Delayed definitive repair is the standard and was performed with RYHJ. **Conclusion:** T-tube choledochostomy avoids percutaneous biliary drainage in patients already undergoing laparotomy for iatrogenic bile duct injury. RYHJ is the preferred definitive management.

B7 3168

Incidence of extra abdominal site of metastasis at the time of presentation in a patient with Carcinoma Gall Bladder. Jaya Agarwal, Thakur Deen Yadav, Post Graduate Institute of Medical Education (PGIMER), Chandigarh

Introduction: Gall Bladder carcinoma is very common in North India with an incidence of 9.8 per 1,00,000 per year which is one of the highest in the world with a resectability rate of less than 20%. **Methods:** This is a prospective study being carried out in the Department of Surgery, PGIMER from July 2016 to December 2017. The study included 100 patients of carcinoma Gall Bladder admitted in the Institute during the investigation period. Patients were assessed by detailed clinical, radiological and histological modalities. **Results:** From the preliminary result of the study out of 84 patients, 8 patients (9%) were found to have FNAC proven extra abdominal metastasis. These metastasis were found in supraclavicular lymph nodes in 6 patients, in lung in one patient and in the orbit in 1 patient. For the remaining 8 patients who had evidence of metastasis on PET scan, FNAC was not amenable. Mostly, skeletal and lung lesions were not amenable to FNAC due to small size of the lesion and difficult location to access for FNAC. Out of 84 patients, 10 patients were incidental carcinoma gall bladder, out of which 2 had extraabdominal site of metastasis.

B8 3220

Spontaneous Perforation of Extrahepatic Biliary System– A Tertiary Centre Experience. K Sathish Kumar, Govt Stanley Medical College and Hospital, Chennai

Introduction: Spontaneous perforations of the extrahepatic biliary system are a quite rarity especially in adults. Most of the cases reported in literature are single case reports. The aim of this study was to analyse the clinic pathological details of all the cases of spontaneous perforation of the extrahepatic biliary system including gall bladder. **Methods:** Retrospective analysis of all the cases of spontaneous perforation of extrahepatic biliary tree including the gall bladder between January 2006 and March 2017 that was managed at our institution was carried out. A detailed clinicopathological analysis of all the cases was done. **Results:** A total of 10 cases of spontaneous perforation of extrahepatic biliary system including gall bladder was managed in the study period in our institution. Out of the ten cases three cases had spontaneous gall bladder perforation and the remaining seven had perforation of the extra hepatic bile ducts. 8 out of 10 cases presented with acute abdomen and the remaining two cases developed perforation while on

admission. All cases underwent emergency laparotomy. 5 patients had background of chronic calcific pancreatitis. Cholecystectomy with cbd exploration and T tube drainage was done for all but one case of CBD exploration. We had a mortality of 20%. **Conclusion:** Spontaneous perforation of biliary tree should always be considered as a differential diagnosis in all cases presenting with acute peritonitis and a background of chronic calcific pancreatitis. High index of suspicion and early surgery alone gives good results and outcomes.

B9 3224

Biliary Cystadenoma–A tertiary care institute experience; With special focus on Intraductal Biliary Cystadenomas causing obstructive jaundice– Revealing the mystery of an unrevealed cause of biliary obstruction. Sugi Subramaniam, Govt. Stanley Medical College, Chennai

Introduction: Biliary cystadenoma is a rare benign neoplasm of the liver with less than 200 cases being reported all over the world. The greatest challenge in the management of biliary cystadenoma lies in the pre-operative diagnosis, since it is most often misdiagnosed as simple liver cyst or hydatid cyst. We report a series of 12 cases highlighting the radiological findings and problems related to its management with special focus on intrahepatic biliary cystadenomas; a very unusual benign cause of obstructive jaundice and their management. **Methods:** Records of 12 patients who underwent surgery for biliary cystadenomas, between 2013 and 2016, were reviewed and analysed retrospectively. Of the 12 patients with biliary cystadenomas, three patients had features of obstructive jaundice in the absence of any other recognized cause of biliary obstruction. **Results:** Majority of the patients were females. The most frequent symptom was abdominal pain with obstructive jaundice seen in three patients. We had three patients who had protruding mass like lesion into the biliary tract causing obstruction to bile flow; who were managed with extrication of the growth along with enucleation/ resection. There has been no recurrence during the follow-up period ranging from 6 months to 3 years. **Conclusion:** In patients with obstructive jaundice, especially middle aged women, with the background of normal CA 19-9 levels and a polypoidal mass projecting into the bile duct lumen intraductal biliary cystadenomas should be considered as a possible diagnosis. If feasible limited resection of the cyst with extrication of this benign lesion with close follow up and frequent imaging of the liver is advisable to locate early recurrences if any.

B10 3386**Endoscopic management of bronchobiliary fistula.**

Rakesh Kumar Yadav, Saket Kumar, Prabhu Singh, Vivek Gupta, Pradeep Joshi, Vishal Gupta, Abhijit Chandra, King George Medical University, Lucknow

Introduction: Bronchobiliary fistula (BBF) is a rare complication of liver abscess due to rupture into bronchial tree with only few cases been reported in literature. Other causes of BBF can be congenital or acquired due to post-abdominal surgery, hydatid cyst of liver, subhepatic abscess, trauma or after radiofrequency ablation for hepatocellular carcinoma. **Methods:** We are presenting our experience of managing four cases of bronchobiliary fistula with Endoscopic Retrograde Cholangiographic stenting. **Results:** 2 patients had amoebic liver abscesses and other two had post traumatic liver abscess complicating into bronchobiliary fistula. All patients presented with cough with biliptysis. Average sputum bilirubin was 3.5 mg/dl. CECT was done in all cases and MRCP was used in 2 patients. ERC stenting was done in all patients which led to closure of fistula. **Conclusion:** ERC stenting is effective treatment for bronchobiliary fistula.

B11 3468

Choledochal cyst type VI-a diagnostic dilemma. Kapil Nagaraj Palanisamy, Sandip Chandrasekar, G Senthil, Kalayarasan Raja, Biju Pottakkat, JIPMER, Puducherry

Introduction: Type VI choledochal cyst, an isolated cystic dilatation of the cystic duct has been scarcely reported. Varied clinical presentation, diagnostic challenges and factors which influence the intraoperative decision making including laparoscopic feasibility are herein discussed with a case report. **The Case:** A 35 year old lady presented with complaints of intermittent right upper quadrant pain for more than six months associated with occasional nausea and vomiting. She never had fever, jaundice, altered bowel habits. On examination, she was anicteric. Abdominal examination revealed mild right upper quadrant tenderness. Ultrasound revealed a distended Gall bladder with cystic duct calculi of 1.5 cm and prominent CBD with a distal CBD calculus. Subsequently she underwent endoscopic retrograde cholangiography and stone clearance. Cholangiography also revealed the presence of a large cystic duct calculi with dilated cystic duct. Contrast entering the gall bladder freely with no obvious filling defects in the gall bladder. After her symptoms resolved, she was taken up for laparoscopic cholecystectomy. Intraoperatively, she was found to have a cystic dilatation of the cystic duct which was towards the bile duct end with stones and sludge. Ductotomy of the proximal undilated cystic duct extending onto the dilated segment and clearance of calculi was done, followed by stapled closure of the remnant dilated cystic duct close to the CBD.

These intraoperative findings confirm the presence of Choledochal cyst type VI. **Conclusion:** Type VI choledochal cysts are diagnosed usually intraoperatively. Anatomical similarities with Type II choledochal cyst and Mirizzi syndrome make this diagnosis challenging. Factors which influence the decision making are the extent of the cystic duct involvement and associated cystic dilatation of the biliary tree. Laparoscopy scores over the open technique in terms of better visualization and appreciation of the disease entity. With advent of endostaplers, laparoscopic approach is safe and feasible.

B12 3480

Anomalous Pancreatico Biliary Ductal Junction– A case report. Souvik Paul, Anirudh Goyal, Ravindra Vats, Deep Goel, VP Bhalla, BLK Superspeciality Hospital, New Delhi

Introduction: Choledochal cyst is a benign disorder of the biliary tract commonly seen in children and young adults. Anomalous Pancreatico Biliary Ductal Junction (APBDJ) is thought to be implicated in or associated with pathogenesis of choledochal cyst. Prior to surgical intervention of the cyst, a roadmap of ductal anatomy is important not only for defining the cyst but also to look for the associated APBDJ. Pre-operative biliary ductal imaging with MRCP and ERCP is very helpful in demonstrating anomalies. **The Case:** We managed a 19 year old young boy who presented with post-operative biliary fistula following cholecystectomy and choledocholithotomy. An ERCP suggested a choledochal cyst. However it did not delineate any other associated anomalies. He underwent excision of the cyst with hepaticojejunostomy. Post-operatively he had pancreatitis due to the inadvertent ligation of the APBDJ which was draining into the first part of duodenum. Subsequently he was managed by EUS guided transparenchymal stenting of distal CBD stump to effect pancreatic ductal drainage. **Conclusions:** Incidence of APBDJ is reported as 5.6–23% in literature. An ectopic opening of the CBD is most commonly located distal to the second part of duodenum. Ectopic papillae in the duodenal bulb are extremely rare. This has important implications for gastroenterologists performing therapeutic ERCPs and for GI surgeons who operate on choledochal cysts.

B13 3483

Laparoscopic Cholecystectomy in Extra Hepatic Portal Vein Obstruction and Cirrhotic Liver. Vinay Shaw, VPS Rockland hospitals, New Delhi

Laparoscopic Cholecystectomy is considered the gold standard for symptomatic gall stone disease. Existing liver cirrhosis or extrahepatic portal vein obstruction (EHPVO) which was once considered a contra-indication is no longer considered the same with refinements in technique and technology. In our single centre experience we considered

Laparoscopy for six patients in one year study and it was successful in all. CT imaging and Childs status were included in pre-operative evaluation. An extra 5mm port with gauze grasper for compression haemostasis alone before starting dissection in patients with known Portal cavernoma is helpful. Ultrasonic shears or Bipolar Energy device (Harmonic/Ligasure) along with Endo GIA staplers should be available. With proper case selection and good perioperative planning Laparoscopic Cholecystectomy is safe and feasible in patients with cirrhotic liver and EHPVO.

B14 3120

Bile duct injury after laparoscopic cholecystectomy: New classification and Novel approach for the management in emergency situations. Keyur Suresh Bhatt, Dhaval O Mangukiy, SIDS Hospital & Research Center, Surat

Introduction: Bile duct injury (BDI) remains the most serious complication of laparoscopic cholecystectomy (LC). This study reviews bile duct injuries most commonly found in our setup and a new classification of bile duct injury with novel management strategies according to type of injury and its presentations. **Methods:** From October 2010 to May 2017, total 178 patients of mean age 51 (range 30-74) years were referred to our unit with bile duct injury following or during laparoscopic cholecystectomy. This includes intra operative calls for the surgery as well. Niteen injuries were recognized at operation, rest patients were transferred on 7th post-operative day on an average. **Results:** We propose new classification for bile duct injury according to its prevalence in our region and our management recommendations. TYPE I: Cystic duct stump blow out. TYPE II: Partial clip on CBD with or without cystic duct stump blow out or lateral injury. TYPE III: a. Segment loss of CBD<2 cm. b. CBD/ CHD>2 cm extending upto hilum. c. Hilar injury with separate sectoral ducts. d. Any of above with ligation of right hepatic artery. TYPE IV: Isolated sectoral duct injury.

Distribution of our cases according to types.

Type of injury	Number of patients
I	102
II	34
IIIA	19
IIIB	15
IIIC	4
IIID	2
IV	2

Exploration and complete diversion of bile was done in initial 12 patients along with feeding jejunostomy (FJ for bile refeeding) of type II & III. Later, all patients were internally drained irrespective of type II / type III and FJ was not done.

Average time for hepaticojejunostomy (HJ) was on day 62 following initial surgery. Out of 74 patients of type II and III only 39 patient required HJ, one requiring surgery was lost to follow up, rest 34 were managed successfully with endobiliary repeat/multiple stenting. All patient with type I injury were subjected to ERC-papillotomy and stenting of CBD was done successfully. Out of 102, 91 patients had drains kept during surgery and was draining bile, 11 patients had Biloma which was drained with pigtail catheter percutaneously. Two patient died one was referred on day 11, after re do laparoscopy which was done on post of day 6, patient was in sepsis, ARDS & MODS. Was operated for biliary peritonitis but could not be saved. Another patient was referred on post-operative day 12 with biliary fistula from drain and peritonitis with liver failure. On exploration found to have type 3B Bile duct injury with portal vein clipping and complete thrombosis with ischemic liver. This patient died of liver failure with sepsis post operatively. **Conclusion:** More complex injuries are better drained first and then later date reconstruction is advisable. We propose use of endobiliary plastic stents (routinely used following ERC) for internal drainage and repair of bile duct over stent without use of conventional T tube and if required later date hepaticojejunostomy can be done.

B15 3198

Surgical intervention for Benign Biliary diseases in the era of ERCP. Amit Ganguly, Ravindra Kale, Chaitanya Prakash Kothari, CHL group of hospitals, Indore

Aim: To assess the role and outcome of surgical procedures for various benign diseases of biliary tree, when the endoscopic retrograde cholangiopancreatography (ERCP) has either failed or could not be done either due to anatomical or technical reasons. **Method:** Data collected for a period of 2 years (2014-2016) and analysed for all the patients who were seen for benign biliary diseases and undergone surgery in the institution. 18 patients were found to be eligible for the study. Their clinical features, investigations, imaging, ERCP findings, operative findings and outcome were reviewed. **Results:** The common indications for the surgery remain stone diseases including Mirrizi's syndrome (10/18), choledochal cyst (3/18) and biliary tract injuries (3/18). Uncommon indication include chronic pancreatitis and choledochoduodenal fistula with cholangitis. 50% (9/18) patients were directly taken up for surgery. (5/18) patients had undergone ERCP before reaching to us. In (4/18) patients ERCP was attempted but could not be done. Patients underwent Roux-en-Y Hepatico-jejunostomy (13/18) and CBD exploration (5/18-2*). Cholecystectomy was the most common previous surgery (3/18) and one patient has undergone T-tube drainage for Choledochal cyst perforation in the past. In (5/18) patients congenital anomaly of ductal system and normal vascular variant was noted. CBD stent was removed

from 4 patients, one had stent left in situ for 3 years. Wound infection and ascites remained most common complications, while one patient developed bile leak. One patient required additional procedure for retained stone following Laparoscopic CBD exploration. There was no mortality. On long term follow up (12/18) patients were clinically and biochemically normal. **Conclusion:** Even with wide availability of endoscopic procedures, surgical intervention is still required. A good patient and procedure selection and understanding of biliary anatomy is essential to have good outcome.

B16 3064

Analysis of a patients undergoing percutaneous cholecystostomy for acute calculous cholecystitis".

Arif Raza Ahmed, Asian Institute of Gastroenterology, Hyderabad

Introduction: The purpose of this study was to evaluate the efficacy of percutaneous drainage of the gall bladder in patients with severe acute cholecystitis or cholecystitis not responding to antibiotic therapy. Main outcome was resolution of cholecystitis, postoperative complications and later need for cholecystectomy. **Methods:** Study design: Single-centre, Retro respective and prospective study performed at a single tertiary care centre (Asian Institute of Gastroenterology, Hyderabad). Sample size: The number of patients who had undergone the PCC retrospectively was 120. And it is expected to cover 20 patients prospectively. No power calculations are used to estimate the sample size. **Results:** 140 patients underwent percutaneous cholecystostomy with median age was 57 (range- 49-65), 76% ($n=107$) of patients were American Society of Anaesthesiologists (ASA) 2 and 3. All patients were underwent PCC under USG guidance via trans-hepatic route. 26.5% patients developed complications (37/140), including dislodgement (5), Peri-tubal leakage (18), obstructed (11), and re-insertion (3). All patients were underwent Cholecystectomy, laproscopy 91% (117/140), Conversion to open 9% (20/140) at a median of 38 days after initial tube insertion. 12.5% patients were developed bile leak post-operatively (17/140) all were Strasberg's type A, only 10/17 patients were required ERCP Stenting and others were managed conservatively. Three (3/140) patients died within 30 days, no deaths were related to the drainage procedure. Following cholecystectomy, three had died, two from cancer and one from severe biliary sepsis. **Conclusion:** All (100%) Patients with acute cholecystitis were promptly relieved from their symptoms following PCC. There were only minor complications following the procedure and all patients had a later cholecystectomy with minimal risk of complications. As compare to other studies 25-30% patients had recurrent cholecystitis who don't underwent cholecystectomy following PCC. In our study all underwent cholecystectomy with acceptable morbidity.

Early placement of PCC during ACC limits the inflammation to fundus, calots will be free during cholecystectomy and can be easily done under laparoscopy.

B17 3079

Radiological diagnosis alone risks overtreatment of benign disease in Gall Bladder cancer: A word of caution in the era of Radical surgery.

Rajesh S Shinde, Shraddha Patkar, Devayani Niyogi, Mahesh Goel, Tata Memorial Hospital, Mumbai

Introduction: Incidental gall bladder cancer (GBC) is on rise world over and this may be a good scenario as we get to treat GBC in early/ treatable stage. However there is a practice of diagnosing patients based on only clinico-radiological findings as suffering from GBC and subjecting them to radical surgical procedure. This over treats patient and also has important implications for resource utilization. At a tertiary care referral centre for cancer in India we analyzed our own data to see how many patients referred with presumed diagnosis of GBC turned out to be benign on final histology. **Methods:** we did a retrospective analysis of consecutive 284 patients undergoing upfront surgery for suspected gall bladder cancer from January 2016 to December 2016. Study cohort was divided into 2 groups based on final histology, Benign (48.6%) and Malignant (51.4%). Both groups were compared with respect to age, gender, residential state, CA 19-9 levels and other clinico-radiological features. **Results:** There was no difference in median age in both groups, but malignancy was more prevalent in females as compared to males. There is no statistically significant difference in mean CA 19-9 levels in both groups. Similarly there was no difference in terms of symptoms, comorbidities, residential state, preoperative biliary drainage and radiological features in both the groups. **Conclusion:** One in two patients, presenting to tertiary cancer centre with high index suspicion for malignancy based on clinico-radiological findings, turned out to be benign on final histology, emphasizing the fact that as a norm, for radiologically suspected GB malignancy, we need to have a confirmed histological diagnosis at least on table before proceeding to radical surgery, and frozen section can be reliably used to confirm the same.

B18 3082

Preoperative prediction of choledocholithiasis in patients undergoing cholecystectomy.

Aviral Jain, Nitin Jagtap, Guduru Venkat Rao, Pradeep R, Sundeep Lakhtakia, Mohan J Ramchandani, Nageshwar Reddy, Asian Institute Of Gastroenterology, Hyderabad

Aims: Inability to detect choledocholithiasis preoperatively can lead to complications such as cholangitis or pancreatitis. We analyzed for predictors of choledocholithiasis in the patients undergoing cholecystectomy. **Methods:** We

retrospectively analysed data of patients undergoing cholecystectomy for symptomatic cholelithiasis at Asian Institute of Gastroenterology, Hyderabad, India from July 2015 to December 2016. All patients who underwent preoperative EUS and/or ERCP were included in the analysis. **Results:** A total of 257 patients who underwent preoperative EUS and/or ERCP were included in the analysis. On univariate analysis age >40 years, sex and acute cholecystitis was not statistically associated with choledocholithiasis, however pancreatitis (p 0.001), cholangitis (p 0.001), raised bilirubin (p 0.001) and raised SGOT and SGPT (p 0.001) and raised ALP (p 0.01) significantly associated with choledocholithiasis. On multivariate analysis, only cholangitis (p 0.0174, OR 0.44 (95% CI 0.22–0.85), pancreatitis (p 0.0015, OR 2.52 (95% CI 2.62–58.63), raised SGPT (0.0002, OR 3.37 (95% CI 1.77–6.42) were able to predict choledocholithiasis preoperatively. **Conclusions:** Preoperative prediction of choledocholithiasis can be done using clinical and laboratory parameters. Presence of pancreatitis, cholangitis and raised SGPT can predict choledocholithiasis.

B19 3105

Immediate management of Post cholecystectomy Bile duct injuries– Tertiary care centre in South India.

Srinivasan Muthukrishnan, Villalan Ramasamy, Gnansekar M, Amudhan Anbazhagan, Prabhakaran Raju, Benet Duraisamy, Rajendran S, Naganath Babu Obla, Madras Medical College, Chennai

Introduction: The most common cause of bile duct injuries are iatrogenic. Cholecystectomy related bile duct injuries are disastrous to the patients both in terms of morbidity and monetary aspects. There is no clear algorithm for early management of bile duct injuries using various percutaneous, endoscopic and surgical approaches. **Methods:** The aim of the study was to define the role of various approaches i.e. percutaneous, endoscopic, laparoscopic and open surgical drainages in the early management of bile duct injuries. We retrospectively analysed 104 patients with bile duct injuries following cholecystectomies referred to and treated in our Institute between July 2012 and January 2017. Patients underwent drainage of the biliary collections by various means including percutaneous (n=47), endoscopic (n=26), laparoscopic and open surgical approaches (n=22) depending upon their clinical condition. Analysis of the outcomes of the various approaches for the early management of bile duct injuries was done using simple descriptive statistics. **Results:** Most of the biliary injuries occurred following laparoscopic cholecystectomy (66.4%). There was a female (58.65%) predominance and most of the patients were in the age group of 20 to 49 (n=65; 62.8%). The most common type of biliary injuries were cystic duct stump leak (n=47; 45.2%) followed by type E1

(n=23; 22.1%), type E2 (n=13; 12.5%) and type E3 (n=10; 9.6%). Of the 104 patients, 43 (41.35%) were referred within 7 days of index surgery of which 38 (88.37%) had bilioma, 3 (6.97%) presented with jaundice and 3 (6.97%) with features of sepsis. They had a hospital stay ranging between 7 to 14 days. On the other hand, 61 patients (58.65%) were referred beyond 7 days of which 57 (93.4%) had bilioma, 9 (14.8%) presented with sepsis and 8 (12.1%) patients with jaundice and this group had a hospital stay ranging from 50-90 days. While the 9 patients who had no bilioma on imaging and no sepsis were managed conservatively, the rest underwent some form of intervention. The majority (n=47; 45.2%) underwent PCD insertion. 26 (25%) patients underwent ERCP with stenting while 22 (21.2%) underwent surgical drainage. The overall success rate of ERCP was 52% and was specifically useful in cases with cystic duct stump leak (success rate 83.3%). ERCP was associated with complications like bleeding in two, cholangitis in three and pancreatitis in two patients. **Conclusion:** Acute BDI should be managed at a tertiary care referral centre where multidisciplinary facilities including expertise in diagnostic, percutaneous radiological interventions and endoscopic and laparoscopic facilities are available. The type of biliary injury and patient's general condition dictate the type of intervention in the acute setting. Early identification and referral is a key to reduced morbidity.

B20 3109

Comparison between conventional and harmonic scalpel assisted laparoscopic cholecystectomy: Prospective non-randomized control trial.

Chellappa Vijayakumar, Kumar Rajnish, Sathasivam Suresh Kumar, S Manwar Ali, Sundaramurti Sudharsanan, Chinnakali Palanivel, JIPMER, Puducherry

Introduction: In laparoscopic cholecystectomy slipped titanium clips pose increased risk for bile leakage and act as a nidus for stone formation. Increased risk of gallbladder perforation and smoke production are the main problems while using electro cautery. Harmonic scalpel may provide the advantage of lesser operating time with reduced perioperative complications due to its multi-functionality. However, no apparent evidence is available to prove its benefit. **Aims:** To compare operating time and perioperative complications between conventional and harmonic scalpel assisted laparoscopic cholecystectomy. **Methods:** All patients underwent elective laparoscopic cholecystectomy were included in the study period. Two groups of patients with 20 in each group were studied. In conventional group both cystic duct and cystic artery were divided after conventional titanium clip application and electro cautery was used for thermal energy. In harmonic scalpel assisted group, cystic duct was clipped with titanium clip and rest of the procedure was carried out using Harmonic ACE and harmonic hook. Outcome

parameters analysed were operating time in minutes, post-operative pain by VAS scoring, Frequency and route of analgesics requirement after 24 hours, intraoperative complications including bleeding, bile duct injury, vascular injury, gall bladder perforation and surgical site infection (SSI) in the postoperative period as per the CDC criteria. **Results:** Both the groups were comparable with respect to age, gender, BMI and presence of co-morbidity and indication for cholecystectomy. Duration of surgery did not significantly differ between the groups [67.3 vs. 64.3 mins; p-0.30]. Other parameters like analgesic required on Day1 [3.2 vs. 3; p-0.67], Visual Analogue Scale (VAS) scores on day 0 [4.55 vs. 4.65; p-0.59], VAS scores on day 1 [2.3 vs. 2.2; p-0.84], superficial SSI [15% vs. 10%; p-0.63], intra-operative gall bladder perforation [30% vs. 20%; p-0.71] and intra peritoneal drain [30% vs. 20%; p-0.71] did not significantly differ between the groups. **Conclusion:** Harmonic assisted laparoscopic cholecystectomy has no significant advantage over conventional laparoscopic cholecystectomy with respect to operating time, post-operative pain and perioperative complications. Key words: cholecystectomy, conventional, harmonic scalpel, laparoscopic, morbidity, operating time.

B21 3164

The role of chemotherapy and resection in post laparoscopic cholecystectomy port site metastasis (PSM)– Careful selection may improve outcomes. Shradha Patkar, Mahesh Goel, Vikas Ostwal, Anant Ramaswamy, Tata Memorial Hospital, Mumbai

Introduction: Laparoscopic cholecystectomy (LC) is routinely performed for potentially benign gallbladder diseases, Incidental gall bladder cancer (IGBC) may be detected following complete histopathological of the specimen. This sets the stage for the emergence of port site metastases (PSM), whose growing incidence coincided with the increase in laparoscopic surgeries. We present a case series of carefully selected patients with PSM (Oligometastatic disease) who were treated with a combination PSM resection and chemotherapy. **Methods:** We retrospectively evaluated an unselected cohort of previously operated patients of IGBC who had isolated port site recurrence and underwent PSM resection between March 2010 and July 2016 at Tata Memorial Hospital, Mumbai from a prospectively maintained database. Positron emission tomography (PET) scan was done for staging in all patients. Treatment details captured included disease free interval post prior initial therapy, the use of chemotherapy, and response rates when chemotherapy was used prior to surgical resection. The time from diagnosis of gall bladder cancer to development of PSM recurrence was considered as first disease free survival (DFS 1). The time from diagnosis of gall bladder cancer to the last follow up or death was considered as first overall survival (OS1). The

time from development of first recurrence after port site excision to the time of second recurrence was considered as second disease free survival (DFS 2). The time from excision of port site metastasis to last follow up or death was considered as second overall survival (OS2). **Results:** A total of 12 patients underwent PSM resection in the given time-period. Histopathology was adenocarcinoma in all patients. Seven patients underwent upfront surgery with a wide excision) for PSM while five received Gemcitabine + platinum based neoadjuvant chemotherapy. Of the 5 patients receiving neoadjuvant intent chemotherapy, two patients had PR, 2 had SD and one patient developed PD. Eight patients received adjuvant chemotherapy after PSE (six patients received gemcitabine based regimen, two patients received capecitabine based regimen). One patient received gemcitabine based chemo-radiation and two received only radiation to the post-operative site in view of margin positivity. Median hospital stay was 5 days and 2 out of 12 patients developed complications. Seven patients (58.3%) developed recurrence after surgery for PSE and all were treated with further palliative chemotherapy. At a median follow up of 20.5 months, DFS 1 was 21 months (95% CI 9-32 months) and OS1 was 67 months (95% CI 32-101 months) [figure 2]. DFS 2 was 18 months (95% CI 10-25 months) and OS2 was 30 months (95% CI 19-41 months). At the time of final analysis six patients (50%) were alive. **Conclusion:** Careful selection of patients with PSM and an aggressive management strategy of combining PSM resection and chemotherapy is a step forward in the treatment of this rare group of patients.

B22 3204

Cholecystoenteric fistulae- Our experience. Adihtya GK, Vachan Hukkeri, Vivek Tandon, Satya Parkash Jindal, Deepak Govil, Apollo Hospitals, New Delhi

Introduction: The development of a cholecystoenteric fistula (CEF) is an uncommon complication of cholelithiasis and it is usually seen to develop in patients with long standing disease. An incidence of 3–5% has been reported in patients with cholelithiasis and 0.15–4.8% of patients undergoing biliary surgeries may have a CEF. ¹The most common cholecystoenteric fistulae are of the cholecystoduodenal variety (70%), followed by cholecystocolic (8% to 26.5%) and cholecystogastric fistulae. In this report we share our experience of cholecystoenteric fistulae to highlight the presentation, intraoperative findings and management. **Methods:** Retrospective review of patients with CEF encountered in our experience between 2003 and 2016. Patients admitted for laparoscopic cholecystectomy during this period were involved in the series and patients having cholecystoenteric fistulae were analysed in detail and their picture is discussed. **Results:** Among 2450 cholecystectomies encountered a total of 35 patients had cholecystoenteric fistulae. There were 15

males and 20 females in the age range of 33-76 and with a mean of 55 years. Twenty-eight of the 32 (80%) patients were over 50 years of age. The most common type of fistula was cholecystoduodenal fistula (CDF) and was detected in 32 (91.4%) patients. Other types encountered were cholecystocolic fistula in two patients (5.71%) and cholecystogastric fistula in one (2.857%) patient. USG was the basic investigation. All cases were diagnosed intraoperatively. Overall 23 patients (65.71%) required a laparotomy. The remaining twelve (34.28%) cases were managed completely by the laparoscopic approach. Earlier in the cases feeding jejunostomy was regularly used which became occasional in the later part of series. **Conclusion:** Cholecystoenteric fistulae are rare complication of long standing gall stone disease. In the era of laparoscopy many of these cases can be dealt laparoscopically. Low tolerance should be kept for conversion so that patient gets the best possibility of dealing with the condition in the same sitting without added complications.

B23 3236

Major Hepatectomy And Its Impact In Patients With Gall Bladder Malignancies: A Tertiary Care Centre's Experience. Sugi Subramaniam, Govt. Stanley Medical College, Chennai

Gall bladder malignancy is regarded as one of the most dreaded malignancies which often presents at a stage where curative surgery is not possible. Most of the gall bladder malignancies are incidentally detected in cholecystectomy specimens. Even though if diagnosed preoperatively most of the gall bladder carcinomas are inoperable at the time of evaluation and exploration. Radical cholecystectomy encompassing the removal of adjacent liver segments 4B and 5 is the standard of care in gall bladder carcinomas if diagnosed preoperatively. The role of right hepatectomy and extended right hepatectomy has not been standardized to achieve negative resection margins. We discuss our Institute's experience in managing advanced gall bladder malignancies, factors influencing the decision to proceed with extensive liver resections and the impact on post operative morbidity, mortality and survival.

B24 3248

Redo procedures after post cholecystectomy bilioenteric anastomotic strictures. Bharath Kumar Bhat, Samrat Ray, Shailandra Lalwani, Siddart Mehrotra, Vivek Mangla, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi

Introduction: The incidence of re-stricturing following a bilioenteric anastomosis for post cholecystectomy strictures ranges from 20 to 40%. However the results of a redo anastomosis in these patients have been rarely

reported. **Methods:** We studied the outcome of 21 patients who had undergone redo hepaticojejunostomies between January 2010 to January 2016 for a post cholecystectomy anastomotic stricture. The duration of anastomotic stricture recurrence, number of endoscopic/ percutaneous interventions, duration of redo surgery, intra operative blood loss, length of hospital stay, morbidity and mortality were analysed from a prospectively maintained electronic database. The patients were followed up for a minimum of 2 years after operation. **Results:** There were 14 (66.6%) females and 7 (33.3%) males who had a mean age of 36 (range 25-63) years, Twelve patients (57.1%) had stricture recurrence in less than 10 months after index repair. Twenty one patients (95.2%) had recurrent cholangitis and 5 (23.8%) had a co-existent biliary fistula. Associated vascular injury and atrophy- hypertrophy complex were present in 2 (0.09%) and 1 (0.04%) patients respectively. The mean interval between the anastomotic stricture recurrence to redo surgery was 60 (range 3-273) months. Ten patients (47.6%) had more than 1 endoscopic or percutaneous intervention before surgery. Five patients (23.8%) required preoperative biliary drainage. Mean duration and blood loss of redo surgery were 223 minutes and 105 mL respectively. Less than 1% patients (n=1) had complications of Clavien Dindo grade III and above. There was no operative mortality and all patients were discharged with a mean duration of hospital stay of 9.8 days (SD=3.3). Fifteen (71%) of the patients were followed up for minimum of 2 years. Only one patient had anastomotic stricture recurrence which was managed with percutaneous dilatation and one had incisional hernia. **Conclusion:** Redo hepaticojejunostomy is a feasible and effective option for post cholecystectomy anastomotic strictures with acceptable surgical morbidity and a low stricture recurrence rate.

B25 3267

Adult Choledochal Cysts in Indian Population: Is It Different? Saket Kumar, Abhijit Chandra, Nikhil Chopra, Vishal Gupta, Vivek Gupta, Pradeep Joshi, KGMU, Lucknow

Introduction: Aim of the study was to analyze the demographic and clinicopathological profile of adult choledochal cyst and also to study their long-term outcome after cyst resection. Though choledochal cyst is a disease of childhood, increasing number of cases are being detected in adults as well. The highest incidence of choledochal cysts has been reported from Southeast Asian region, and the disease is common in the Indian population. **Methods:** Demography, presentation and perioperative outcomes of 73 adult choledochal cyst cases managed at a single tertiary care center between January 2010 and December 2016 were retrospectively analyzed. **Results:** The male:female ratio was approximately 1:3 and median age was 35 years (range, 12-65 years). Type I choledochal cyst was the most common cyst type in this series (n=49, 67.1%). Co-existing

gallbladder carcinoma was encountered in four (5.48%) cases while two patients had secondary biliary cirrhosis with portal hypertension. Complete cyst excision was performed in 65 (89.0%) patients. Patients undergoing complete cyst excision were followed-up for median duration of 29.5 months (range, 12-70 months). No new case of cholangiocarcinoma was reported in any of our patients. **Conclusions:** Adulthood choledochal cysts are associated with an increased incidence of complications like recurrent cholangitis, pancreatitis and cyst perforation. The lesser association of biliary tract malignancy in this population may possibly be linked to a lower incidence of abnormal pancreatico-biliary duct junction. Total cyst excision with hepaticojejunostomy remains the standard treatment both to relieve the symptom and minimize the risk of biliary tract malignancy.

B26 3272

“Difficult Gallbladder”: Incidence and management at subspecialty surgical gastroenterology unit. Dhaivat Kalapirai Vaishnav, Tushar S Lakhia, Swasti Gastroenterology and Abdominal Surgery Centre, Elisebridge, Ahmedabad, Gujarat, India.

Introduction: As the laparoscopy is now easily available tool, laparoscopic cholecystectomy is now deemed routine operation. Patients, referred for gallbladder surgery at speciality unit, are many times difficult ones. Difficult gallbladder requires careful planning to avoid complications. **Aim:** 1] To define incidence of “difficult gallbladder” at speciality unit. 2] To define possible predictors of conversion to open surgery. **Methods:** Study period: May 2014 to May 2017. Inclusion criteria: necrotic/gangrenous/ empyema/ thick contracted gallbladder, Mirizzi syndrome, extensive adhesions due to previous upper abdominal surgery, known or suspected GB perforation, surgery time required >120 mins. Exclusion: open cholecystectomy, suspected malignancy. **Results:** Total 81 patients underwent cholecystectomy. There were m:f 33: 48. Emergency: Elective cholecystectomy ratio was 17:64 (21%). Laparoscopic: lap converted open cholecystectomy 73:8 (10%). Difficult Gallbladder Total– 28/81 (34%). Laparoscopic “difficult Gallbladder” surgery is completed in 21/28 (75%) patients. Male:female ratio in conversion is 5:2. Laparoscopic subtotal cholecystectomy done in 3 patients, lap Fundus first method performed in 6 patients. Predictors of conversion to open in difficult gallbladder male gender, associated other organ complication, i.e. cholecysto-choledochal fistula, cholecystoduodenal fistula, secondary peritonitis. Operation time (178 mins vs 95 mins) and hospital stay (5 days vs 3 days) were higher in “Difficult gallbladder” converted to open surgery. Postoperative morbidity wound infection, perihepatic collections were comparable. **Conclusions:** Incidence of Difficult Gallbladder surgery

is getting higher in speciality units. Although in routine laparoscopic cholecystectomy conversion rate is near zero, conversion rate in “difficult gallbladder” remains high.

Etiology of difficult gall bladder	Total (n=28)	Converted to open (n=7)
Necrotic/ gangrenous	8	2
Empyema	7	1 (final HPE adenocarcinoma)
Thick contracted GB	3	2 (1 suspected bile duct injury, 1 cholecysto duodenal fistula)
Mirizzi	3	1 (type 2 converted to open)
GB perforation	4	1 (type 3 perforation converted to open)
Surgery time required >120 min	3	

B27 3292

Iatrogenic Biliary Injuries: A single center experience of 112 cases. Sushruth Shetty, Premal R Desai, Mahendra S Bhavsar, Hasmukh B Vora, Laxman S Khiria, V S Hospital, Ahmedabad

Introduction: Post cholecystectomy bile duct injuries remain an important problem in gastrointestinal surgery. The morbidity associated with these injuries are experienced by the patients and also the operating surgeon alike. The purpose of this study is to present our institute experience in managing patients who sustain bile duct injuries. We also intend to study the factors influencing the early and late results of biliary reconstruction in these patients. **Methods:** Ours is a descriptive observational study with retrospective data analysis and prospective data collection along with follow up. All patients with iatrogenic biliary injuries managed at our centre between April 2010 and may 2017 have been studied. The patients were either managed conservatively, percutaneous radiological, endoscopic or by open surgical methods. Most of the injuries we have managed were high grade injuries, due to the referral pattern. The clinical presentation, management and outcomes of these patients discussed. **Results:** A total of 112 patients with biliary injury were managed. 108 had sustained injury during cholecystectomy (76 lap and 32 open). Two patients sustained injury during percutaneous drainage of abscess, one during gastrectomy and one during pancreatic surgery. The median age was 31 years and there were 68 female and 54 male patients. Chief initial presentation to our unit included biliary fistula (n=74), surgical jaundice (n=27), colangitis (n=6), biliary peritonitis (n=3) and as an intra-operative recognised

CBD Clipping in 2 patients. There were 3 mortalities, all occurred during the initial resuscitation phase, secondary to uncontrolled sepsis. Among the 109 patients 33 patients had post-operative minor bile leaks probably secondary to cystic duct stump leak or leak from the liver bed that responded to conservative treatment. ERCP was therapeutic in 12 patients. Total 64 patients underwent Roux en Y Hepaticojejunostomy (HJ). Five patients required laparotomy and drainage and 12 patients required USG guided drains for biloma before definitive repair. The median duration between initial surgery and biliary reconstruction was 12 weeks in patients who underwent HJ. As a unit protocol all the patients underwent delayed repair (after 6 weeks) except 2 patients who underwent HJ during the index surgery. A trans-anastomotic external stent was placed in all the cases which was removed after cholangiogram at 4th week. Atrophy hypertrophy complex was present in 4 patients which was identified pre operatively in only 1 patient. The type of biliary stricture in patients undergoing HJ included bismuth type 1 (n=9), type 2 (n=30), type 3 (n=21) and type 4 (n=4) strictures. Three patients required double anastomosis (right and left HJ). Intra operative Liver biopsy was done in 45 patients. Immediate post-operative complications included anastomotic leak (n=5), pulmonary complication (n=5) and SSI (n=8). Three patients developed secondary biliary cirrhosis and are on follow up. The median duration of follow is 42 months. **Conclusion:** Biliary injuries are complex issues and can be managed successfully by appropriate timing, meticulous technique and a tertiary care experience.

B28 3410

Outcome of aggressive management including hepatectomy in children with choledochal cysts at a dedicated hepatobiliary and liver transplant centre.

Pankaj Kumar Sonar, Neelam Mohan, Amit Nath Rastogi, Sanjay Goja, Arvinder Singh Soin, Medanta The Medicity, Gurgaon

Introduction: Choledochal cysts (CDC) are characterized by dilatations of the extra- and/ or intra-hepatic bile ducts. Their early diagnosis and management are important, as CDC disease is associated with a considerable lifetime risk of developing malignancy of the biliary tract. Complete excision of the cyst which may require hepatectomy, is thus considered the standard of care. The aim of the study was to evaluate clinical presentation, diagnosis, surgical management and outcome of CDC in children less than 18 years of age. **Methods:** Clinical, laboratory, radiological, surgical and outcome data were analysed for 20 children with CDC admitted at our Hepatobiliary and Liver Transplant Institute from July 2010 till March 2017, retrospectively from our prospectively maintained hepatobiliary database. CDC were classified according to Todani's modification of

Alonso-Lej classification. Operative policy was to safeguard the hepatic arterial supply, and completely excise the CDC- as low down as possible without damaging the ampulla or pancreatic duct, as high as possible even if it meant having 2-3 biliary openings to anastomose, and ipsilateral hepatectomy for intrahepatic extension of cyst. **Results:** RUQ pain was the commonest symptom (95%) followed by vomiting (58%) & jaundice (31%). The median age of surgery was 4 years 6 months (2 months-15 years). 4 (21%) had mild acute pancreatitis at presentation. Cystolithiasis was present in 7 children (37%). All children had an ultrasound at presentation and MRCP prior to surgery. One child underwent an intraoperative cholangiogram. The CDC were: type I, 10/19 (53%) type IV A, 8/19 (42%). One child had Caroli's disease (type V). Extra hepatic portal vein obstruction were present along with choledochal cyst in 1 patient and required spleno-renal shunt along with excision of choledochal cyst. ABPJ was present in 4/19 (21%) children of which 3 had mild acute pancreatitis. Cyst excision and Roux-en-Y hepaticojejunostomy reconstruction was the most commonly performed surgical procedure. Left hepatectomy was additionally performed in 3 children with type IV A cysts with unilateral extension to left ductal system. Right hepatectomy was performed in 1 child with right sided Caroli's disease. The median length of stay was 8 days (range 5-13 days). One child had intra-abdominal collection with bile leak during hospital stay. 7 had postoperative fever and abdominal pain which responded to conservative management. There were no operative or hospital deaths. The median follow up was 25.5 months (range 3-79 months). Two children needed re-admission to hospital for abdominal pain in the postoperative period. All 20 children are well with normal liver function at follow up. **Conclusions:** In the present series of CDC, abdominal pain was the commonest presenting complaint. There were almost equal number of type I and IV A choledochal cysts. Surgery was done with the aim of extirpating all dysgenetic epithelium to the extent possible to reduce the long term risk of malignancy. Unilateral extension of cyst was safely managed by a hepatectomy along with CDC excision. All patients did well with aggressive surgical management.

B29 3367

Comparison of ERC stenting and Percutaneous cholecystostomy as preoperative biliary drainage procedure in periampullary malignancies: A retrospective analysis. Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteswaran Chandrahasan, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati

Introduction: Preoperative biliary drainage (PBD) for periampullary tumors is necessary in few patients. ERC with stenting (ERCS) is the preferred method. However, percutaneous cholecystostomy (PC) is an option, especially

in centres where ERCP is not available or ERCP has failed. Our aim is to compare the outcomes following PBD for periampullary tumors using two methods (PC and ERC stenting). **Methods:** All patients who underwent PBD prior to pancreaticoduodenectomy during the period July 2012 to May 2017 were included. Data was retrospectively collected. Patients were divided into 2 groups. Group A included patients who underwent ERCS and Group B who underwent PC. Outcomes were compared in two groups and results were analyzed. P value of <0.05 was considered significant. **Results:** Of 144 patients who underwent PD, 28 (19.4%) required PBD for various reasons. 18 were subjected to ERCS and 10 underwent PC. Reasons for subjecting to PC are financial constrain in 7 (ERCP not available at our centre and needed referral to private hospital) and ERC failure in 3. Expenses incurred for ERCS and PC were approximately 20,000 and 3500 rupees respectively. Demographic, biochemical, coagulation profile and tumor characteristics were similar in two groups. Mean time for resolution of complications for which PBD done was similar. 2 in group A required redo ERC stenting for stent blockage. Duration of surgery, Intraoperative blood loss were similar in two groups. Intraoperatively collected bile cultures were positive in 11/18 (61%) in group A and 4/10 (40%) in Group B. Wound infection rates were higher in group A (13/18, 72.2%) than Group B (3/10, 30%), which resulted in prolonged mean hospital stay in Group A (14 days vs. 10 days in group B). **Conclusion:** PC as a procedure for PBD in periampullary tumors is cheaper and equally effective as compared to ERC with stenting with less wound infection rates and decreased hospital stay.

B30 3329

Post Cholecystectomy Bile Duct Injuries- Outcomes following Hepaticojejunostomy. Nitesh Naga Balaji Pagadala, V Venkata Rami Reddy, G Siva Ramakrishna, Chandramaliteeswaran Chandrahasan, A Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati

Introduction: Iatrogenic bile duct injury during cholecystectomy is associated with high morbidity and is a potentially life-threatening complication. The aim of the study was to assess the outcomes following Hepaticojejunostomy for post cholecystectomy bile duct strictures or fistulas. **Methods:** All patients who presented with bile duct injury following both open and lap cholecystectomy from January 2012 to April 2017 were included in the study. Excluded patients treated with endoscopic stenting alone. Demographic characteristics, clinical presentation, level of injury, management and outcomes following biliary injury repair were noted. Follow up was done till 6 months following surgery. Outcomes were assessed using MacDonald classification. **Results:** 18 patients were included in the study. Of these, 11 were females and 7 were males. The mean age was 44 years

(range 24–68 years). 13 had injury following Laparoscopic cholecystectomy whereas 5 had following lap conversion/open cholecystectomy. 3 (16%) presented with biliary peritonitis, 8 (44%) with controlled biliary fistula initially or following imaging guided percutaneous drainage and 7 (38%) with biliary stricture. 4 (22%) had type IV injury, 9 (50%) had type III and 3 (16%) had level II injury. In 2 patients, level of injury not assessed. 2 (11%) had associated vascular injury. All 3 with peritonitis underwent lap or open peritoneal lavage and subhepatic drain placement. 2 of these 3 had spontaneous closure of biliary fistula. 1 patient developed Type II stricture and required hepaticojejunostomy. Of 8 with biliary fistula, 5 had subhepatic collections for which USG guided PCD placed and 3 had intraoperatively placed drain with controlled fistula. Of these 5 had persistent fistula and other 3 fistula converted to stricture. Of 7 patients presented with stricture, 6 had recurrent cholangitis. 3 patients not responding to Antibiotics required PTBD. All patients with fistula and stricture underwent Roux-En-Y Hepaticojejunostomy. Roux en Y hepaticojejunostomy was done in 16 patients. On follow up, 1 patient with Type III stricture developed anastomotic stricture which was managed with Transhepatic stricture dilation. Outcome was graded into grade A in 12 (75%) patients, grade B in 2 (12%) patient and grade D in 1 (6%) patient. Mortality in one (6%) patient following hepaticojejunostomy due to renal failure. **Conclusion:** Management of post cholecystectomy biliary injuries is based on presentation. Most of these require Hepaticojejunostomy. Outcomes following hepaticojejunostomy are good but require long term surveillance.

B31 3375

Reasons affecting conversion to open surgery in patients undergoing laparoscopic cholecystectomy- Over 700 cases. Smita Chauhan, RMLIMS, Lucknow

Introduction: Cholecystectomy for gall stone diseases is among the most commonly practiced surgery in northern India. With the advances in the field of imaging and laparoscopy most patients are able to undergo successful laparoscopic cholecystectomy. However some patients still require conversion to open cholecystectomy. We present the reasons and risk factors associated with these conversions in over 700 cases at our newly established tertiary care multidisciplinary referral center in northern India. **Method:** All patients undergoing laparoscopic cholecystectomy from Jan 2013 to March 2017 were retrospectively included using prospectively maintained database. The cases that required conversion to open cholecystectomy were evaluated. Pre and perioperative factors associated with conversion were statistically analyzed. **Results:** Among 729 cases 697 underwent successful laparoscopic cholecystectomy while 32 (4.39%) were converted to open cholecystectomy. Mean age of

patients was 42.99 yrs and 51.18 yrs in the conversion group. F:M ratio was 2.46:1 and 1:1 in conversion group. Pre-operative risk factors associated with conversion were prior ERCP, Acute Pancreatitis, Acute Cholecystitis, Empyema Gallbladder, chronic contracted Gallbladder and Mirizzi's syndrome. Intraoperative factors included dense pericholecystic adhesions, Fibrosis at Callot's triangle, contracted gallbladder and iatrogenic injury to CBD, duodenum & colon. The most common reason for conversion was presence of dense adhesions (81.25%) due to tissue inflammation and fibrosis at callot's (43.75%). Overall Bile duct injury occurred in two cases (0.35%). **Conclusion:** Laparoscopic cholecystectomy remains the gold standard for treatment of gall stone disease, however a subset of the patients will still require conversion to open surgery. Although there are no absolute predictors for conversion, however the pre and perioperative risk factors analyzed in our study did suggest a difficult cholecystectomy in the conversion group. Hence it may be concluded that risk assessment based on these parameters may help in devising the most appropriate surgical plan to achieve the goal of safe cholecystectomy.

B32 3360

Blood loss using water-jet dissector for extended cholecystectomy in carcinoma gallbladder: Initial results from a tertiary care cancer hospital in eastern India. Avidip D, Sudeep Banerjee, Robin Thambudorai, Manas Kumar Roy, Subir Sinha, Paromita Roy, Venkatramani Sitaram, Tata Medical Center, Kolkata

Aims: To assess blood loss using water-jet dissector for extended cholecystectomy in carcinoma gallbladder. **Methods:** Data maintained prospectively in a bespoke database of all patients who underwent extended cholecystectomy for carcinoma gallbladder during the period July 2013 to May 2017 was analysed. Data included body mass index (BMI), blood loss, liver morphology, time taken for resection, type of resection (wedge v/s anatomical), and bile leak. **Results:** The study population was 40. Median age: 53 years (range 30-76), median BMI: 25.13 (range 15-34). Median blood loss during liver resection was 630.50 ml (IQR 325.5, range 77 to 1395). Most resections were segments 4B and 5 (32/40). Median time taken for liver resection was 82 minutes (IQR 35, range 35 to 240). Mean blood loss for patients with BMI <23 (15/40) was 638.07 ml, and that for patients with BMI >23 (25/40) was 616.25 ml. Mean blood loss for anatomical segment 4b and 5 resection was 631 ml, and for wedge resection was 621 ml. Mean blood loss was 502 ml when time taken for liver resection was <82 minutes (17/40) and 711 ml when time taken was >82 minutes (23/40). Mean blood loss was 611 ml if there was no bile leak during the operation (23/40), and 643 ml when there was visible bile leak during the operation (17/40). Mean blood loss for the patients who developed post-operative bile leak (9/40) was 573 ml,

while it was 639 ml for those patients who did not develop post-operative bile leak (31/40). Mean blood loss in the first 20 patients was 657 ml, and in the next 20 patients it was 591 ml. **Conclusions:** BMI and type of liver resection did not influence blood loss. Blood loss did not influence incidence of bile leak in the intra-operative period; however absence of bile leak in the post-operative period was associated with increased blood loss. Blood loss was significantly lower if liver resection took less than 82 minutes. Blood loss was not affected by surgeon's learning curve.

B33 3400

Biliary strictures: Experience at a Tertiary care center. Srinivas Bojanapu, Aditya Manke, Siddarth Mehrotra, Vivek Mangla, Shailendra Lalwani, Naimesh Mehta, Samiran Nundy, Sir Gangaram Hospital, New Delhi

Introduction: Biliary strictures are a major surgical challenge for a hepatobiliary surgeon. If not recognized and appropriately treated, serious adverse outcomes like cholangitis, biliary cirrhosis, and portal hypertension even death can occur. In the current times most of the biliary strictures are secondary to inadvertent trauma to biliary tree during surgery or interventional procedures. **Methods:** Retrospective analysis of prospectively maintained computerized data of all patients who underwent surgery for biliary strictures data was done. **Results:** A total of 127 Patients 63 (Males) and 64 (Females) with a median age of 38 years (41 to 58) were operated between June 2010 to April 2017 in Surgical Gastroenterology unit at Gangaram Hospital. Most common cause for biliary stricture is iatrogenic injury to CBD during cholecystectomy 41 (32.2%). Presenting symptoms were Jaundice in 62 (48.81%), Biliary leak in 28 (22.04%) Pain in 18 (14.17%), Biliary atresia in 4 (0.31%). Surgery performed were Hepaticojejunostomy in 109 (85.82%) patients, partial hepatectomy in 4 (3.14%) patients, choledochojejunostomy in 2 (1.57%). Median total hospital stay for patients was 10.75 days and median post-operative stay was 7.50 days. Median operative time was 249 min. Repeat surgeries were performed in 7 (0.55%) patients. Clavien' grade of complications were as follows Grade 0- 25 (19.60%), Grade 1- 29 (22.83%), Grade 2- 38 (28.99%), Grade 3- 27 (21.23%), Grade 4- 6 (4.7%), Grade 5- 3 (2.36%). Mortality was in 3 patients. **Conclusion:** Biliary strictures occur most often due to iatrogenic causes and it is vital to prevent them by recognizing the anatomical variations during surgical intervention of biliary tree, and early recognition, referral to experts and appropriate management plays an important role in overall outcome.

B34 3163

Role Of Positive Peritoneal Lavage Cytology As An Independent Predictor Of Recurrence In Carcinoma Gall Bladder: A Report Of 51 Cases With Preoperative Diagnosis Of The Disease. Aarathi V Shanker, Thakur Deen Yadav, Radhika Srinivasan, Ashim Das, Saroj K Sinha, Vikas Gupta, Irrinki Naga Santhosh, PGIMER, Chandigarh

Introduction: Positive peritoneal lavage cytology (PLC) in patients with gastric carcinoma is considered M1 disease according to the 7th edition of AJCC classification (2010). The aim of this novel study is to identify prevalence of such positivity in patients with Carcinoma Gall Bladder (CGB), correlate cytology with the stage of disease and assess its relevance to their survival. **Methods:** The prospective observational study included cases of preoperatively diagnosed cases of CGB who underwent treatment between the months of June, 2015 to December, 2016 in PGIMER, Chandigarh. After staging laparoscopy (SL), abdomen was opened and 50 ml of normal saline was instilled in the peri-tumoural region and pelvis, and lavage done. The instilled fluid was aspirated, mixed with an anticoagulant, spun many times to obtain sediment that was subjected to Liquid Based Cytology. Papanicolaou and May Grunwald Giemsa- stained slides were studied for malignant cells. During SL, if metastases were found, lavage was done laparoscopically. Results of cytology were analysed along with demographic factors, symptoms, staging laparoscopy findings, TNM staging, histological grade and differentiation. **Results:** We studied 21 resectable cases, 2 unresectable cases, 19 metastatic patients and 9 patients with post-operative histopathology of chronic/ xanthogranulomatous cholecystitis. 6 out of 51 patients (11.8%) had positive PLC. Out of these, 1 patient had resectable early stage G3pT2N0M0 disease, 1 patient had unresectable celiac lymph nodal disease, 3 patients had overt peritoneal metastases and 1 patient had xanthogranulomatous cholecystitis (false-positive). The frequency of cytology positivity among the resectable population (n=21) was 4.8% and metastatic population (n=19) was 21%. SL identified 6 patients (14.3%) with peritoneal disease that preoperative cross-sectional imaging did not. SL, however, failed to identify 2 patients (4.8%) with positive PLC. PLC was positive only in 50% patients (n=3) with overt peritoneal metastasis. The combination of PLC and SL identified peritoneal disease at a rate of 19% (n=8). The median disease-specific survival for metastatic disease was 4 months. The median disease-free survival (DFS) among the resected population was not reached. The DFS of the resected patient with positive PLC was 5 months, comparable to that of metastatic patients. The difference in DFS between positive and negative PLC patients, although evident, was not statistically significant (p=0.16 for resectable, p=0.65 for metastatic). Cytology results did not correlate with the stage and grade of disease (p=0.063). **Conclusion:** SL, despite being traditionally believed to be the gold standard, is not reliable enough to establish peritoneal metastases. The combination of PLC and SL had a higher detection rate of peritoneal disease. The survival of the resectable patient with positive PLC in our study is nearly the same as patients with metastatic disease, suggesting that positive cytology may indicate M1 status. However, due to the small sample size, significant results could not be achieved.

B35 3205

Laparoscopic Intraoperative cholangiogram: Our experience. Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi

Introduction: In current day practice the role of intra operative cholangiogram (IOC) during routine laparoscopic Cholecystectomy remains controversial. But in patients with intermediate risk for choledocholithiasis, unclear Calots triangle and when cholecystectomy needs to be delayed after ERCP for any reason IOC is an extremely useful tool in the hands of the surgeon. Since IOC is under surgeons control and allows for a clear visualization of the biliary tree while demonstrating a dynamic flow of contrast from the CBD to the duodenum, a confident comment on the status of the biliary tree can be made. Through this study we want to know the role of laparoscopic IOC in these different situations. **Methods:** Our prospective study includes a detailed evaluation of patients coming for laparoscopic cholecystectomy. History, age, liver function tests and imaging details were taken into consideration. Patients where laproscopic IOC was done include 1. Patients falling in intermediate risk (SAGES guidelines) of choledocholithiasis 2. Those undergoing ERCP for choledocholithiasis with a subsequent delay in performing cholecystectomy for various reasons. 3. Those where Calots triangle anatomy was not clear, a decision for IOC was taken intraoperatively. Consent for IOC was taken appropriately and performed laparoscopically during laparoscopic cholecystectomy. **Results:** one hundred and seventy one patients (107 females, 64 males) falling in this category underwent laparoscopic cholecystectomy and intraoperative cholangiogram. Indications for IOC were post ERCP in 22 patients, failed ERCP in suspected CBD stones in 9 patients, isolated dilated CBD in 10 patients, dilated CBD with raised alkaline phosphatase in 3 patients and isolated raised alkaline phosphatase in 127 patients. IOC detected CBD stones in total of 9 patients (5.26%). Three patients had CBD stones in post ERCP group, 3 in failed ERCP group, 1 in isolated CBD dilation group, 2 in isolated raised alkaline phosphatase group. In 2 cases CBD flushing itself cleared the stones and remaining were converted to open for CBD exploration. In 2 patients IOC was unsuccessful. Procedure time ranged from 13-20 min. One patient had type 1 choledochal cyst, one had small cystic duct stone and two had distal CBD stricture. Of the two patients with distal CBD stricture, one was managed by balloon dilatation and the other by choledochoduodenostomy. No IOC related complications were noted in any patients. **Conclusion:** In an experienced hand IOC is extremely helpful in many situations. It is relatively a cheap, under the surgeon control, the skill for which can be acquired with some practice. Its main advantage is that dynamic flow of the contrast gives a clear picture of CBD and also it serves as a guide during

difficult anatomical situation. Contrary to previous report over experience of IOC, our experience shows that raised serum alkaline phosphatase alone may not have much value towards diagnosis of choledocholithiasis.

B36 3218

Bile Duct Injuries - Outcome of Early And Delayed Repair at a Tertiary Care Centre. Amit Singh, Army Hospital (Research & Referral), New Delhi

Introduction: Iatrogenic Bile duct injuries (IBDI) are the fearsome complication. Late complications such as anastomotic bile duct strictures or secondary biliary cirrhosis may result in life-long disability. **Aims:** The aim of the study was to assess the outcome of early (upto 7 days) and delayed (after 6 weeks) management of bile duct injuries (BDI). **Methods:** It is an observational study with period from Jun 2015 to May 2017 done at tertiary care centre. The patients who underwent surgical management of BDI were part of study. They were assessed for Stricture as Primary objective and other secondary objectives eg. Post op complication and grade of repair of BDI. Stricture was defined as stricture causing sign and symptoms requiring surgical, percutaneous or endoscopic intervention. **Results:** A total of 50 patients were part of study out of which 15 underwent early and 35 delayed repair. The mean age of patients in early group was 40.5 years and 44.2 years in delayed group. Mean follow up of patients was 10.4 months (1 month- 24 months). The presentation of bile duct injury patients were divided into 11 with biliary peritonitis, 2 with bilioma, controlled biliary fistula in 17, intraoperative bile leak in 5, jaundice in 10 and recurrent cholangitis in 5 patients. The presentation after BDI had no significant influence on stricture rate. BDI were classified as per Strasberg classification. It included 7 patients with E1 injuries, 15 patients of E2 injuries, 20 patients of E3 injuries, 5 E4 injuries and 3 patients with Type D injuries. The surgical reconstruction done was HJ in 48 patients and Primary repair in 2 patients. The post op complication observed were post op bile leak in 4 patients (3 in early and 1 in delayed group, p value 0.014) and cholangitis in 3 patients (1 in early group and 2 in delayed group, p value 0.002). There was high stricture rate in patients who had bile leak and cholangitis in the post op period. The Grade of repair as per Mc Donald's grading was Grade A in 30 patients, B in 16 patients, C in 1 patient and D in 3 patients. The stricture was seen in 2 patients of early group and 1 patient in delayed group (p value 0.153). **Conclusion:** Our result suggest that though early repair has more post op complication and stricture rate as compared to delayed repair however it was statistically not significant. Therefore both timings are appropriate depending on clinical profile of patient.

B37 3279

Diagnostic value of tumor markers in gall bladder cancer without jaundice. Sundeeep Singh Saluja, Ashish Sachan, Bhawana Mahajan, Shashi Kiran, Pramod Mishra, GB Pant Institute of Medical Education and Research, New Delhi

Introduction: Role of tumor markers in gall bladder cancer (GBC) is not well studied. We evaluated the role of carbohydrate antigen 19-9 (CA19-9) and carcinoma embryonic antigen CEA) in patients with GBC. **Methods:** The records of One hundred ninety-seven patients of GBC managed from October 2013 to March 2017 were reviewed. Twenty eight patients with jaundice were excluded. The preoperative values of CEA and CA19-9 in blood were correlated with clinicopathological characteristics. The cut off value of CA19-9 and CEA were calculated using receiver operating characteristic (ROC) curve in predicting metastatic disease. **Results:** Of 169 patients analysed, 80 underwent curative resection, 32 were unresectable and 52 had metastatic disease. The median value for CA19-9 was significantly higher for patients with metastatic disease as compared to non-metastatic disease (137.2 vs 26.10 IU/ml; p=0.034). A cut off value of 120 IU/ml had a sensitivity of 50% and a specificity of 80% with area under curve (AUC) 0.674 in predicting metastatic disease. The median value of CEA was significantly higher for patients with metastatic as compared to non-metastatic disease (5.6 vs 3.82 ng/ml; p=0.005). A cutoff value of 10 ng/ml had a sensitivity of 39.4% and a specificity of 82% with AUC 0.651 for detection of metastatic disease. **Conclusions:** Raised CA19.9 and CEA predict metastatic and unresectable disease in patients with GBC without jaundice with a moderate specificity.

B38 3297

Choledochal cysts- A 21 year experience in a tertiary care centre. Romil Jain, Ishan Shah, Shailendra Lalwani, Siddharth Mehrotra, Vivek Mangla, Naimish Mehta, Samiran Nundy, Sir Gangaram hospital, New Delhi

Introduction: Although the majority of choledochal cysts are reported in children about 20% of patients may present in adulthood. Surgical management is the mainstay but may be complicated in adults due to coexisting hepatobiliary disease. We present our experience in these patients over 21 years. **Methods:** Between January 1996 and April 2017, we collected data of 105 patients from a prospectively maintained electronic database at a unit of surgical gastroenterology and liver transplantation. Demographic, clinical and perioperative variables were recorded. **Results:** The majority of our patients were adults (n=92, 87.6%) whose median age was 24 years (range 5 months to 65 years). There were 42 males and 63 females (m:f 1:1.5). The majority of the cysts, according to the Todani classification, were type I (n=73, 69.1%) followed by type 4a (n=25,

23.9%), type4b (n=3, 2.8%) type 2 and 3 (n=2, 1.9%). One patient had a rare isolated cystic duct dilatation. Abdominal pain (n=94, 90%) and jaundice (n=42, 39.8%) were the most common presentations followed by cholangitis, palpable lump and vomiting. Twenty five (23.8%) patients had had previous surgical procedures, the most common being a cholecystectomy in 17.8%. The complications at the time of presentation were present in 35 patients (33.3%). These included stones in the common bile duct in 21.9%, cholelithiasis in 15.4% and chronic pancreatitis in 4.2%. Other complications were hepatolithiasis in 2.8%, acute pancreatitis in 2.3% and portal hypertension in 2.3%. Complete excision of the cyst (except in two, partial excision of cyst) and hepaticojejunostomy (except in one, choledochojejunostomy) was the mainstay of treatment. Additional procedures like, hepatectomy in 3, extended cholecystectomy in 2 and radical cholecystectomy in 1 were also done. Malignancy occurred in 8 (7.6%) patients, the most common being gall bladder cancer in 4 patients, cholangiocarcinoma in 2, duodenal neuroendocrine tumour and pancreatic cancer in 1. None of the patient died and 15 patients (14.3%) had complications in immediate postoperative period. The most common being wound sepsis (n=5) and bile leak (n=4). Among 105 thirty two patients lost to follow up, out of 73, jaundice was seen in 2, two had persistent pain, two developed incisional hernia and 3 died, others doing fairly well. **Conclusions:** Choledochal cyst can present in a complicated manner in adults and excision with hepaticojejunostomy is the best treatment option with fewer complications.

B39 3331

Prediction of residual disease in Unsuspected "Incidental" gallbladder cancer: Experience of a tertiary care hospital in northern India. Aditya Atul Kulkarni, G R Verma, Harjeet, Gautham Krishnamurthy, Rajinder Singh, PGIMER, Chandigarh

Introduction: Unsuspected Gall bladder carcinoma (UGBC) is erroneously leveled as incidental carcinoma gallbladder. An attempted radical surgery later is not possible in sizable number of cases as the tumor is either disseminated or locally unresectable at laparotomy. Purpose of this report was to study the preoperative imaging and to predict the presence of residual disease from retrospective analysis of prospectively maintained database. **Methods:** The study comprises of retrospective analysis of 16 patients of UGBC out of 84 patients of Gallbladder carcinoma (GBC) admitted from 2011 to 2016. Ultrasound (USG) abdomen and intraoperative findings prior to initial cholecystectomy were studied. The clinical evaluation and CECT±FDGPET scan was performed in all as a protocol to stage the tumor prior to definitive surgery. Resectable patients were subjected to laparotomy. **Results:** Laparoscopic cholecystectomy was performed in 7, open in 6 and

in three patients; laparoscopy was converted to open cholecystectomy. All but one patient were operated outside. The median time from cholecystectomy to attempted radical surgery was 7 weeks (5 days-4.5 months). All patients were referred with histopathological report for further surgery, out of these 6 had persistent pain, 2 had postoperative jaundice and 4 patients had severe anorexia and weight loss. 81.25% (13/16) patients presented with their ultrasound report prior to cholecystectomy. 43.75% patients (7/16) had features of uncomplicated cholelithiasis (normal gallbladder wall thickness, single or multiple stones or mucocele) and suspicious clinical features of malignancy were reported in 56.25% (9/16) cases prior to cholecystectomy. On staging CT, 68.75% (11/16) had gall bladder wall thickening (asymmetrical=6) with or without associated periportal lymphnodes and loss of interphase with adjoining liver. 85.71% (6/7) patients with uncomplicated cholelithiasis reported on preoperative U/S underwent R0 resections and 4 of them had no evidence of residual diseases in resected specimen while remaining 3 patients had e/o resectable residual or recurrent GB mass. Surgery could not be contemplated in 1 patient due to locally unresectable disease. 44.45% (4/9) patients with suspicious U/S findings underwent R0 resections. All of them had residual/recurrent diseases without or with GB fossa mass. The remaining 5 patients (55.55%), could not undergo surgery (distant metastasis=3, locally unresectable disease=2). **Conclusions:** The incidental GBC masquerading as uncomplicated cholelithiasis on U/S can later develop GB mass in 42.8% cases (3/7). The incidence of finding GB mass increases to 100% (8/15) in presence of suspicious lesions on U/S. Intra operative frozen calot's triangle, duodenal adhesions and thickened GB wall should raise the suspicion of tumor. The study reinforces alertness and calls for high index of suspicion of GBC on U/S in patients undergoing cholecystectomy in endemic region and recommends further investigations in cases of suspicious lesions on U/S prior to cholecystectomy.

B40 3335

A Randomized Controlled Study On Early Recovery Following Modified Epigastric Port Versus Standard Four Port Laparoscopic Cholecystectomy. Abhimanyu Kar, The Calcutta Medical Research Institute, Kolkata

There have been many modifications of the standard four port laparoscopic cholecystectomy. These modifications in the form of reduced port number or sizes increased the learning curve or required special set of instruments, making these procedures more expensive. Modified epigastric port laparoscopic cholecystectomy with a 5mm epigastric port and rest of the ports as in standard four port laparoscopic cholecystectomy was found to be comparable to the standard procedure in terms of operating time and complications, when performed by

surgeons with different levels of laparoscopic skill and did not require special instruments. Postoperative pain scores and ambulatory capacity at 6 hours following surgery and quality of life at 1 month following surgery measured with SF36 health survey was significantly better in the modified procedure group. Thus, modified epigastric port laparoscopic cholecystectomy can now be an option for patients due to undergo laparoscopic cholecystectomy with the advantage of faster postoperative recovery compared to the standard procedure.

B41 3357

Carcinoma Gall Bladder in Endemic Regions has Problem of both Under- and Overdiagnosis. Rajesh Gupta, Gautham Krishnamurthy, Surinder Rana, Ritambra Nada, Naveen Kalra, PGIMER, Chandigarh

Introduction: Gall bladder wall thickness presents diagnostic dilemma in gall stone disease in endemic regions of carcinoma gallbladder (Ca GB). Considerable overlap in characteristics of GB wall thickness observed between stone disease and malignancy on USG. On one end of spectrum is incidental or missed Ca Gb (under diagnosis) and at other end is benign entities found in pathology following radical surgery for presumed Ca Gb (over diagnosis). **Methods:** Retrospective analysis of prospectively maintained database of 128 patients in Division of Surgical Gastroenterology, PGIMER Chandigarh from January 2002 to July 2016. **Results:** 10 patients had benign pathology out of the 54 patients undergoing radical cholecystectomy. Various histological diagnosis were: Xanthogranulomatous cholecystitis (6); Chronic cholecystitis (2); Tuberculosis (2). There were 28 patients of incidental carcinoma gall bladder. Factors significant in patients having non-curative surgery among incidental carcinoma included: presence of nausea/vomiting, presence of comorbidity, presence of GB fossa lesion in immediate preoperative CT. **Conclusions:** No reliable parameter for malignancy exists currently. Improvement in imaging and experience has reduced overdiagnosis over time. A significant proportion of patients of carcinoma gall bladder were underdiagnosed. Improvement in awareness and expertise in the primary centres required in reducing under diagnosis.

B42 3385

Does lymph node positivity ratio correlate with survival following curative resection for gallbladder carcinoma: A prospective study. Deep Lamichhane, Rohit Gaurav, Paromita Roy, Robin Thambudorai, Manas Kumar Roy, Sudeep Banerjee, Tata Medical Center, Kolkata and Cambridge university hospital, United Kingdom

Introduction: In gallbladder carcinoma, lymph node metastasis is an important predictor of survival. This study attempts to assess the survival with respect to number of metastatic nodes, ratio of metastatic nodes to total number of nodes harvested and location of metastatic nodes.

Methods: Data was prospectively entered in Redcap, an electronic database. Between Jan 2012 to May 2017, 128 patients underwent curative intent resection for gallbladder cancer. In order to achieve a minimum of 3 years follow up, data of 44 patients operated from Jan 2012 to May 2014 were analysed. As per AJCC staging, LN location was divided into N1 that includes hepatoduodenal, including 13a and common hepatic artery and N2 that includes coeliac, SMA and aorto-caval. As the median LNR was 10%, the LNR was divided into three groups: 0%, less than or equal to 10% and more than 10%. Survival data was calculated using Kaplan Meier and Cox-regression model used to analyse between groups. **Results:** Thirty-nine patients were available for the study excluding 3 postoperative deaths and 2 patients that were lost to follow up. In total, 633 nodes were retrieved with a mean of 16. Among this, 31 nodes were positive in 14 patients: N1 nodes in 7, N1 and PSPD nodes in 2, PSPD in 3, N1 and N2 in 2 patients. LNR was less than or equal to 10% in 4 and more than 10% in 10 patients. Among all, T1b, T2, T3 and T4 stage were present in 4, 22, 10 and 3 patients respectively. The median follow-up was 50 months (IQR 43-58). 14 patients died during follow-up. The median disease-free (DFS) and overall survival (OS) was 43.7 months (IQR 14-52) and 46 months (IQR 20-54) respectively. Twelve patients had recurrence during the follow up period: 6 in each node negative and positive respectively. The median DFS and OS of patients with positive nodes were 21.4 months (95% CI: 9.4-33.3) and 21.4 months (95% CI: 1.3-41.4) respectively. Patients with negative nodes did not reach median survival. Cox regression showed diminished DFS and OS in patients with positive nodes ($p=0.006$, and $p=0.01$ respectively). The median DFS of patients with $LNR>10$ is 14.6 months and $LNR\leq 10$ is 21.4 months; patients with negative nodal disease did not reach median survival ($p=0.014$). The OS of patients with $LNR\leq 10$ was 14 months (95% CI: 4.7-24.5). Only 2 patients had N2 nodal disease both died at 5 and 14 months. Hence, the median DFS and OS for N1 positive patients were similar to the survival of the entire group with positive nodes. **Conclusion:** In this study from a newly established GI-HPB surgery unit, following resection of gallbladder cancer with curative intent, nodal involvement, LNR more than 10 and presence of N2 disease were associated with adverse prognosis.

B43 3453

Achieving margin negative resection- doing less is justified: Oncological outcomes of wedge excision of liver in surgery for gall bladder cancer. Vijayraj S Patil, Shraddha Patkar, Mahesh Goel, Tata Memorial Hospital, Mumbai

Introduction: Surgery for gallbladder cancer (GBC) is evolving. The extent of liver resection for GBC i.e wedge resection vs formal segment IVb/V excision is still debated. We evaluated the post-operative and oncological outcomes of liver wedge excision in operated cases of GBC at a Tata Memorial Centre, Mumbai. **Methods:** Patients who underwent radical cholecystectomy (with a liver wedge excision of 2.5-3 cms) from Jan 2010–Dec 2015 were retrospectively analysed from a prospectively maintained surgical database. All cases of radiologically suspicious or histologically proven GBC underwent Contrast enhanced computerised tomography of the Thorax, abdomen and pelvis for staging prior to surgery. Patients of incidental Gall bladder cancer requiring revision surgery and patients who received neoadjuvant therapy were excluded. Data was analysed using SPSS version 22.00. **Results:** 558 patients underwent surgery for suspected or histologically proven GBC during the above time period. 97 cases of primary GBC were selected for the study with a median age of 52 years (30–79 yr) and Female to male ratio of 3:1. Median surgery duration was 230 min (120-480 min) with median blood loss of 600 ml (100-3000 ml). The median post op stay was 6 days (4-25 days). The post-operative morbidity rate was 8% (Clavien Dindo Grade III and above) with a 30-day mortality rate of 2.5% (2 patients). None of the patients had margin positivity in liver on final histopathology. Stage wise distribution showed majority to be stage III disease (n=51, 52%) followed by stage II (n=34, 35%). Only 12 patients had stage I disease. At a median follow up of 29 months, 64% (n=63) of patients were disease free where as 14% (n=14) were alive with disease. 2.5% (n=2) died in postoperative period, 12% (n=12) patients died of disease and 6% (n=6) died of unrelated causes. 13 patients had locoregional recurrence (hepatoduodenal ligament recurrence and hilar recurrence and 10.2% (10) had distant metastases. Only 1.3% (n=1) patient recurred in the gall bladder bed. 3-year Overall survival of Stage II was 85% and of stage III was 60%. 3-year overall Survival of pT2 was 77% and pT3 was 45%. For patients with while that of node negative disease, the 3 year overall survival was 79%, while that of node positive disease was 63%. **Conclusion:** Surgical outcomes of GBC at our centre, where we perform radical cholecystectomy with wedge resection of the liver, parallels published world literature. With low morbidity and mortality, it emphasis oncological equivalence of liver wedge resection as against formal segment IVb/V excision, provided margin negative resection is achieved.

B44 3093

Biliary and vascular complications in major liver trauma. Yashwant Raj Sakaray, PGIMER Chandigarh

Introduction: Biliovascular complications are expected in high grade liver injury. Present study is planned to evaluate incidence, management, outcome of biliovascular complications arising as result of major hepatic trauma.

Methods: 56 patients with grade III or more liver injury were studied prospectively from July 2013-Dec 2014 at PGIMER; Chd. Patients surviving over 24 hours were included. Biliary and vascular complications were evaluated with CT/HIDA and CT angio respectively. Interventions required to manage complications were analyzed and patients were followed up to 6 weeks. **Results:** Grade 3 (n=29), grade 4 (n=17) and grade 5 (n=10). 17 (30.35%) patients developed biliovascular complications. Biliary complications (n=5), intraabdominal collections (n=1), ascites (n=2), biliary peritonitis (n=1), biliary leak from intraabdominal drains left after laparotomy (n=1). ERCP with biliary stenting (n=2), surgical intervention for biliary peritonitis (n=1). ERCP failed in (n=1), later operated for biliary stricture. Arterial complications (n=8), venous complications (n=9) were seen in 14 patients. AE alone (n=5), operated for rebleed after AE (n=1), surgery for hemodynamic instability, later with AE (n=2). Venous injuries were managed conservatively. Operative intervention, grade, size of hematoma, delayed CECT and blood transfusion requirement were statistically significant in detecting biliovascular complications. 7 (12.5%) deaths, 2 hepatic-related mortalities occurred due to uncontrolled bleed. **Conclusions:** High grade liver injury will have high incidence of developing biliovascular complications which needs multimodality treatment strategies. CECT in patients with clinical evidence of biliary complications and vascular complications is effective screening tool. ERCP and angioembolisation role in management of high grade liver injuries is safe and effective.

B45 3456

Outcome of porto-enterostomy for biliary atresia at a high volume pediatric hepatobiliary and liver transplant center. Suhail Khuroo, Neelam Mohan, Rahul Roy, Amit Rastogi, Sanjay Goja, Prashant Bhangui, Thiagrajan Srinivasan, Medanta Liver Institute, Gurugram

Introduction: Kasai Porto-enterostomy (PE) is currently the standard first procedure for extra-hepatic biliary atresia (EHBA), especially when possible before 90 days of age. Liver transplantation (LT) is recommended for those with late diagnosis, hepatic decompensation, or failed PE. We studied the outcome of PE at our center where both PE and liver transplant are available and performed by the same team. **Methods:** A retrospective analysis of our prospective maintained EHBA database from July 2010 to March 2017 was done. The diagnosis was based on an absent or collapsed gall bladder (GB) on ultrasound, a non-excreting HIDA and confirmed with liver biopsy in all cases. As a policy, PE was only done for well compensated

infants of 45-90 days of age. At operation, a cholangiogram was done to confirm the diagnosis and type of EHBA. At operation, GB and rudimentary CBD were dissected en bloc from the supra-duodenal area up to the hilar plate tissue between and superior to the portal vein bifurcation followed by its sharp division. The elliptical hilar plate tissue at the hepatic hilum was anastomosed with a roux loop of the jejunum to complete a 1.5cm PE. **Results:** A total of 20 patients (9F, 11M) underwent PE following for EHBA. Mean age at diagnosis and surgery were 39 and 52 days respectively. 16 patients showed improvement in LFTs in the first 3 weeks. Mean and Median follow up period was 20.5 months and 12.5 months respectively (range: 1-40) for patients with native liver. Nine patients are doing well on their native liver, whereas 9 developed hepatic decompensation of whom 2 underwent a liver transplant, 2 are waiting for it, and 5 died. Two patients were lost to follow up. **Conclusions:** In expert hands, most children with EHBA undergoing PE within 90 days of birth show initial improvement. However, over 1-2 years, half of them decompensate and need a liver transplant. With longer follow up, the proportion of patients showing long-term benefit of PE is likely to reduce further.

B46 3402

A Previously Unseen Variant Of The Hepatic Artery Anatomy- Accessory Common Hepatic Artery Arising From The SMA In A Case Of Distal Cholangiocarcinoma.

Shabana Jabbar, Harish Goutham Medapati, Raj Kumar Nagarajan, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry

Introduction: Embryologic development of celiac axis and SMA being complex, anatomical variations in the arterial supply of liver are common. It is important to recognize these aberrations preoperatively in a major hepatobiliary or pancreatic surgery to avoid damage to hepatic blood supply intraoperatively. Here we present a case of distal cholangiocarcinoma with an accessory hepatic artery arising from the SMA. **Discussion:** A fifty five year old lady presented with history of progressive painless jaundice and pruritus for two months. On examination she was found to have deep icterus and gall bladder was palpable per abdomen. No other mass or lump was appreciated. CECT revealed a distal CBD growth resulting in moderate IHBRD with no evidence of infiltration into surrounding structures. A subcentimetric lymph node was present in the paraaortic area of size 5 mm, showing doubtful areas of necrosis. Variant anatomy of the common hepatic artery was noted. Two separate common hepatic arteries, one arising from the coeliac axis, and the other from the SMA were seen. The latter was the larger component which arose below the origins of MCA, IPDA and at the level of the root of the first jejunal artery. It gave rise to the GDA which continued as the proper hepatic artery. This had a normal

course, medial to CBD and anterior to portal vein, and terminated as RHA and LHA. The RHA traversed posterior to the common hepatic duct near the hilum. The patient was taken up for Whipple's pancreaticoduodenectomy. Intraoperatively the artery first approach was employed and the above mentioned findings were confirmed. Also, the hepatic artery arising from the coeliac axis was found to be a thin twig communicating with the common hepatic artery. On clamping this communication distal pulsations in the hepatic artery were intact. We therefore proceeded with the proposed surgery. The liver appeared normal in colour throughout the intraoperative period. Post operatively the patient was closely monitored under CCU settings. Daily liver enzymes and 6th hourly lactate levels were recorded, which showed progressive improvement. The patient's post operative course was uneventful upto the present time. **Conclusions:** Variations in the anatomy of hepatic artery are widely recorded. However, the picture in the above patient showing accessory hepatic artery arising from the SMA forming the bulk of blood supply to the liver is so far unreported and cannot be classified under Michel's nine classes of variations in hepatic artery anatomy. This case accentuates the need for a thorough study of preoperative imaging for all hepatobiliary and pancreatic surgeries.

B47 3033

Oxidative stress and nutrition in gallstone patients with and without Gallbladder cancer. SatyaVati Rana, Aastha Malik, Rajesh Gupta, Vikas Gupta, Rajinder Singh, Post Graduate Institute of Medical Education and Research, Chandigarh

Introduction: Gallstone disease (GSD) is one of most prevalent abdominal diseases. Moreover, gallbladder cancer (GBC) is highly aggressive neoplasm which arises in introduction of gallstones (GS). Pathophysiology of gallstones with GBC is complex and multifactorial. **Aim:** To study the role of oxidative stress and nutrition in gallstone patients with and without gallbladder cancer. **Methods:** 125 gallstone patients including 38 gallbladder cancer with gallstones (GBC+GS) were enrolled. 130 age and sex matched healthy controls were also enrolled. Fasting blood samples were drawn from all subjects and detailed dietary history was noted. **Results:** In both groups (gallstones and gallbladder cancer with gallstones), females were predominantly present. Basal Mass Index (BMI) of GBC+GS patients was significantly lower ($p < 0.05$) when compared with GS patients and controls. The results of oxidative stress and antioxidant status as illustrated by analyzing LPO and GSH showed a significant difference in GBC+GS patients as compared to GS patients and controls. It was observed that GBC+GS patients had significantly higher

levels of LPO ($p < 0.05$) as compared to GS patients without GBC and controls. However, levels of GSH were significantly ($p < 0.001$) reduced among GBC+GS patients when compared with GS patients and controls. Consumption of fruits, pulses, milk did not vary significantly among GS patients and controls. On the contrary, consumption of these food items was significantly lower in GBC+GS patients as compared to controls and GS patients. **Conclusions:** This study shows that oxidative stress was more in GBC+GS patients as compared to GS patients and healthy controls. This may be due to lesser consumption of fruits, pulses and milk by GBC+GS patients.

E-video

EV1 3286

Laparoscopic cholecystectomy for suspected Mirizzi syndrome. Kamalesh NP, Prashant R, PVS Memorial Hospital, Cochin, Kerala

A 40 yr old male presented with symptoms of obstructive jaundice and was evaluated with EUS and ERCP, which were suggestive of Mirizzi syndrome, with calculus at the cystic duct - CBD junction. A CBD stenting was done. He subsequently underwent a laparoscopic cholecystectomy was done. We describe the technique of Lap cholecystectomy in such a case.

EV9 3148

Laparoscopic management of gall bladder torsion with hemoperitonuem: A video presentation. Namita Gangaram Chavan, Gunjan Desai, Prasad Pande, Hitesh Mehta, Lilavati Hospital And Research Centre, Mumbai

Introduction: Gall bladder torsion is a rare entity that usually occurs due to congenital anomalies resulting in a mobile gall bladder over a mesentery usually rotating around cystic artery. It is difficult to diagnose prior to surgery. We present here a video of gall bladder torsion with hemoperitoneum managed laparoscopically. **The Case:** A 56 year old gentleman presented with one day history of acute onset right hypochondrial pain and weakness. Imaging revealed gall bladder wall thickening, focal area of non-enhancement and perihepatic and right paracolic collection. Laparoscopy showed hemoperitoneum with gall bladder torsion with omental adhesions to fundus of gall bladder and bleeding omental veins. Conventional laparoscopic cholecystectomy was done after appropriate identification of anatomy at the calot's triangle. He required

2 blood transfusions. Postoperative course was uneventful. He is doing fine at 2 years follow up. **Discussion:** Gall bladder torsion is more common in females, often misdiagnosed as cholecystitis and finally diagnosed intraoperatively. Patients tend to have altered anatomy at calot's and caution is to be exercised to prevent injury during laparoscopy. Case reports have shown that laparoscopy is feasible in gall bladder torsion as can be seen from our case. **Conclusion:** Identification of gall bladder torsion begins with clinical suspicion managed by appropriate diagnosis and prompt surgery. Laparoscopy is feasible and safe but, to be done with caution due to frequent presence of altered anatomy.

EV10 3206

Laparoscopic remnant cholecystectomy with intraoperative cholangiogram. Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi

Introduction: Laparoscopic remnant cholecystectomy is one of the challenging to perform. Tolerance for conversion is very low. Completion of surgery laproscopically decreases the morbidity associated with open procedure. We would like to share one of these experience. **The Case:** 45 years old male patient diagnosed to have remnant cholecystitis with large stones within was taken up for laproscopic remnant cholecystectomy. Dense adhesion was noted and slowly dissected to get on to pericholecystic plane. Calots triangle was identified, cystic artery clipped and divided. Cystic duct clipped distally and IOC done. After confirming the exact anatomy, cystic duct clipped and divided. Remnant extracted out and hemostasis achieved

EV11 3216

Laparoscopic intraoperative cholangiogram. Adithya GK, Satya Prakash Jindal, Varun Madaan, Vivek Tandon, Deepak Govil, Apollo Hospitals, New Delhi

In current day practice the role of intra operative cholangiogram (IOC) during routine laparoscopic cholecystectomy remains controversial. But in patients with intermediate risk for choledocholithiasis, unclear Calots triangle and when cholecystectomy needs to be delayed after ERCP for any reason IOC is an extremely useful tool in the hands of the surgeon. The procedure of IOC is acquired with little extra effort while doing laparoscopic cholecystectomy. Though this video will show the detailed procedure of IOC.

Miscellaneous

Oral papers

IM6 3200

Comparison of CT portography and Color Doppler in Extrahepatic Portal Vein Obstruction. Dhruv Jain, Peush Sahni, Nihar Dash, Sujoy Pal, Raju Sharma, Madhusudhan KS, AIIMS, New Delhi

Introduction: EHPVO is a common cause of portal hypertension in the developing countries (up to 30% of all variceal bleeders) and is second to cirrhosis in the West (up to 5–10%). A number of radiologic techniques have been successfully used to study the portal system. Ultrasonography (USG) is a reliable non-invasive technique. Combination of ultrasound (USG) with color Doppler is the initial screening modality as it is non-invasive, free of radiation, easily available and relatively cheap. However there are well known and documented limitations of USG in presence of excess bowel gas, obesity and it is operator dependent. With the rapid development of Multidetector CT technology, intravenous CT portography (CTP) can be performed with good quality. CT is not operator-dependent than USG or color Doppler and circumvents the obstacles presented by bowel gas. However, CT portography is not without limitations. It utilizes ionizing radiation and iodinated contrast medium used in high doses for CT portography has nephrotoxic effects and can lead to anaphylactic reactions. Comparison of CT portography and color Doppler for diagnosis and management of patients with EHPVO is lacking in literature. **Methods:** 50 patients of EHPVO were enrolled. They underwent both Doppler USG and CT portography within 7 days which were reported by two different radiologists. The primary aim was to compare the two modality with respect to various parameters defined in a reporting proforma. **Results:** Doppler was 91.6% sensitive and 85.71% specific for SV visualization, 94.74% sensitive and 83.3% specific for visualization for SMV and 100% sensitive for visualization for LRV as compared to CT portography. Grade of visualization was concordant between the two modality in 39/50, 35/50 and 26/50 for SV, SMV and LRV respectively. **Conclusions:** Our study shows that Doppler USG done by an experienced radiologist is comparable to CT portography. Patients with EHPVO can be managed with Doppler USG alone as CT portography does not provide any extra information in majority of cases.

Oral videos

OV3 3504

Porto caval shunt for BCS (Video). Sharvari G, Pujari, Vinay Mahala, RY Prabhu, Chetan Kantharia, Seth GS Medical College and KEM hospital, Mumbai

Introduction: Surgical shunts for portal hypertension and variceal bleeding are rarely undertaken today, in large part as a result of the improved technology and outcome of trans jugular intrahepatic portosystemic shunting (TIPS). As a result, the number of hepatobiliary surgeons who have expertise in surgical shunting is declining, which further contributes to the declining number of surgical shunts performed. However there is still a role for shunt surgery in the case of Budd Chiari syndrome (BCS) when there is non availability or non-affordability of TIPS or Liver Transplantation. **The Procedure:** We present a video of porto caval shunt surgery done for BCS. In the video, the young female patient having BCS and ascites & Child A status was operated as she was not affording TIPS. Porto caval shunt was done using PTFE graft in a side to side manner. Reduction in portal vein pressure was confirmed intra operatively. Post operatively patient was relieved of ascites & was free of diuretics at the end of three months. **Conclusions:** Side to side porto caval shunt is good & feasible option for BCS.

OV4 3433

Spleen and pancreas in thorax!! Laparoscopic management. Azaz Ahmed, Harshavardhan Majety, JKA Jameel, Apollo Hospitals, Chennai

Bochdalek hernia is a congenital diaphragmatic hernia caused by failure of posterolateral diaphragmatic foramina to fuse properly. The incidence is reported 1 in 2200-12500 live births, and Bochdalek hernia usually occurs in 80-90% on left side. Bochdalek hernia in adults is extremely rare with nearly 100 cases published in literature. Management includes reduction of contents and repairing the defect through laparotomy/thoracotomy. Surgical repair has been done by laparotomy traditionally. However, laparoscopy has been used frequently off late. Here, we present a video of laparoscopic reduction of diaphragmatic hernia and repair of defect. A 42 year old female presented with left sided abdominal pain for 1 month and vomiting for 4 days. On evaluation she was found to have large left diaphragmatic hernia with stomach, spleen, pancreas, splenic flexure in left thorax. She was managed by laparoscopic reduction and mesh repair of hernia. Postoperatively, she

recovered well and was discharged after 5 days. This video demonstrates the meticulous handling of vital organs and gentle manipulation that needs to be exercised during laparoscopic repair of such cases.

Poster session

M1 3484

Neuroendocrine tumors of the gastrointestinal tract seen over 8 years in a single GI surgical unit. Manish Harinarayan Upwanshi, Siddharth Mehrotra, Vivek Mangla, Shailendra Lalwani, Amitabh Yadav, Naimish Mehta, Samiran Nundy, Sir Gangaram Hospital, Delhi

Introduction: Neuroendocrine tumors (NETs) are rare growths which may occur in any part of the body but are seen most frequently in the endocrine, central nervous systems and gastrointestinal (GI) tract. In the gastrointestinal system they occur mainly in the pancreas (pNETs), intestine (GI-NETs) and liver. They are reported to have an annual incidence of about 25 to 50/10⁶ for GI-NETs and 1 to 4/10⁶ for pNETs. They are being more frequently recognized recently because of the increasing use of diagnostic techniques like endoscopic ultrasonography and many are detected on post mortem examination having been asymptomatic during life. **Methods:** Between 2010 and 2017 we operated on 46 patients with neuroendocrine tumors and retrospectively analyzed, from a prospectively maintained database, their clinical features, investigations, treatment and results. **Results:** There were 30 males and 16 females (M: F 1.9:1) who had a mean age of 55 years (range 40 to 70). The most common site of the primary tumor was the pancreas (43%) followed by the stomach (20%), duodenum (15%), liver metastasis (11%), rectum (4.3%), colon (4.3%), small bowel (4.3%) and gallbladder (2%). The modes of presentation were intermittent jaundice for pNETs, hematemesis or melena for stomach, pain in abdomen for duodenal, bleeding per rectum for rectal, altered bowel habits for colonic, and pain in abdomen for gall bladder and liver NETs. The diagnosis was made correctly before operation in 35 using mainly a CT scan or chromogranin A assay. 41 patients had elective procedures and 5 were done as emergencies (3 were re-explorations for postoperative bleeding, gastric outlet obstruction and duodenal necrosis and the other two for intestinal obstruction and GI bleeding). The operations included 20 Whipple procedures, 10 gastrectomies and 7 livers and 6 intestinal resections. The operative mortality was 4.3% one after an elective and one after an emergency procedure. We have been able to follow 30 of these patients. 24 are well and 6 have died. **Conclusions:** In our experience neuroendocrine tumors occurred mainly in middle aged males, were most common in the pancreas, their presentation was usually with obstructive jaundice of a long duration, there was a low surgical mortality and a fairly good three-year survival.

M2 3426

Recurrent flexural exanthema (SDRIFE or baboon syndrome) after administration of iodinated radio contrast media during cholangiogram. Midha Karan, Gupta Shahana, Pottakkat Biju, Kumari Rashmi, Gupta Divya, JIPMER, Puducherry

Introduction: The baboon syndrome was described as a form of systemic contact dermatitis that occurred after the administration of a contact allergen in individuals previously sensitized by topical exposure to the same allergen. It presents as an erythema of the buttocks and upper inner thighs resembling the red bottom of baboons.

The Case: Here we describe a case of SDRIFE 24 hours after administration of the iodinated radio contrast medium (RCM), iopomidol in a 40 year old male with obstructive jaundice for whom iopomidol was injected during a cholangiogram. Flexural erythema with pustules developed in axillae, forearms, abdomen and buttocks in the post-operative period. Treatment with systemic steroids 0.5 mg/kg resulted in resolution of all lesions. Patch test was negative with all concentrations of iopomidol but prick test was positive indicating that in addition to cell-mediated type IV allergy type I hypersensitivity also may be involved in the pathomechanism. Oral potassium iodide and a skin-test-negative RCM were administered and both tolerated, indicating that the antigen is related to the molecules and not to iodine itself. **Conclusion:** In all patients undergoing preoperative or intraoperative RCM injection, there is a risk of SDRIFE which needs to be recognized early and treated. This condition is rare and should not be confused with sepsis or vasculitis.

M3 3089

First Case Of Visceral Basidiobolomycosis In Immunocompetent Patient From India. Siddhant Vijay Mathurvaishya, Navneet Tiwari, Guduru Venkat Rao, Pradeep Rebella, Asian Institute of Gastroenterology, Hyderabad

We report an unusual case of rare infection of the colon in a 45-year immunocompetent male with a rare fungus *Basidiobolus ranarum* managed successfully with surgery and antifungals. It is the first case of gastrointestinal infection in an immunocompetent individual reported from India.

M4 3450

Laparoscopic Repair of Congenital Bilateral Morgagni-Larrey Diaphragmatic Hernia: A case report. Ketaki Vivek Gharpure, Kumaravel S, JIPMER, Puducherry

Morgagni hernias account for less than 2% of diaphragmatic defects. These usually presents in older children or adults only being detected incidentally in neonates. Associated anomalies seen with this condition include malrotation, cardiac defects, and multiple syndromes. We report a case of bilateral Morgagni-Larrey hernia in a 20 months male child with Down's syndrome and hypothyroidism. Child was born at a tertiary centre and was kept in NICU for 40 days. He then presented with respiratory distress at 5 months age. Bilateral Morgagni-Larrey hernia was confirmed radiologically. Child underwent Laparoscopic Morgagni's hernia repair at 20 months of age and is doing well at 11 months follow up. The diagnosis of Morgagni's Hernia may be noticeably delayed due to its rarity and vague nature of presentation, more so when associated with Down's or other severe congenital anomalies. Therefore, a high index of suspicion is recommended in children with Down's syndrome presenting with respiratory distress to ensure timely management. Minimally invasive surgery has now become gold standard in management with better cosmesis, better post op recovery and comparable post operative recurrences.

M5 3225

Delayed traumatic diaphragmatic hernia after lap splenectomy: Case Report. Jignesh Patel, Hitesh Arora, Mamta Hospital, Surat, Gujarat

Iatrogenic diaphragmatic hernias can occur after abdominal or thoracic, open or laparoscopy surgery. Presentation of a diaphragmatic hernia varies depending on the extent and nature of the organ which has herniated and it may be acute or chronic. The initial diagnosis can be challenging due to the nonspecific nature of the presenting symptoms. Delay in diagnosis poses a significant risk to the patient, and a rapid deterioration can occur in the context of strangulation. We outline case of chronic herniation with acute gastric volvulus through a defect in the diaphragm with pre renal ARF after laparoscopic splenectomy for lymphoma 3 year back . On imaging, required emergency surgery and patient underwent emergency laparotomy f/b primary repair with meshplasty and had a successful outcome.

M6 3301

Mixed Adenoneuroendocrine Carcinoma-Manec:A Case Report Of A Peculiar Presentation Of A Rare Tumour.

Baskaran Dhanapal, Gomathishankar V, Balamourougan Krishnaraj, Sarath Chandra Sistla, Susan Rajan, Aneesh Suresh, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry

Introduction: MANEC or Mixed Adeno-Neuroendocrine Carcinoma as the name suggests is a rare neoplasm consisting of an adenocarcinomatous component and

a neuroendocrine carcinoma component, with each component accounting for at least 30% of the tumor population. They can occur anywhere along gastrointestinal tract like the esophagus, stomach, small bowel, appendix, colon, and rectum. Besides the gastrointestinal tract, it can occur in pancreas, gallbladder, and cervix. They are positive for two out three neuroendocrine markers namely synaptophysin, chromogranin, and CD56. Usually, both components are high-grade carcinomas (G3), but rarely may be of low-grade (G1 or G2). MANEC is an aggressive neoplasm whose clinical behavior is influenced by the grade of each component and has a high propensity for metastasis to the liver. A recent change in nomenclature (WHO classification 2017) has been proposed from MANEC to MiNEN (Mixed Neuroendocrine Non-Neuroendocrine Neoplasm). Hereby we report the instance of a small bowel MANEC arising from the ileum and presenting as a parietal wall abscess. **The Case:** A 51-year-old woman presented with a recent-onset tender swelling in the abdomen associated with pain and intermittent fever. Contrast-enhanced computed tomography (CECT) of the abdomen revealed the presence of a parietal wall abscess communicating with the small bowel, which was suspicious of inflammatory bowel disease. There were no peritoneal signs or features of intestinal obstruction. Open surgical exploration revealed the presence of a mass lesion formed by greater omentum adhered to a segment of ileum, which in turn was communicating with the parietal wall abscess. Based on above findings, the diagnosis of Crohn's disease was considered, and the segment of affected bowel along with greater omentum was resected, and the parietal wall abscess was drained. Histopathological examination of the resected specimen showed a highly cellular tumor with cells arranged in glands, nests, and sheets. More than 30% of cells were positive for synaptophysin and chromogranin while remaining cells were positive for panCK. The Ki 67 labeling index was very high (60%). Based on the above findings, a diagnosis of high-grade mixed adenoneuroendocrine carcinoma was made. Re-exploration of the abdominal cavity was done, and omentectomy along with excision of the parietal wall involved by the tumor was performed. Postoperative histopathological examination revealed that the abdominal wall and residual omentum were free of tumor. There was a cystic lesion in the segment 6 of the liver. Intraoperatively biopsy was taken, which revealed it as a metastatic deposit. She was treated with adjuvant chemotherapy and is asymptomatic on follow-up. **Conclusion:** Mixed Adeno-Neuroendocrine Carcinoma (MANEC) is one of the unique causes of small bowel malignancy. The surgeon needs to be aware of the possibility that besides inflammatory bowel disease and abdominal tuberculosis, small bowel malignancies can unusually manifest as localized parietal wall abscess.

M7 3036

Paraduodenal neuroendocrine tumour with liver metastasis effectively managed by radioguided surgery and intraoperative radiofrequency ablation following 'neoadjuvant' peptide receptor radionuclide therapy. Vinay Samuel Gaikwad, Paras Hospital, Gurgaon

Introduction: Primary lymph nodal neuroendocrine tumours are rare. Even more infrequent is the novel utilization of multimodal therapy including peptide receptor radionuclide therapy (PRRT), radioguided surgery (using a hand-held gamma probe), and intraoperative radiofrequency ablation (RFA) for liver metastasis. We present a case where a combination of these techniques was used with success. (video available). **Methods:** A 59-year-old gentleman with a permanent pacemaker for atrial flutter presented with retrosternal burning, secretory diarrhea and weight loss. Initial investigations such as an endoscopy, capsule endoscopy and CT enterography failed to detect a pathology. An MRI detected a liver lesion with an enlarged node abutting the duodenum. Serum chromogranin A and gastrin levels were elevated. A ⁶⁸Ga PET scan revealed 3 liver lesions with a paraduodenal lesion showing uptake. Neuroendocrine tumour was highly suspected but multiple attempts at a tissue diagnosis failed. The patient underwent one sitting of PRRT after which there was one residual liver lesion. The patient was then planned for definitive surgical management. **Results:** 48 hours after a second sitting of PRRT, the patient was taken up for surgery. We used a hand-held gamma probe to conclusively localize the paraduodenal lymph node and rule out duodenal involvement. A frozen section and SPECT of the specimen were used for confirmation. An intraoperative ultrasound was used to localize the liver lesion and RFA was performed. The patient recovered uneventfully. Histopathology revealed a grade 1 neuroendocrine tumour in the lymph node. No primary could be identified. The patient did not receive any postoperative treatment and is disease-free and symptom-free for 38 months. **Conclusions:** Uncommon clinical scenarios usually demand uncommon management strategies. Multidisciplinary and multimodal treatment can and should be used when indicated for neuroendocrine tumours even in a metastatic setting.

M8 3085

Morgagni Hernia: Laparoscopic Repair. Jignesh Maganbhai Patel, Mamta Hospital, Surat

Introduction: Morgagni hernia is a rare form of congenital diaphragmatic hernia. **The Case:** A case of Morgagni hernia with GI symptoms treated by laparoscopic surgery, hernial sac was left in situ in this case. **Discussion:** Laparoscopic repair is a safe, minimally invasive, and effective procedure

and has been mentioned as the gold standard and the initial step for repair of a noncomplicated Morgagni hernia.

M9 3095

Intrathoracic gastric perforation. Varun Palnati, Narayana Medical College and Hospital, Nellore

Gastric perforation intrathoracically is a rare and one of the serious complication of diaphragmatic hernias. This condition may easily be iatrogenic as most of the diaphragmatic hernias particularly stomach as content can be mistaken as pneumothorax leading to mismanagement of this condition. Vigilant history taking and careful examination along with proper imaging helps in the early diagnosis of this condition and saving the patient from serious morbidity. I present here a case of gastric perforation occurred intrathoracically due to diaphragmatic hernia which was not diagnosed early.

M10 3189

Incidental Peritoneal Tuberculosis - Case series. Gautam Krishnamurthy, PGIMER, Chandigarh

Introduction: The spectrum of manifestation of peritoneal tuberculosis ranges from chronic subacute state to surgical emergency. Incidentally detected peritoneal tuberculosis is very rare. We present three cases of incidentally detected peritoneal tuberculosis in individuals with no prior history or exposure to TB undergoing surgical exploration for other indications. **The Cases:** Case 1- 31 years lady was planned for laparoscopic cholecystectomy for symptomatic gallstone disease. Intraoperatively, there were diffuse whitish peritoneal nodules seen on laparoscopy. Procedure was deferred. Biopsy of the nodules showed caseation and acid fast bacilli (AFB) positivity suggestive of tuberculosis. After completing 6 months of antitubercular therapy, she underwent laparoscopic cholecystectomy. There was complete resolution of peritoneal tubercles. Histopathology of gallbladder (GB) showed chronic cholecystitis. Case 2- 35 yr old women, on evaluation for right upper quadrant pain was found to have gallstones elsewhere. During the planned laparoscopic cholecystectomy, note was made of multiple nodules all over the peritoneum and mild ascites. Procedure was abandoned suspecting peritoneal carcinomatosis. No biopsy was taken. On evaluation at our centre, CECT abdomen showed calcified enlarged portal lymph nodes with minimal ascites. Ascitic fluid showed raised adenosine deaminase and lymphocytosis suggestive of tuberculosis. Case 3- 27 years male had undergone primary repair of jejunal perforation and divided transverse loop colostomy for blunt trauma abdomen at our centre. There was no peritoneal pathology during the index surgery. On exploration for restoration, there were multiple nodules over the large and small

intestine. There were minimal inter-bowel adhesions. Biopsy of the nodules were consistent with the diagnosis of tuberculosis. He had an uneventful postoperative course and was started on antitubercular therapy. **Discussion:** India is an endemic region for tuberculosis. The rising trend of immunocompromised individuals can have an additive effect. Prior exposure or treatment for tuberculosis is invariably present. Peritoneal tuberculosis occurs in three forms: wet type with ascites, dry type with adhesions, and fibrotic type with omental thickening and loculated ascites. We had three patients with no symptoms of tuberculosis. They can be in their latent phase of pathogenesis or was a resultant of good immune status. All the three patients had diffusely distributed tuberculosis with minimal ascites. There were neither gross bands or adhesions that might cause intestinal obstruction nor gross free fluid to cause symptomatic ascites. Immunocompetent state and absence of prior exposure in all the patients also made the probability of tuberculosis less likely. In most instances, the decision to perform cholecystectomy is based on ultrasonogram. Given the low sensitivity of ultrasound in detecting infiltrating malignant lesions, incidence of incidental carcinoma gallbladder is high. In the first two cases, the procedure was deferred suspecting peritoneal carcinomatosis. Though differences between peritoneal tuberculosis and peritoneal carcinomatosis have been described, they are not accurate. We suggest frozen section, if available, to distinguish between them. **Conclusions:** Incidental peritoneal tuberculosis can pose management dilemmas. Absence of risk factors does not preclude the diagnosis of peritoneal tuberculosis. Usage of frozen section can help in clinching the diagnosis during surgery and plan management accordingly.

M11 3240

Angiomyolipoma masquerading as retroperitoneal liposarcoma. Abinaya R Nadarajan, CMC, Vellore

Introduction: Angiomyolipomas are rare benign tumors of the retroperitoneum commonly arising from kidney. Extrarenal angiomyolipomas are uncommon and very few cases have been reported in literature. Pathologically the tumors possess triphasic features of fat, blood vessels and myoid tissue. **The Case:** We would like to present two cases of retroperitoneal angiomyolipoma presenting as abdominal mass and diagnosed as liposarcoma during the initial biopsy. Two patients, one male and female are presented here. Both of them presented with large abdominal masses and on imaging were suspected to have a retroperitoneal liposarcoma. Preoperative image guided biopsy was reported as a well differentiated liposarcoma. They underwent radical surgery for liposarcoma but on postoperative histopathological examination showed up as angiomyolipoma. The radiologic differential diagnosis

of retroperitoneal fatty tumors must include liposarcoma, lipoma, leiomyoma with fatty change and angiomyolipoma. Usually, the correct diagnosis is made after laparotomy, despite numerous preoperative imaging studies. Angiomyolipoma is usually mistaken for liposarcoma. **Conclusions:** It is important to differentiate retroperitoneal angiomyolipoma from liposarcoma because liposarcoma is malignant and should be treated with radical surgery. In contrast, angiomyolipoma is considered cured after tumor excision. Immunohistochemistry markers like HMB 45, MART1, HHF35, NKI-C3, CD117 are useful to diagnose angiomyolipoma.

M12 3276

Autoimmune Peritonitis- A Rare Case Report. Sri Krishna Nataraj Bollineni, Meenakshi Mission Hospital & Research Centre, Madurai

Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease. Approximately 16% of SLE patients have pleuritis and pericarditis, but peritoneal involvement is extremely rare, and SLE with peritonitis as the first manifestation is an even rarer condition. This is the case report of a 36-year old female with past history of polyarthritis who presented with gastrointestinal symptoms as the major manifestation of the disease, characterized by significant abdominal distension and pain, vomiting, and signs of ascites. An abdominal CT scan demonstrated ascites and marked edematous thickening of the bowel wall. Laboratory tests showed proteinuria, low serum complement levels with positive anti ds-DNA antibodies and anti-nuclear antibodies. The patient was treated with prednisolone with substantial improvement of her clinical condition. Autoimmune peritonitis; systemic lupus erythematosus; intestinal pseudo-obstruction.

M13 3280

Etiological spectrum of abdominal cocoon- A case series and literature review. Titus DK, Abinaya RN, Beulah Roopavathana, Suchita Chase, Sukria Nayak, Christian Medical College, Vellore

Introduction: Abdominal cocoon is a rare cause of intestinal obstruction. It is characterised by fibrocollagenous membrane encapsulating the small and large bowel. It's also known as idiopathic sclerosing encapsulating peritonitis illustrating the fact that idiopathic cause is the most common identified etiology. Few case reports of secondary abdominal cocoon especially due to gastrointestinal malignancy and tuberculosis have also been reported. **Aim:** To study the spectrum of clinical presentation, identify the various etiopathogenesis described and their impact on outcome of surgically managed patients with

abdominal cocoon. **Methods:** The clinical data of twelve different cases of abdominal cocoon presented to our unit from January 2012 to May 2017 were analysed. **Results:** The average age of patients identified for our study was 46 years (range 24 years to 69 years) and predominantly were males (9 male and 3 female). Most common clinical presentation was intestinal obstruction which was seen in 10 patients (83%) and two patients had progressive abdominal distension without obstruction. 11 out of 12 patients had preoperative CT imaging. Primary abdominal cocoon: Seven patients (58.3%) had primary abdominal cocoon and six of them had CT features suggestive of same. All 7 patients had operative findings and histopathology in favour of idiopathic sclerosing encapsulating peritonitis. Only one patient required bowel resection and others had adhesiolysis or membrane excision. 2 out of 7 patients had postoperative partial intestinal obstruction which required conservative management. Secondary abdominal cocoon: Five patients (41.6%) had secondary abdominal cocoon, out of which one was secondary to small bowel adenocarcinoma and the patient succumbed to the disease post operatively. Among 4 patients who had abdominal Tuberculosis, 3 patient's preoperative CT abdomen had revealed evidence of tuberculosis but cocoon was not reported. 2 out of 4 became peritonitic during nutritional build up and required emergency operation. All 4 patients had intra operative findings of dense membrane covering small bowel loops and evidence of tuberculosis. 2 out of 4 patients required bowel resection, stoma creation and re operations with significant morbidity but eventually they responded to anti tuberculous treatment. 3 out of 4 biopsies revealed abdominal tuberculosis and one biopsy was suggestive of primary abdominal cocoon. This patient had received anti tuberculous treatment 2 months prior to operation elsewhere and had showed clinical response. Based on operative findings and prior ATT response, he was continued on ATT with which he clinical improved. **Conclusions:** Abdominal cocoon is a rare cause of intestinal obstruction and preoperative diagnosis is difficult. Preoperative CT may help in reaching diagnosis, but intra operative finding and final biopsy is necessary for etiological diagnosis. Mostly it is idiopathic but it can be secondary to other aetiology like tuberculosis and malignancy as noted in our case series. The secondary abdominal cocoon has high perioperative and postoperative complications including mortality.

M14 3467

Rare Cause of Splenomegaly. Narayana Reddy Dumpa Venkata, Venkatarami Reddy, Sivarama Krishna, Chandramaliteesawaran C, Dinakar Reddy, Sri Venkateswara Institute Of Medical Sciences, Tirupati

Introduction: Primary Angiosarcoma of the spleen is a rare tumor (Thus far, only approximately 200 cases have been reported). Splenic angiosarcomas are usually secondary tumours, and only few primary cases have been encountered. We report a unique primary case of angiosarcoma arising in the spleen in a male patient of 31 year-old and presented to our hospital as palpable mass in Left upper abdomen with associated pain. **Methods:** Primary Splenic Angiosarcoma has variable symptomatology with the potential to present with life-threatening complications. Surgical treatment with splenectomy is considered the only curative intervention for potential long-term disease-free survival. **Conclusions:** Primary Splenic Angiosarcoma is rare, difficult to diagnose, carries a poor prognosis. Suspected in patients with idiopathic splenomegaly or unexplained anemia without evidence of lymphoma, leukemia, or myelofibrosis. Best mode of treatment is prompt splenectomy to improve the survival of the patient.

M15 3481

Laparoscopic repair of diaphragmatic eventeration using endostaplers in adults– Technique. Kapil Nagaraj Palanisamy, Kalayarasan Raja, Sandip Chandrasekar, G Senthil, Biju Pottakkat, JIPMER, Puducherry

Introduction: Diaphragmatic eventeration (DE) is elevation of hemidiaphragm due to progressive atrophy of the diaphragmatic muscles which may become symptomatic even later in adulthood. Superiority of the laparoscopic approach in comparison with thoracoscopic approach is widely debated. Herein we report a totally laparoscopic approach using endostaplers and Endo Stitch in adults and discuss in detail the advantages and limitations of our technique. **The Procedure:** Herein we describe our experience with three cases of symptomatic adult onset DE who were managed by a modified laparoscopic technique where in endostaplers and plication was used sequentially without prosthesis. Laparoscopic repair was done with five ports; two to three of them 12mm to facilitate endostapler application. Initial sutures were taken with endostitch to facilitate traction of the weakened hemidiaphragm and staplers were applied. On an average, three to five staplers were used. Subsequently plication was done to further lower the diaphragm with Endo Stitch. Post operative improvement in pulmonary function was significant and short term follow up showed complete resolution of symptoms. **Conclusions:** Laparoscopic approach is feasible with equitable benefits and in addition to the absence of the need for single lung ventilation, avoidance of visceral injury, and treatment of coexistent abdominal pathology in repair of diaphragmatic eventeration. Use of endostaplers and Endo Stitch shorten the operative time.

M16 3110

Varied Presentation of Diaphragmatic Hernia and eventration and operative result - A Case Series. Aviral Jain, Rohit Dama, Sanjeev Patil, Pradeep R, Guduru Venkat Rao, Asian Institute Of Gastroenterology, Hyderabad

Introduction: Diaphragmatic hernia (DH) is more common in infants (90%). Reporting of cases in adults is limited as patients are asymptomatic especially when defect is small. The potential for strangulation of the herniated organs makes this condition a surgical emergency. Eventration of diaphragm is a congenital condition in which there is absence of muscle fibers in the diaphragm while maintaining all the anatomical attachments normally. Surgical treatment is warranted in symptomatic patients so as to reduce the abnormal ascent of diaphragm. Clinical presentation ranges from asymptomatic cases to serious respiratory or gastrointestinal symptoms. **Methods:** From July 2006 to 20th may 2017, twenty patients underwent surgery. Six-females, fourteen- males; mean age 36 years, range (10 to 62 years). 17 patients had diaphragmatic hernia (3 patients had recurrent hernia), and 3 patients had eventration of diaphragm. Chest X-ray, barium studies, upper gi scopy and CT scan were the modes of investigations. **Result:** All 17 patients had left sided diaphragmatic hernia. The hernia content in 5 patients was transverse and descending colon, 10 patients had stomach, spleen and colon and 2 patients had only stomach as the content. 3 patients presented with eventration of diaphragm with dyspnoea on exertion as the main symptom. Open surgery was performed in 15 cases including all, 3 eventration cases, in 5 cases laproscopic surgery was performed. In all eventration cases mesh plasty were used. In diaphragmatic hernia- hernia contents were reduced and defect was closed with primary repair (5 cases) or mesh (12 cases). All patients recovered well. **Conclusions:** Overlapping abdominal and respiratory symptoms lead to diagnosis of diaphragmatic hernia and eventration, in patients with or without an history of trauma. Chest X-ray, CT scan and barium studies should be done to evaluate diaphragmatic defect, size, location and contents. Abdominal surgical approach is treatment modality of choice in reducing morbidity and mortality. Laproscopic repair with mesh plasty is gaining wide acceptance in treating diaphragmatic hernia and eventration.

M17 3396

Hollow viscus injury due to blunt abdominal trauma. Gangadhar Rao Gondu, NIMS, Hyderabad

Introduction: Management of hollow viscus injury (HVI) due to blunt abdominal trauma (BAT) is a challenge to the clinicians even in the era of advanced imaging and enhanced critical care. Repeated clinical examination with appropriate imaging with multidisciplinary teamwork is the

key for timely intervention in equivocal cases for successful outcomes. Aim of the study was to present our experience over last 4½ years. **Methods:** This is a retrospective study of prospectively collected data of patients treated at surgical gastroenterology department, Nizam's Institute of Medical Sciences, Hyderabad, India over a period of 4½ years (2012-2016). **Results:** A total of 126 BAT Patients were treated in our unit as inpatients during the last 4½ years. Out of 126, twenty patients (15.87%) with HVI in whom surgical intervention was done formed the study group. Contrast enhanced CT Scan abdomen and chest was done in stable patients (13/20), in rest of the patients (7/20) the decision to operate was taken more on clinical grounds along with X-ray abdomen and USG abdomen features. 12 (60%) had jejunal and ileal injuries, 5 (25%) patients had colonic injuries (sigmoid 4, caecum 1). One (5%) patient had extra peritoneal rectal perforation with ascending retroperitoneal fascitis and 2 (10%) had duodenal injury. Two (10%) patients required relaparotomy. We had mortality in 3 (15%) patients and 17 (85%) patients had complete recovery. **Conclusions:** Hollow viscus injury should be suspected in all cases of blunt abdominal trauma. In equivocal cases careful repeat clinical examinations with close monitoring and repeat imaging is highly essential to prevent delay in intervention. Type of procedure is based on time of presentation, degree of contamination, associated injuries and general condition of the patient.

M18 3040

Comparison of Comprehensive Complication Index and Clavien Dindo grading for measuring outcomes following Gastrointestinal (GI) surgery: A prospective observational study in 1000 patients. Samrat Ray, Naimish N Mehta, Vivek Mangla, Shailendra Lalwani, Siddharth Mehrotra, Amitabh Yadav, Samiran Nundy, Sir Ganga Ram Hospital, New Delhi

Introduction: With advances in perioperative patient care and the low mortality rates even after major procedures making comparisons of results difficult, there has been a shift in evaluating the results of surgery from an emphasis on mortality to morbidity events. The Clavien Dindo (CD) grading is a well-established method of assessing the severity of surgical complications and is used widely across many centers of the world. However, the CD grading only records the most serious complication which occurs whereas the new Comprehensive Complication Index (CCI) considers all the complications, minor and major, which have occurred after operation. We examined whether the CCI was better than the CD for measuring severity of complications following GI surgery. **Methods:** Between June 2015 to December 2016 we recorded the complications in 1000 consecutive patients who underwent surgical procedures, both elective and emergency in our unit. Their CD grade and CCI were recorded at the time of

discharge or at 30 days whichever was greater. The primary outcome variables studied were post-operative length of stay (LOS), ICU stay and time to return to normal activity. Correlation of the variables was done using the Spearman's test and the strength of association was calculated using the Bland Altman analysis. Subsequent follow up in terms of readmissions and mortality was done for all the patients.

Results: There were 600 males and 400 females (M:F 3:2) who had a mean age of 50.3 years. 32.8% of the patients had no associated co-morbidity and had an average BMI of 22.1 kg/m². There were 788 (78.8%) elective procedures and 877 (87.7%) procedures were performed via the open route. The 30-day/in-hospital mortality was 7.9% and the mortality during the subsequent follow up was 1.7%. Majority had a CD grade I complication (n=411; 41.1%) and CCIs in the range of 0-10 (n=336; 33.6%, mean 18.6). Both CD and CCI showed a good correlation with LOS (r=0.58; p=0.001, r=0.57; p=0.001), ICU stay (r=0.62; p=0.002, r=0.62; p=0.001) and time to normal activity (r=0.48; p=0.01; r=0.49; p=0.01). There was no difference in the strength of correlation of CD and CCI with the above variables (p>0.05).

Conclusions: Both CD and CCI are equally accurate in measuring the severity of complications and ability to predict the length of ICU and hospital stay in patients who have undergone gastrointestinal surgery.

M19 3311

Analysis of clinico-pathological and immunohistochemical parameters and correlation of outcomes in Gastrointestinal stromal tumors: A prospective cohort study. Vaibhav Varshney, Rakesh Gupta, Vineeta Batra, Pramod Mishra, Sundeep Singh Saluja, GB Pant Institute of Medical Education and Research, New Delhi

Introduction: Gastrointestinal stromal tumors (GIST) are the most common mesenchymal tumors of the gastrointestinal tract. We evaluated our experience over a decade to analyse the clinico-pathological features, resectability, immunohistochemical markers, and various factors predictive of disease recurrence and survival.

Methods: Retrospective analysis of prospectively maintained database of GIST patients managed from 2005 to 2016 was done from the archives of department of surgical gastroenterology and pathology. Size, site, malignant potential, nuclear pleomorphism, histopathological variety, immunohistochemical markers, type of surgery, adjuvant imatinib therapy were analyzed to predict recurrence and overall survival using multivariate analysis and survival curves. **Results:** Ninety-two patients with GIST were analysed. Immunohistochemistry showed positivity for c-kit (82.4%), DOG1 (75%) and PDGFR-alpha (79%). Among 16 patients with c-kit negative tumours GISTs, 10 patients were positive for either DOG1 or PDGFR-alpha or both. The most common primary site was

stomach (44, 47.8%) followed by small bowel (17, 18.5%) and duodenum (14, 15.2%). Extra-intestinal location was seen in 17 (18.5%). Of 92 patients, 80 (87%) underwent R0 resection with organ sparing resection was performed in 56 (70%) patients. The most common histopathological variant was spindle cell type while high mitotic activity (>5/50 hpf) was noted in 30 (32.6%). 53 patients had high malignant potential while 19 (20.7%) had intermediate potential tumours. Thirty-four patients each had tumour size between 5-10 cm and >10 cm. Seventeen (21.5%) patients showed recurrence (Distant n=11, local n=5, both n=1) at a median follow up of 6 years. Median and 5-yr overall survival (OS) was 36 months (12-120) and 75% respectively and 5-yr RFS was 81.8%. On univariate analysis malignant potential, nuclear pleomorphism, high mitotic activity and absence of imatinib therapy were predictors of recurrence. However on multivariate analysis, only nuclear pleomorphism was significant. **Conclusions:** GISTs are indolent tumour managed with organ sparing surgery with low recurrence rate. Nuclear pleomorphism can be considered as an important variable to predict recurrence and an indication to start imatinib in addition to high malignant potential tumors.

M20 3381

Ventral Hernia Repair: Not one size fits all. Monish Karunakaran, Vikas Singhal, Azhar Perwaiz, Amanjeet Singh, Adarsh Chaudhary, Medanta, Gurugram

Introduction: Multiple procedures are now available for repair of ventral hernias including abdominal wall reconstruction techniques. Recent reports suggest that laparoscopic repair of large ventral hernias with bridging mesh may be associated with high rates of recurrence, eventration and seroma. At our institution we now reserve laparoscopic intraperitoneal onlay mesh (IPOM) repairs for defects less than 6 cm maximum diameter. Open repair is carried out either with onlay mesh or retro-rectus mesh placement depending on previous surgeries, and if concomitant abdominoplasty is needed. Further, if the defect cannot be closed primarily an abdominal component separation technique either anterior or posterior with transverse abdominis muscle release is carried out. The posterior component separation technique is typically utilized for defects larger than 12 cm in maximum diameter. We aimed to audit our surgical pattern of ventral hernia repairs since adopting these criteria. We report our initial results. **Methods:** Retrospective review of electronic medical records of all consecutive patients who underwent ventral hernia repair at our institution (tertiary referral teaching hospital) from May 2016 to June 2017. The patient demographics, operative technique, and available follow up data was recorded. **Results:** A total of 82 ventral hernia repairs were done of which 26 (32%) were Laparoscopic IPOM and 56 (68%) Open. Of the patients

who underwent open repairs, 14 (overall 17 %) required component separation for fascial re-approximation. Of the 14 component separations 9 were anterior and 5 were posterior component separations. We were able to close all fascial defects in open surgery except for 2 patients who in spite of component separation needed partial bridging with a composite mesh. No patient demonstrated signs of abdominal compartment syndrome postoperatively and no one needed elective postoperative ventilation. Overall 9 patients had wound related problems in the open surgery group with onlay mesh, of which only 2 needed single debridement in operating room and rest were managed successfully with outpatient wound care. There has not been any reported recurrence so far although we recognize that follow up is short. **Conclusions:** We noted a change in pattern of ventral hernia surgery at our institution with a resurgence of open onlay and retro-rectus mesh repair with utilization of component separation techniques for large defects with low morbidity. We feel that in ventral hernia surgery for best outcomes we need to choose the technique that suits the patient based on various factors as not one size fits all!

M21 3438

Laparoscopic splenectomy for Immune Thrombocytopenic Purpura (ITP) patients with very severe thrombocytopenia: A comparative study.

Shahana Gupta, Raja Kalayarasan, Sandeep Chandrasekar, Senthil Gnanasekaran, Biju Pottakkat, JIPMER, Puducherry

Introduction: Laparoscopic approach is considered as gold standard for splenectomy in patients with Immune Thrombocytopenic purpura (ITP). The evidence for safety and feasibility of laparoscopic splenectomy in patients with very severe thrombocytopenia (<10000/?L) is limited.

Methods: A retrospective study of 32 ITP patients who underwent laparoscopic splenectomy (LS) between July 2012 and November 2016. The ITP patients who had platelet counts <10000/?L (Group A, n=15) and >10000/?L (Group B, n=17) were compared with respect to operative time, blood loss, conversion rate, perioperative blood transfusion, the length of hospital stay and postoperative complications. **Results:** There was no significant difference between the two groups with respect to operative time (p=0.07), intraoperative blood loss (p=0.75), postoperative complications (p=0.23) and hospital stay (p=0.15). None of the patients in the two groups required conversion to open procedure. No intra operative blood transfusion was required. In Group A, 3 patients (with platelet count less than 2000/?L) received platelet transfusion at induction of anesthesia while 10 others received after ligation of the splenic artery. There was no difference in the operative time, blood loss, postoperative complications and hospital stay between them. **Conclusions:** LS is a

safe and feasible procedure for ITP patients with very severe thrombocytopenia. In these patients, the timing of intraoperative platelet transfusion does not influence perioperative and anesthetic complications.

M22 3457

Spectrum of suspected abdominal tuberculosis requiring surgery- A North Indian tertiary centre experience.

Harjeet Singh, Gautham Krishnamurthy, Jayapal Rajendran, Vishal Sharma, Rajinder Singh, PGIMER, Chandigarh

Introduction: India is an endemic region for tuberculosis. Abdominal tuberculosis, affecting the gastrointestinal system and peritoneum manifest with a myriad of presentations. Evidence based medicine requires initiation of anti-tubercular therapy (ATT) after histological confirmation. Early diagnosis and effective management is of paramount importance. However, inappropriate treatment, such as over-diagnosis and partial treatment, can lead to multidrug resistance tuberculosis. **Methods:** Retrospective analysis of prospectively collected data of patients requiring surgery for suspected abdominal tuberculosis from July 2015 to May 2017 was done. The inclusion criteria were (a) Single or multiple eccentric stricture with adjacent lymphadenopathy (b) Mass forming lesions of ileocaecal region with biopsy negative for malignancy (c) Tubercles over parietal and/or visceral peritoneum (d) Thick membrane encasing bowel loops (e) Intestinal perforation with any of the above findings. Patients with histologically proof of non-tubercular pathology were excluded from study. **Results:** A total of 27 patients were included in the study. 19/27 patients had only gastrointestinal tuberculosis and 4 had only peritoneal tuberculosis. Four patients had both. Acute presentations were seen in 9 patients (6-obstruction, 2-perforation peritonitis, 1- massive lower GI bleed). 11/27 had subacute presentations (symptoms more than 14 days and less than 3 months) with all having obstructive symptoms (9- stricture, 2- sealed perforation). 7 patients presented with chronic symptoms. 10 (37%) patients had prior or family history of tuberculosis. 6 patients underwent surgery following non-response to ATT. Ileum was the most common affected site (n=11). Ileo-caecum was affected in 6 patients and jejunum in 2. 3/8 patients with peritoneal disease had sclerosing encapsulating peritonitis. Rest had diffuse multiple peritoneal tubercles. Gastrointestinal stricture was present in 14 patients. 5 patients had mass forming lesions and 4 had perforations. The patient with lower gastrointestinal bleed had multiple ulcers in the ileum with diffuse peritoneal tuberculosis. 14/27 patients had stoma formation. Resection and primary anastomosis was done in 8 patients and 5 had undergone adhesiolysis. 6 patients had ileocaecal resection or right hemicolectomy (4- open, 2- laparoscopic). There were two mortalities secondary to sepsis (both presented with sealed

perforation). Histological analysis showed 19 patients with findings of granulomatous inflammation consistent with tuberculosis. Only 4/19 had acid fast bacilli detected. 8/27 patients had non-specific histology or probable response to ATT (2- fibrosis, 2- stricture, 2- ischemic stricture, 1- eosinophilic gastroenteritis and 1- chronic colitis with colitis cystica profunda). All patients with non-specific changes had prior history of ATT intake. **Conclusions:** In our surgical series, subacute presentation of abdominal tuberculosis was the most common type. Ileum was the most common affected site. High proportion of non-specific histological changes after ATT administration warrants further studies to determine the subsequent need for ATT, especially in partially treated patients operated for failed medical management.

M23 3269

Surgical Volume: how to negate its effect on outcome?

Sumana Kolar Ramachandra, Aravind Kidambi Seshadri, Ravindra MN, Pradeep Rangappa, Amit Rastogi, Sanjay Goja, Vijay Vohra, Arvinder Soin, Columbia Asia Referral hospital, Yeshwanthpur, Bangalore and Medanta Medicity, Gurugram

Introduction: The association between procedural volume and outcomes is well established. Outcomes following liver transplant are reported to have an inverse association with center volume. However, data is scarce on outcomes at a low volume satellite center of a high volume program (HVP). We examined the volume-outcome relationship in a low volume liver transplant unit affiliated to a HVP.

Methods: We performed a retrospective analysis of liver transplants from 2013 to 2016 at a community hospital program with systems and protocols adopted from a HVP where its core team was trained. During evaluation, those with renal failure, sepsis and poor performance were excluded from transplant. Senior surgical back up from the HVP was available when needed. **Results:** Of a total of 45 liver transplants; 25 were deceased donor, and 20 living donor (LDLT). Mean age was 48.67 ± 13.04 years; 37 were males and 8 females. Median Child Turcotte Pugh score was 11 (8-12) and median MELD score 19 (11- 27). Alcoholic liver disease was the commonest etiology (51.58%) The mean duration of surgery was 584.23 ± 216 minutes, blood loss 1917 ± 896 ml, median graft weight in LDLT 571 g (428 - 790) and graft-recipient weight ratio 0.86 (0.67 - 1.52). Morbidity was Clavien Dindo grade 3 in 23.7% and grade 4 in 8.25%. Median ICU stay was 6 days and hospital stay 15 days. Complications included hepatic artery thrombosis 2 (managed by radiological intervention), portal vein thrombosis 1, abdominal bleed 1, and biliary complications 5. Follow up period ranged 6- 47 months. Mortality was 6.66% (3/45) and survival 93.33%. **Conclusion:** The liver transplant outcomes at our low volume centre were excellent. Surgical volume effect can be negated by good training, systems/protocols from a high volume center, and judicious selection of patients.

E-video

EV4 3479

Median arcuate ligament release for MALS. Brahmadata Pattnaik, Asit Arora, Nikhil Agrawal, Devi Singh Dhankhar, Institute of Liver and Biliary Sciences, New Delhi

Introduction: Median arcuate ligament syndrome or celiac artery compression syndrome or Dunbar's syndrome is a rare form of chronic mesenteric ischemia presenting as chronic postprandial abdominal pain and weight loss. There is dynamic compression of celiac trunk by median arcuate ligament. Primary stenting without surgical release has high failure rate. In properly selected patients surgical intervention has good outcomes with 85% rates of symptom resolution. Here, in we presenting video showing feasibility of laparoscopic release of MAL. **The Case:** Presenting here the case of 33 years female with history of post prandial pain in epigastrium and supraumbilical region after heavy meals for the last 4-5 years increased in frequency and intensity over the last 1 year. H/o of vomiting after meals every 2-3 days especially after heavy meals associated with weight loss of 11 kg in last 1 year. CT enteroclysis-14.09.2016- e/o of focal kinking and extrinsic compression of celiac artery, approximately 1.3 cm from origin by prominent diaphragmatic crura. Doppler- 22.04.2017- Deflection of celiac axis is present which is more than 50 degree. Vmax at Expiration- 270 cm /sec, Inspiration- 180 cm/sec. Impression: Hemodynamic significant stenosis is present. Technique: Ports are positioned as 10 mm umbilical port, two 5 mm port on either side in midclavicular line and another port in epigastrium for retraction of liver. Additional port in in left lumbar region can be inserted for retraction of stomach. Hepatogastric ligament is divided, common hepatic artery is identified and traced back towards confluence with left gastric and splenic artery. Celiac axis identified and traced to the point of dipping towards aorta. Median arcuate ligament and fibrofatty/ lymphatic tissue of celiac axis dissected with harmonic and cautery till origin of celiac artery from aorta clearly seen. The constricting band of celiac axis also divided and 2 cm of cranial aorta also cleared of fibrofatty tissue. Doppler is performed preoperatively as well post release of ligament. Intraoperative Doppler post release-no turbulence of flow seen. PSV- 151 cm/sec. **Results:** Patient has uneventful postoperative course. All Intravenous analgesics were stopped on POD1. Patient was allowed orally liquids on same day and normal diet by POD1. She tolerated it well. Remained pain free after meals. Patient was discharged on POD2. Till date [2 months post op] patient has remained asymptomatic with no pain and leading a normal life. **Conclusions:** Laparoscopic approach is feasible in selected cases of Median arcuate ligament syndrome. Laparoscopic approach has advantage in form of rapid recovery & avoiding wound related complication which is common

after open surgery. Caveats: Although there have been no deaths reported following laparoscopic MAL division, open conversion for bleeding from the perivisceral aorta is a potentially morbid and life-threatening complication that needs to be discussed with patients undergoing this procedure. Late recurrences possible in upto 6% cases.

EV19 3166

Laparoscopic Partial Splenectomy. Anush Mohan, Kerala Institute of Medical Sciences, Thiruvananthapuram

Introduction: Traditionally, splenectomy is considered as the treatment for splenic lesions. The risk of early and late complications and the awareness of immunologic function of spleen have pushed the development of spleen sparing techniques. **The Procedure:** The video demonstrates the operation room settings, patient position, port positions and operative techniques in a case of partial splenectomy. **Conclusions:** Laparoscopic partial splenectomy is safe and effective in patients with focal benign splenic lesion. Meanwhile, this technique potentially retains some splenic function, and confers the benefit of a minimal access technique.

EV20 3263

Laparoscopic Splenectomy for Massive Splenomegaly with Splenic artery aneurysm. Kamalesh NP, Kartik K, Prasanth R, Prasanna R, Pramil K, Shaji P, Solomon John, Sathish Iype, PVS Memorial Hospital, Cochin

A 59 year old lady presented with generalized malaise and anorexia of 6 month's duration. She was a known case of unconjugated hyperbilirubinemia due to congenital hemolytic anemia on follow up. On examination she had pallor and massive splenomegaly and on further evaluation she was detected with pancytopenia and a contrast enhanced CT abdomen showed a massive splenomegaly along with an aneurysm involving the splenic artery just proximal to its division into polar branches. Hence, with a diagnosis of symptomatic splenomegaly, hypersplenism and splenic artery aneurysm, she was planned for a laparoscopic splenectomy. We present a video, which details the technique of laparoscopic splenectomy.