EP268
DUODENAL ADENOCARCINOMA.
RELATIONSHIP BETWEEN TYPE OF SURGERY AND SITE OF RECURRENCE
G. Blanco-Fernández1, D. Aparicio-López1, C. Villodre1, I. Jáen-Torrejimeno1, A. Serrablo-Requejo2, C. Alcázar2, D. López-Guerra1, M. Serradilla-Martín1 and J. M. Ramia1
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Purpose: The relationship between type of surgery and site of recurrence in non-ampullary duodenal adenocarcinomas has not been studied in detail.

We present a multicenter series, in order to determine the epidemiological characteristics and the oncological results after surgical resection obtained in this rare tumor.

Methods: Retrospective study of patients undergoing surgery for duodenal tumors, from January 2010 to August 2020 at the Hepato-Pancreato-Biliary Surgery Departments of three university hospitals in Spain. Several variables were considered: demographics; tumor location; surgical intervention and immediate postoperative period; and postsurgical follow-up information, such as recurrence, overall survival (OS), and disease-free survival (DFS).

Results: A total of 32 patients with a diagnosis of duodenal adenocarcinoma underwent surgery. The median age was 69.74 years (IQR 60.47-79.09) and the male/female distribution was 3:1. The most frequent tumor site was the second duodenal portion (43.8% of patients). The surgeries performed were: Pancreatoduodenectomy (PD) in 16(50%) patients, segmental resection in 13 (40.6%), and local excision of the lesion in three (9.4%). The R0 rate was 65.6%, and was higher in PD (86.7% vs 42.9%; p=0.013). The OS and DFS rate at one, three and five years was 95%, 70% and 60% and 86, 55 and 48% respectively. There was a greater trend towards recurrence in patients who did not undergo PD (53.8% vs 25%; p=0.14) and conservative surgery seemed to be associated with more local recurrence (57.1% vs 33.5%; p=0.49).

Conclusion: PD and limited resection are both valid options in cases of non-ampullary duodenal adenocarcinoma although PD presented lower rates of loco-regional recurrence.

EP269
PROTEOME ANALYSIS DISTINGUISHES GALLBLADDER CANCER FROM GALLSTONE DISEASE IN PATIENTS OF AFRICAN ANCESTRY
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1University of the Witwatersrand, Surgery, 2Council for Scientific and Industrial Research, Biosciences, and 3Chris Hani Baragwanath Academic Hospital, Surgery, South Africa

Purpose: Gallbladder cancer (GBC) has a poor prognosis with a 5-year survival rate suggesting the need for more effective treatment strategies. Gallstone disease has been identified as a precursor for GBC. Proteomic analysis may prove beneficial in identifying key players of GBC progression. The aim of this study was to identify dysregulated proteins unique to GBC patients in an African patient cohort. Following study approval (M190555), patients were consented and tissue samples obtained.

Method: Protein extraction was performed on GBC and gallstone disease tissues (30 GBC and 9 gallstones). Thereafter, liquid chromatography-mass spectrometry was performed and approximately 2 μg of peptides per sample was analysed using a Dionex 3000 RSLC system coupled to an AB Sciex 6600 TripleTOF mass spectrometer. A spectral library was built in Spectronaut v14 (Biognosys Schlieren, Switzerland) using the Pulsar search algorithm.

Results: The built spectral library contained 34 794 peptides matching to 4 249 protein groups. There were 64 dysregulated proteins (35 upregulated and 29 downregulated) in GBC patient. A q < 0.001 and fold change (FC) 1.5 was applied. The top upregulated proteins include PARP4 (FC = 4.53), LAMC2 (FC = 3.68), and TSP2 (FC = 3.65). The top downregulated proteins include TRYB1 (FC = -4.01), AOC3 (FC = -3.59), and LMOD1 (FC = -3.57).

Conclusion: Pathway analysis showed that the dysregulated proteins were enriched in pathways involved in metabolism and muscle contraction. Therefore, these proteins, which were observed to be involved in key pathways, may be targeted as potential biomarkers and drug targets. Further studies are ongoing to verify the expression of these proteins.

EP270
STREAMLINING THE PATHWAY TO URGENT OUTPATIENT CHOLECYSTECTOMY – A QUALITY IMPROVEMENT PROJECT
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Purpose: It is increasingly recognised that patient outcomes and satisfaction with ‘hot’ cholecystectomy are better than those for delayed surgery for cholecystitis. At Belfast Health and Social Care Trust it has not been possible to manage all eligible patients surgically on their index admission within the allotted resources. In addition, the route to outpatient cholecystectomy was ineffective introducing multiple delays for patients. This project aimed to identify the sources of delay and streamline the pathway.

Methods: Using quality improvement methodology 927 consecutive admissions with acute biliary pathology were followed over 16 months and analysed fully mapping the existing pathways, identifying key interfaces and delays on the patients’ journey to surgery.
Results: Several barriers were identified including unnecessary clinic visits, redundant pre-assessment of fit patients and missed opportunities to provide procedure information or obtain consent. Collaboration with the anaesthetic team led to development of a pre-assessment screening questionnaire which was included in a resource pack introduced for biliary admissions. This also contained a decision-making tool / pathway flowchart, information leaflets, consent and haemovigilence forms. This increases the potential to maximise decision-making and preparations during the index admission. Unfortunately, due to the impact of COVID-19 on elective operating, few patients (n=35) have completed the journey through the new pathway, but ongoing data collection and analysis is anticipated to show significant benefits.

Conclusion: Employing the principles of improvement science has led to a remodelled pathway to urgent cholecystectomy which is hoped to increase efficiency and patient satisfaction.

EP271
IMPACT OF COVID-19 PANDEMIC ON EPIDEMIOLOGY AND MANAGEMENT OF ACUTE CHOLECYSTITIS
University Hospital San Juan de Alicante, Spain

Purpose: The outbreak of SARS-CoV2 required changes in hospital and healthcare management. An important part of all of the available resources usually assigned to emergency and elective surgery were reallocated to attend patients with COVID-19.

The aim of the study was to assess and compare the epidemiology and the management of acute cholecystitis (AC) before and during the pandemic of SARS-CoV-2.

Method: A retrospective study of consecutive patients admitted with the diagnosis of AC 12 months before, and 9 months after the outbreak of the pandemic of COVID19 was conducted (March 2019-January 2021). Demographic, clinical, laboratory, radiological and perioperative data was analyzed.

Results: A total of 182 patients were admitted during the period of the study: 135 pre-COVID and 47 during the pandemic. Median age was 72 years and 55.5% were female. The median age adjusted Charlson Comorbidity Index was 4. A decrease in the admissions per month after the COVID19 outbreak was observed (Figure 1), resulting in a 58.6% decrease compared with the same period the previous year.

There was a non-significant increase in the number of patients with important comorbidities during the pandemic: hypertension (57.8 vs 63.8%), diabetes (26.7vs 38.8%), cardiopathy (29.6 vs 44.7%), and pneumopathy (20 vs 31.9%). The number of patients with chronic kidney disease was significantly higher after the COVID outbreak (9.6 vs 23.4%, p=0.024). Higher number of patients were admitted during the pandemic with symptoms’ duration more than 72 hours without reaching the statistical significance (18.5% vs 29.8%). No other differences in terms of patients’ demographic data, severity of the cholecystitis (Tokyo Guidelines 18), type of treatment (conservative vs surgical/ antibiotherapy vs cholecystostomy/ laparoscopic vs open approach), morbi-mortality, length of hospital stay and cholelithiasis related readmission rate in case of medical treatment were observed (Table 1).

Conclusion: There was an important decrease in the volume of patients admitted with acute cholecystitis during the COVID pandemic. Non-significant increase of patients with relevant comorbidities was noted. No significant differences in the severity and the management of the patients pre-COVID and during the pandemic were observed.

Table 1 Characteristics of patients treated for acute cholecystitis before and during the COVID pandemic.

<table>
<thead>
<tr>
<th></th>
<th>Pre-Covid period n = 135</th>
<th>Covid period n = 47</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>72 (55-82)</td>
<td>72 (57-86)</td>
<td>0.333</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>73 (54.1%)</td>
<td>28 (59.6%)</td>
<td>0.610</td>
</tr>
<tr>
<td>Male</td>
<td>62 (45.9%)</td>
<td>19 (40.4%)</td>
<td></td>
</tr>
<tr>
<td>Comorbidities:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>78 (57.8%)</td>
<td>30 (63.8%)</td>
<td>0.495</td>
</tr>
<tr>
<td>Diabetes</td>
<td>36 (26.7%)</td>
<td>18 (38.8%)</td>
<td>0.142</td>
</tr>
<tr>
<td>Pneumopathy</td>
<td>27 (20.0%)</td>
<td>15 (31.9%)</td>
<td>0.109</td>
</tr>
<tr>
<td>Cardiopathy</td>
<td>40 (29.6%)</td>
<td>21 (44.7%)</td>
<td>0.073</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>13 (9.6%)</td>
<td>11 (23.4%)</td>
<td>0.024</td>
</tr>
</tbody>
</table>
**EP271 Table 1 (continued)**

<table>
<thead>
<tr>
<th></th>
<th>Pre-Covid period n = 135</th>
<th>Covid period n = 47</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Adjusted Charlson Comorbidity Index</td>
<td>4 (2-5)</td>
<td>4(2-6)</td>
<td>0.173</td>
</tr>
<tr>
<td>Duration of symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;72 hours</td>
<td>110 (81.5%)</td>
<td>33 (70.2%)</td>
<td>0.147</td>
</tr>
<tr>
<td>&gt; 72 hours</td>
<td>25 (18.5%)</td>
<td>14 (29.8%)</td>
<td></td>
</tr>
<tr>
<td>Tokyo Guidelines 18 Classification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade I - II</td>
<td>122 (90.4%)</td>
<td>42 (89.4%)</td>
<td>0.784</td>
</tr>
<tr>
<td>Grade III</td>
<td>13 (9.6%)</td>
<td>5 (10.6%)</td>
<td></td>
</tr>
<tr>
<td>Leukocytes</td>
<td>13400 (10200-18400)</td>
<td>15300 (11600-17575)</td>
<td>0.086</td>
</tr>
<tr>
<td>Neutrophils</td>
<td>10414 (7690-15566)</td>
<td>12645 (8747-15653)</td>
<td>0.137</td>
</tr>
<tr>
<td>C reactive protein (mg/dl)</td>
<td>7.40 (1.91-17.14)</td>
<td>5.93 (0.97-14.58)</td>
<td>0.866</td>
</tr>
<tr>
<td>Bilirubin (mg/dl)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (0.98-1.83)</td>
<td>0.808</td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>1.03 (0.85-1.32)</td>
<td>0.93 (0.69-1.22)</td>
<td>0.372</td>
</tr>
<tr>
<td>Treatment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservative/Surgical</td>
<td>55/80 (40.7%/59.3%)</td>
<td>23/24 (48.9%/51.1%)</td>
<td>0.393</td>
</tr>
<tr>
<td>Conservative treatment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholecystostomy/ ATB</td>
<td>10/45 (8.2%/81.8 %)</td>
<td>3/20 (13.0%/87.0%)</td>
<td>0.425</td>
</tr>
<tr>
<td>Surgical treatment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laparoscopic/ Open surgery</td>
<td>64/16 (80%/20%)</td>
<td>22/2 (91.7%/8.3%)</td>
<td>0.233</td>
</tr>
<tr>
<td>Postoperative Morbidity</td>
<td>7 (8.8%)</td>
<td>2 (8.7%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Clavien-Dindo grade ≤ 2</td>
<td>2 (28.6%)</td>
<td>1 (50.0%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Clavien-Dindo grade ≥ 3</td>
<td>5 (71.4%)</td>
<td>1 (50.0%)</td>
<td></td>
</tr>
<tr>
<td>Clavien-Dindo Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 1</td>
<td>1 (14.3%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Grade 2</td>
<td>1 (14.3%)</td>
<td>1 (50%)</td>
<td></td>
</tr>
<tr>
<td>Grade 3a</td>
<td>3 (42.9%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Grade 3b</td>
<td>1 (14.3%)</td>
<td>1 (50%)</td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>1 (14.3%)</td>
<td>0 (0%)</td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>0 (0%)</td>
<td>1 (2.1%)</td>
<td>0.258</td>
</tr>
<tr>
<td>Cholelithiasis related readmission after conservative treatment</td>
<td>26 (19.3%)</td>
<td>7 (14.9%)</td>
<td>0.661</td>
</tr>
<tr>
<td>Length of hospital stay (days)</td>
<td>4 (3-7)</td>
<td>5(3-8)</td>
<td>0.398</td>
</tr>
</tbody>
</table>

**EP272**

**OUTCOME ANALYSIS OF A HOT CHOLECYSTECTOMY SERVICE AT A LONDON DISTRICT GENERAL HOSPITAL: OUR 7 YEAR EXPERIENCE**

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**Background:** Hot cholecystectomy / Early cholecystectomy (within 7 days of diagnosis of gallstone disease) is recommended as per NICE guidelines for management of symptomatic gallstones in healthy adults. We analyzed the outcomes following offering of a hot cholecystectomy service set up at a London District General Hospital over the period of last 7 years (2013-2020).

**Methods:** Retrospective analysis was done from a prospectively maintained database of patients undergoing emergency laparoscopic cholecystectomy over a 7-year period at a London district general hospital. Pooled data was collected from the patients’ files, operation notes, discharge summaries, our trust intranet and patient record storage software and then analyzed with descriptive statistics.

**Results:** A total of 437 patients (n=437) underwent emergency hot cholecystectomy (F:M ratio 1.64:1) with a mean age of 54.4 years. Procedures performed included laparoscopic cholecystectomy (51.5%, n=225), laparoscopic cholecystectomy with intra-operative cholangiogram (44.3%, n=194) and laparoscopic converted to open cholecystectomy (4.2%, n=18). 388 patients (88.7%) underwent surgery within 7 days of admission (Mean = 3.9 days). The mean length of stay post procedure was 3.7 days and the average post-operative hospital stay was 4 days. The post-operative 30-day re-admission rate was 7.3% (n=32). In this cohort, there was a 1.37% incidence of bile leak (n=6), of which 3 were managed conservatively and 3 required post-operative ERCP. The overall mortality was 0.23%(n=1) which was not related to the surgery.

**Conclusion:** In our experience this service can be safely and effectively delivered at the level of a DGH by a dedicated upper GI team with low re-admission rates and complications, even in the older age group.
EP273
IMPACT OF PRINGLE MANEUVER ON THE EARLY RECURRENCE OF COLORECTAL CANCER LIVER METASTASIS AFTER LIVER RESECTION: A SYSTEMATIC REVIEW AND META-ANALYSIS
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1Tsinghua University, 2Tsinghua University, Hepato-Pancreato-Biliary Center, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, and 3Tsinghua University, Institute for Precision Healthcare, China

Purpose: Pringle maneuver (PM) includes continuous PM, intermittent PM (IPM), prolonged PM and other different types of blocking blood flow. The impact of PM on tumor recurrence of hepatectomy in patients with colorectal cancer liver metastases (CRLM) remains controversial. The present study aimed to assess whether different types of PM have an adverse effect on the recurrence of CRLM.

Methods: PubMed, Embase, Web of Science, and the Cochrane Library databases were searched. We registered the protocol at the International Prospective Register of Systematic Reviews (PROSPERO registration number: CRD42020179534). The IPM is defined as the portal triad clamping for several min, followed by several min of reperfusion, repeated as needed. Prolonged PM was defined as ≥20 min continuous or ≥3 cycles for maximally 15-min intermittent ischemia.

Results: Nine studies encompassing 3562 patients were included in this meta-analysis. The pooled HR did not show any significant difference between IPM and non-IPM groups for disease-free survival (DFS) (HR = 0.91, 95% CI 0.80–1.04, P = 0.18). The results showed significant differences between prolonged PM and non-PM groups for DFS (HR = 1.75, 95% CI 1.28–2.40, P = 0.0005) and 1-year DFS rate (odds ratio = 2.77, 95% CI 1.15–6.72, P = 0.02).

Conclusion: These findings suggested that IPM has no effect on DFS, but prolonged PM has an adverse impact on the early recurrence of patients with CRLM; however, further prospective and multicenter studies are needed.

EP274
CONSERVATIVE SPLENIC SURGICAL TREATMENT FOR ABDOMINAL TRAUMA. IS IT SAFE TO PERFORM IN A SECOND LEVEL HOSPITAL?
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1Hospital Universitario Virgen de las Nieves, Surgery and Hepatic Transplant, and 2Hospital Clinico San Cecilio, Surgery, Spain

Introduction: Treatment of splenic trauma is currently based on non-surgical treatment or the use of interventional radiology. The use of conservative surgery of the spleen in splenic trauma remains marginal. It includes the use of partial splenectomy, splenorrhaphy and absorbable meshes.

Methods: A retrospective study was performed over a 16-year period with the intention of recording the diagnostic and therapeutic attitude in a 2nd level hospital, focusing on patients who received conservative splenic surgical treatment for splenic trauma, excluding splenectomies and treatment non-surgical.

Results: 110 patients presented splenic trauma. Spleen-sparing surgery was performed in 15 patients. The grades of splenic lesions were: 1 patient with grade I, 1 patient with grade II, 7 patients with grade III and 6 patients with grade IV. Surgical treatment was splenorrhaphy in 5 patients (33%), hemostatic agents and polyglycolic acid mesh in 4 patients (26%), 3 partial splenectomy with placement of polyglycolic acid mesh (20%), 2 partial splenectomy (13%), and one patient with electrocautery (6%). The median hospital stay was 11 days. None of the patients, initially treated with conservative surgery, required posterior splenectomy and no patient died.

Conclusions: We demonstrate that conservative splenic surgery is a useful and safe technique in splenic trauma, which would have its place in grade II, III and IV trauma in health centers that do not have urgent interventional radiology.
MERGES GENETIC, CLINICAL AND PATHOLOGICAL DATA. TREATMENT RESULTS WE UPDATED OUR TREATMENT PATHWAY, WHICH AN OPTION. TO FACILITATE THERAPEUTIC DECISIONS AND TO OPTIMIZE BORDERS AS PANCREAS PRESERVING DUODENECTOMY MIGHT STILL BE APPROACH WITH INTRAOPERATIVE PATHOLOGICAL REVIEW OF RESECTION.

ENDOSCOPICAL RESECTION WE RECOMMEND A SURGICAL STEP UP APPROACH FURTHER ALLOWS NORMAL ENDOSCOPIC SURVEILLANCE OF PROXIMAL JEUNUM WHICH IS A MAJOR ADVANTAGE AS COMPARED TO THE PD PROCEDURES. IN SUSPECTED MALIGNANCY A STEP UP APPROACH IS NEEDED WITH PD AS THE TREATMENT OF CHOICE.


RESULTS: NO STATISTICAL SIGNIFICANT DIFFERENCES REGARDING MORBIDITY AND MORTALITY WERE SEEN IN BOTH GROUPS. IN THREE PATIENTS OF NON-HEREDITARY GROUP COMPARED TO ONE PATIENT OF THE HEREDITARY GROUP FINAL HISTOLOGY REVEALED MALIGNANCY. ONE PATIENT UNDERWENT SURGERY AFTER ENDOSCOPICAL PARTIAL RESECTION OF A DUODENAL POLY WITH TRANSITION INTO ADENOCARCINOMA. HOWEVER, DURING SURGERY NO FURTHER MALIGNANT CELLS WERE FOUND AND PANCREAS PRESERVING DUODENECTOMY COULD BE PERFORMED.

CONCLUSIONS: THERE IS A TREND TOWARDS MALIGNANCY IN PATIENTS WITH NON-HEREDITARY DUODENAL WALL POLYPS, DESPIE THE EXTENSIVE PREOPERATIVE WORKUP WITH REPEATED GASTRO-DUODENOSCOPIES. THUS PATIENTS WITH NON HEREDITARY DUODENAL-WALL POLYPS SHOULD BE MONITORED CLOSELY AND ENDOSCOPICAL RESSECTION PERFORMED IF POSSIBLE. IN CASE OF MALIGNANCY AFTER ENDOSCOPICAL RESECTION WE RECOMMEND A SURGICAL STEP UP APPROACH WITH INTRAOPERATIVE PATHOLOGICAL REVIEW OF RESECTION BORDERS AS PANCREAS PRESERVING DUODENECTOMY MIGHT STILL BE AN OPTION. TO FACILITATE THERAPEUTIC DECISIONS AND TO OPTIMIZE TREATMENT RESULTS WE UPDATED OUR TREATMENT PATHWAY, WHICH Merges genetic, clinical and pathological data.

EP276

ARE LIVER VASCULAR ANOMALIES A RARE FIND? PRESENTATION OF OUR SERIES AND REVIEW OF THE LITERATURE

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1Hospital Virgen de las Nieves, and 2Complejo Hospitalario de Jaén, Spain

EP277

CLINICAL RISK SCORE MODEL FOR PREDICTION OF PANCREATIC FISTULA AFTER PANCREATODUODENECTOMY

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1Siberian State Medical University, 2Tomsk Regional Oncology Hospital, Surgery, and 3NGIUV Branch of FSBIE DPO RMANPO of the Ministry of Health of Russia, Department of Surgery, Urology, Endoscopy, Russia

PURPOSE: CLINICALLY RELEVANT POSTOPERATIVE PANCREATIC FISTULA (CR-PFF) IS ONE OF THE MAJOR SEVERE COMPLICATIONS
after pancreaticoduodenectomy (PD). Many risk factors associated with the onset of pancreatic leakage after PD have been described. Aims: Develop a new predictive risk scoring model for CR-POPF.

Method: Retrospective study was carried out including of patients who underwent pancreaticoduodenectomy (PD) or pylorus-preserving PD (PPPD). The subjects included 100 patients (87 males and 13 females with mean age 66.5 ± 8.6 years) who underwent PD. Patients were divided into a POPF group and No POPF group patients. POPF severity was classified into three grades: Biochemical leak (grade A) and CR-POPF (grades B and C). Logistic regression was used to create a predictive scoring system.

Results: Computer tomography Hu value of the pancreas < +30 HU (P <0.01, odds ratio (OR) = 4.75, 95% confidence interval (CI): 1.7 – 11.9), pancreatic duct diameter <5 mm (P <0.01, OR = 1.8, 95%CI: 1.1 – 2.6), and intraoperative blood loss >500 mL (P <0.01, OR = 1.5, 95%CI: 1.1 – 2.2) were independently associated with CR-POPF. We established a 8-point risk scoring system to predict CR-POPF (Table 1). The area under the curve was 0.894 and the optimal cut-off value for CR PPFF prediction was 4.

Conclusion: A simple 8-point PPF Risk Score derived during PD/PPPD accurately predicts subsequent CR-POPF. It can be readily learned and broadly deployed. This prediction tool can help surgeons anticipate, identify, and manage this ominous complication from the outset.

### Table 1 Clinical risk score model for prediction of pancreatic fistula after pancreaticoduodenectomy

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Parameter</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>The value of the density of the pancreatic parenchyma according to computed tomography (Hounsfield units - HU)</td>
<td>Hard (&gt; +30 HU)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Soft ≤ +30 HU)</td>
<td>2</td>
</tr>
<tr>
<td>Main pancreatic duct, MM</td>
<td>≥ 5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>≤ 2</td>
<td>3</td>
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<tr>
<td>Intraoperative blood loss, Ml</td>
<td>≤ 500</td>
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<tr>
<td></td>
<td>501-700</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>701 – 1000</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&gt; 1000</td>
<td>3</td>
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</tbody>
</table>

### Introduction: Intraductal papillary neoplasia of the bile duct (IPBN) is a rare variant of cholangiocarcinoma with intraductal growth and a better prognosis. It is characterized by a multifocal growth - biliary papilomatosi - and can present all kinds of pathological transformation. The high frequency of multifocality and high risk of malignancy pose a challenge in the surgical strategy. We present IPNB surgical approach through 3 illustrative cases.

### Methods: Review of IPNB cases treated in our center in the last 5 years. Symptoms, findings at diagnosis, surgical, local, distant recurrence and survival were recorded.

### Results: Case 1: 84-year-old woman with a complex solid-cystic liver lesion in segments 6 and 7. A 6-7 segmentectomy was performed. Pathology: pancreatobiliary-type IPNB, with microinfiltrating carcinoma foci without images of vascular invasion. Free margins. pT1aN0. 9 months after surgery is disease free.

Case 2: 74-year-old man studied for cholangitis was diagnosed with mucinous neoplasia of the bile duct. Cephalic pancreaticoduodenectomy (CPD) was performed. Pathology: pancreatobiliary IPNB infiltrating carcinoma (tubular type). TNM T1 pN0. 22 months after the intervention is disease free Case 3. 54-year-old male with hepatic hilum involvement. Anatomic left hepatectomy, resection of the common bile duct, gallbladder, and hilar lymphadenectomy were performed. Pathology: multifocal noninvasive IPNB, with affected margins. Given the R1 resection, multifocality and the absence of an invasive component and pN0, the patient has been proposed for liver transplantation.

### Conclusion: Surgery is the optimal treatment for IPBN. Sometimes it is incomplete and there is a risk of recurrence, both due to margin affection and multifocality. CPD and liver transplantation are curative, but the latter should be reserved for N0, non-invasive tumors. Surgical management should begin with partial resections and close monitoring, to select those patients who may benefit from liver transplantation.

### EP278

**SURGICAL STRATEGY IN INTRADUCTAL PAPILLARY NEOPLASIA OF THE BILE DUCT (IPNB) ILLUSTRATED THROUGH 3 CLINICAL CASES**

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EP279
ATYPICAL TREATMENT OF PORTAL HYPERTENSION: REPORT OF TWO CASES

1Hospital General Universitario de Alicante ISABIAL, Surgery and Liver Transplantation, and 2Hospital General Universitario de Alicante ISABIAL, Vascular Surgery, Spain

Portal hypertension (PHT) is an increase in portal pressure (PP) with hepatic venous pressure gradient (HVPG) ≥ 10mmHg. It’s most common etiology is cirrhosis and it can cause ascites, esophageal varices and encephalopathy. Endoscopic ligation, TIPS and liver transplantation have made surgical treatment rarely necessary.

Purpose: We present two cases of unconventional surgical treatment for PHT.

Case 1: 44-year-old woman with antiphospholipid syndrome, on oral anticoagulants, with portal cavernomatosis and a superior mesenteric vein (SMV) aneurysm treated with a PTFE meso-caval shunt 17 years prior, presented with abdominal pain and a palpable mass. CT showed a growing and partially thrombosed SMV aneurysm (11.6x8.4cm) and multiple venous collaterals. We performed spleno-renal shunt with retroperitoneal (lumbotomy) approach using one of her two left renal veins, lowering HVPG from 18 to 4mmHg. A small renal cortical vessel hemorrhage required reinvention without further complications. The aneurysm decreased in size and thrombosed completely, the shunt is open and she remains asymptomatic 18 months later.

Case 2: 50-year-old man with cirrhosis (HCV/alcohol) and a large intrahepatic cholangiocarcinoma. At surgery he had PP=17mmHg (HVPG=13mmHg). After right posterior sectorectomy PP increased to 21mmHg. A partial porto-caval shunt with end-to-side renopetal anastomosis using the right renal vein lowered PP to 16mmHg (HVPG=9mmHg). Postoperatively he presented mild encephalopathy and was discharged on the 8th day. Follow-up imaging demonstrated permeability in the shunt 45 days later. He died five months later due to worsening cirrhosis.

Conclusions: Portosystemic surgical bypass techniques are useful tools in selected cases and must remain in the surgical armamentarium.

EP280
TELECONSULTATION APPLIED IN THE FOLLOW-UP OF PATIENTS AFTER HEPATO-BILIARY-PANCREATIC SURGERY

1Hospital Universitario de Badajoz, Department of HPB Surgery and Liver Transplantation, and 2Servicio Extreño de Salud, Spain

Purpose: In Spain there are areas characterised by great geographical dispersion, rurality and low population density, which hinders equity in care. Teledmedicine is an alternative capable of bringing hospital medicine closer to centres with less accessibility and reducing unnecessary travel.

Objectives:
- To carry out a socio-demographic analysis of the patients attended by means of telemedicine during 2019.
- To analyse the savings in time, kilometres and costs that a teleconsultation monitoring system has entailed in 2019.
- To analyse the teleconsultation activity carried out by our department between 2016 and 2019.

Methods: Retrospective, observational study, using the appointment reports from the electronic medical record of patients seen in the telemedicine rooms of our hospital between 2016-2019.

The distance (Kms and time) from the location where the teleconsultation took place to our centre was calculated using the Google Maps application. The economic estimate of the cost of travel was based on reports from companies such as Diners and Captio and the amount proposed by the Spanish Tax Agency.

Results: In 2016, the follow-up of patients through Telemedicine began. Since then, until 2019, 550 teleconsultations have been carried out, with an annual growth rate of 65.80%.

In 2019, 196 teleconsultations were managed for 142 different patients. This represents 8.31% of the total number of consultations carried out by the service.

Of the 142 patients, 53.52% were female. The mean age was 63.63y (SD 15.08); Range between 19 -94y. 61.97% (88) of the patients had a diagnosis of malignancy. The most frequent diagnoses were hepatic and pancreatic malignancy (26.06% each). With regard to the location, liver pathology, both malignant and benign, was the most frequent(44.37%). 75.90% of the teleconsultations were carried out in the hospital closest to the patient’s home and 24.10% in the primary health centre.

The completion of 47,264 kilometers has been avoided. The distance in kilometers to our center has ranged between 28-224, with 55% of patients at a distance > 100 km.

The economic savings in trips has been 8,980.16-10,398.08 euros.

Conclusions:
- The use of teleconsultation in hepato-biliopancreatic surgery is possible and is increasing in our center, being applicable for both benign and malignant pathology.
- The use of teleconsultation for the follow-up of our patients has a high impact on travel and economic savings for the patient and the health system.

EP281
RESECTION OF THE InferIOR VENA CAVA IN DIFFERENT NEOPLASM

Hospital Universitario de Badajoz, Department of HPB Surgery and Liver Transplantation, Spain
**Purpose:** The involvement of the inferior vena cava (IVC) in advanced abdominal tumors is a surgical challenge, given the high postoperative morbidity and poor long-term prognosis. IVC reconstruction is not always required due to the formation of collateral veins. Our goal was to analyze our experience, perioperative management, and results.

**Methods:** We retrospectively evaluated short and long-term results of surgical resections of tumors with associated inferior vena cava resection performed in our facilities between 2012 and 2020.

**Results:** 15 patients were selected for our retrospective study: 1 with renal carcinoma, 4 with sarcoma, 7 with colorectal metastases, 2 with adrenal tumors, and 1 with hepatocellular carcinoma. 7 were male with an average age of 59.06 years. The postoperative severe complications (Dindo-Clavien ≥ IIIa) affected 40% of patients and the mortality rate was 13.3%. Partial resection with primary repair was performed in 7 patients (46.7%), with patch reconstruction in 1 (6.7%), thrombectomy in 2 (13.3%), and vascular reconstruction with prosthesis in 5 patients (33.3%).

The average follow-up was 30.62 months. The 1, 3 and 5-year OS rates were 100%, 91% and 43%, respectively; excluding the postoperative mortality. The mean DFS was 11.53 months. The 1, 3 and 5-year DFS rates were 46%, 18% and 18%, respectively. Graft thrombosis occurred in 3 patients (20%) during follow-up. Six patients were prescribed follow-up anticoagulation.

**Conclusion:** IVC resection, though a technically demanding procedure, can be safely performed to achieve complete tumor resection with relative survival improvement and acceptable mortality and morbidity rates in selected patients.

**EP282**

**HEPATOBILIOPANCREATIC SYMPTOMS IN PATIENTS ADMITTED TO AN INTENSIVE CARE UNIT WITH A DIAGNOSIS OF SARS-COV-2 INFECTION**


*Hospital Universitario Príncipe de Asturias, Spain*

**Introduction:** COVID-19 infection has been characterized by respiratory manifestations. After the experience of the current pandemic, it has been shown that the profile of manifestations of this infection is not limited exclusively to the respiratory system.

**Purpose:** To analyze the hepatobiliarypancreatic manifestations of COVID-19 infection in patients admitted to the ICU.

**Methods:** We carried out a retrospective observational study in a polyvalent ICU of a second level hospital. We collected demographic variables, severity scales at admission, comorbidities, analytical data, treatment received and mortality. Statistical analysis was performed with IBM SPSS Statistics 25.

**Results:** 101 patients were admitted, 26 requiring transfer due to the absence of beds in our Unit, which have been excluded from the present study. Of the 75 patients in our sample, 67.6% were male with a mean age of 59.66 years. 80.3% were obese, 43.4% had a history of arterial hypertension, 22.4% were diabetic, 48.7% were dyslipidemic, and 29.9% were bronchopathic. The average score on the APACHE II was 16.83 and on the SOFA 6.8. All were admitted with the diagnosis of severe respiratory failure secondary to atypical pneumonia without any clear hepatobiliarypancreatic manifestation. 67.6% had a cytolytic pattern (elevation of GOT and / or GPT), 64.9% had a cholestatic pattern (elevation of alkaline phosphatase, GGT and / or bilirubin). 5.4% suffered from ischemic hepatitis. None of the patients admitted to the unit had cholecystitis or acute pancreatitis. The multivariate analysis shows a statistically significant relationship between obesity (BMI > 30) and elevation of enzymes with a cytolytic pattern (P = 0.04).

None of the treatments administered to patients with COVID-19 infection (Kaletra, Rezolsta, Tocilizumab, Interferon, Chloroquine) is statistically significantly associated with any hepatobiliarypancreatic manifestations.

Among all the variables analyzed, no significant relationship with liver ischemia was observed.

**Conclusion:** Despite the fact that the reason for admission of our patients was pulmonary involvement due to SARS-CoV-2, throughout their admission they developed alterations in the hepatobiliary profile, probably related to viral infection. In our cohort, it is evidenced that obesity could be a risk factor for increased cytolysis in COVID-19 infection, regardless of the drugs used.

**EP283**

**PRIMARY ABDOMINAL HERNIATION OF HEPATIC CYST**

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*Complejo Hospitalario Universitario de Albacete, Cirugía General y del Aparato Digestivo, Spain*

**Purpose:** Simple hepatic cysts are common benign liver lesions. They are generally asymptomatic and are often found incidentally by abdominal imaging procedures.
Primary abdominal herniation of hepatic cyst is a very unusual form of the presentation.

**Method:** We report the case of a 86-year-old Spanish woman with DM2, arterial hypertension, severe heart failure and AF anticoagulated with acenocoumarol, who presented with painless abdominal tumor and without signs of infection, located in the right upper quadrant, with no traumatic history or previous surgery. Laboratory tests highlighted leukocytosis 23000 with neutrophilia 85%, prothrombin activity 15% and INR 4.5.

An abdominal computed tomography (CT) scan showed an anterior perihepatic cystic lesion, 15 x 15 x 8.5 cm, polylobulated and crossing the right anterolateral abdominal wall, without signs of complications or bleeding.

We proposed surgical intervention to the patient: cystic fenestration plus laparoscopic hernioplasty. The patient, due to age and comorbidity, rejected it.

We decide on outpatient follow-up.

**Results:** Simple hepatic cysts are a common type of benign liver disease, occurring in approximately 1–5% of the general population. They are generally asymptomatic. Increased utilization of diagnostic imaging methods, such as ultrasonography and CT, has enabled the identification of increasing numbers of hepatic cysts in the general population.

Although they are usually asymptomatic, they can produce symptoms, depending on their size, anatomic location, or presence of complications. Most commonly, cyst enlargement can induce a foreign body sensation, epigastric pain, nausea, vomiting and/or postprandial bloating. Primary abdominal herniation of hepatic cyst, as occurred in our patient, is very unusual form of the presentation.

Treatment becomes necessary, however, when huge hepatic cysts cause symptoms and develop complications, such as hemorrhage, adjacent organ damage, and infection. Open or laparoscopic cyst deroofing is a safe and effective treatment for non-parasitic simple hepatic cysts.

**Conclusion:** In conclusion, herniation abdominal primary of hepatic cyst is a very rare complication, but increase the risk of rupture and can lead to acute abdomen secondary.

Treatment (fenestration) of giant liver cysts and, in our case, repair of the abdominal wall is recommended.

**EP284**

**SURGICAL COMPLICATIONS OF PANCREATO-BILIARY ENDOSCOPIC PROCEDURES**


**Hospital Universitario Príncipe de Asturias, General and Visceral Surgery, Spain**

**Purpose:** Complications after endoscopic manipulation of the pancreas and hepatobiliary tree range from 4% to 16% for CPRE and approximately 1% for echoendoscope. These complications include haemorrhage, perforation and septic phenomena (pancreatitis, cholangitis and cholecystitis). The aim of this analysis is to describe our experience in the surgical treatment of these complications.

**Method:** This is an observational retrospective analysis in which we analyse the surgical complications after endoscopic manipulation of hepatobiliary and pancreatic structures from January 2016 to January 2021 at Príncipe de Asturias Teaching Hospital. Patients with complications pancreatic-duodenal and biliary complications after CPRE or Echoendoscopy were classified using Clavien-Dindo score. Patients that required surgical management (Clavien-Dindo IIIb-IV) were included while those treated conservatively were excluded.

**Results:** Eight patients suffered from a complication requiring surgical management after CPRE or echoendoscope from the last 5 years. CPRE caused 75% of the surgical injuries, while 25% were related to echoendoscope. Duodenal perforation was the most frequent complication (37.5%) followed by severe pancreatitis and bleeding phenomena (25% for both complications). The two patients diagnosed of malignancy died in the post-operative period because of tumoral progression. However, all patients with benign discussed are still alive.

**Conclusions:** Surgical complications of pancreato-biliary endoscopic procedures are unusual. However, when occur they are usually life-threatening for patients and become a therapeutic challenge for surgeons. These complications are associated to high morbidity and mortality rates. Prompt diagnosis and correct treatment minimized postoperative major complications and mortality.

### Table 1

<table>
<thead>
<tr>
<th>Case number</th>
<th>Sex</th>
<th>Age</th>
<th>Diagnosis</th>
<th>Endoscopic procedure</th>
<th>Complication</th>
<th>Surgical procedure</th>
<th>Status</th>
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<tbody>
<tr>
<td>1</td>
<td>Male</td>
<td>69</td>
<td>Suspicion of malignancy</td>
<td>CPRE</td>
<td>Duodenal injury</td>
<td>Pyloric exclusion</td>
<td>Death</td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td>79</td>
<td>Choledocholithiasis</td>
<td>CPRE</td>
<td>Infected liver haematoma</td>
<td>Drainage</td>
<td>Alive</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>72</td>
<td>Suspicion of cholangiocarcinoma</td>
<td>CPRE</td>
<td>Fulminant pancreatitis</td>
<td>Open necrosectomy</td>
<td>Death</td>
</tr>
<tr>
<td>4</td>
<td>Female</td>
<td>88</td>
<td>Acute pancreatitis</td>
<td>Echoendoscope</td>
<td>Duodenal perforation</td>
<td>Pyloric exclusion</td>
<td>Alive</td>
</tr>
<tr>
<td>5</td>
<td>Female</td>
<td>55</td>
<td>Choledocholithiasis</td>
<td>CPRE</td>
<td>Severe pancreatitis</td>
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<td>Alive</td>
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<tr>
<td>6</td>
<td>Female</td>
<td>57</td>
<td>Choledocholithiasis</td>
<td>CPRE</td>
<td>Aortic injury</td>
<td>Primary suture</td>
<td>Alive</td>
</tr>
<tr>
<td>7</td>
<td>Female</td>
<td>43</td>
<td>Choledocholithiasis</td>
<td>CPRE</td>
<td>Foreign body into biliary tree (Dormia basket)</td>
<td>Cholecystectomy</td>
<td>Alive</td>
</tr>
<tr>
<td>8</td>
<td>Female</td>
<td>77</td>
<td>Suspicion of malignancy</td>
<td>Echoendoscope</td>
<td>Duodenal injury</td>
<td>Primary suture</td>
<td>Alive</td>
</tr>
</tbody>
</table>
EP285
RECONSTRUCTION OF THE INFERIOR VENA CAVA: DIFFERENT STRATEGIES
Hospital General Universitario de Alicante ISABIAL, Surgery and Liver Transplantation, Spain

Purpose: Resection and reconstruction of the inferior vena cava (IVC) is an unusual and challenging procedure. Malignant disease invading or obstructing IVC is the most frequent entity, while nonmalignant is rare and differential diagnostic is difficult.

Methods: We report two cases required resection and reconstruction of IVC.

Results: A 31-year-old man with left lower extremity paresthesias. His work-up revealed a large (9x3 cm) mass at the right renal hilum involving the IVC and right renal vein (RV) with complete thrombosis of bilateral external and common iliac veins (CIV), as well as the infrarenal IVC. The tumor contacted the aorta in greater than 90 degrees, as well as the third portion of the duodenum.

Surgical intervention: through a midline laparotomy, we attained complete control of the IVC (above and below) as well as left RV and bilateral CIV. The IVC was transected at its origin. After thrombectomy of both iliac veins, no relevant venous flow was observed, therefore we sutured the lower IVC stump. We then divided the left RV and the IVC above the RV level, extracting the tumor en-bloc with the IVC and the right kidney. Finally, we anastomosed the left RV to a “cone” cavoplasty of the remaining IVC stump.

Histologically, it was a large (11x4.5 cm) benign mesenchymal tumor involving the right renal hilum, with the diagnosis of calcifying fibrous tumor, a rare benign tumor. During follow-up after 6 years patient develops post-thrombotic syndrome of the lower limbs and subcutaneous venous collateral circulation, but without any evidence of tumor recurrence.

On the other hand, we present a 39-years-old male with a history of left nephrectomy after inferior vena cava and left RV thrombosis when he was one month old. He came for outpatient consultation due to recurrent deep vein thrombosis and thrombophlebitis. CT scan revealed absence of the infrarenal IVC with prominent collateral veins in multiple pathways. Due to unfavorable response to medical treatment, a surgical approach was offered. IVC reconstruction was performed with cadaveric vein graft, from the remaining iliac veins to the junction of the IVC with the right RV. At 2 years of follow up, the patient presented partial clinical improvement, nevertheless, an MRI scan showed thrombosis of the graft.

Conclusion: Transplant and Hepato-Pancreato-Biliary surgeons are familiarized with IVC approach, but surgical treatment is usually difficult and may require a major vascular reconstruction.

EP287
ATYPICAL TREATMENT OF PORTAL HYPERTENSION. REPORT OF TWO CASES
Hospital General Universitario de Alicante, General Surgery, Spain

Portal hypertension (PHT) is an increase in portal pressure (PP) with hepatic venous pressure gradient (HVPG) ≥ 10mmHg. It’s most common etiology is cirrhosis and it can cause ascites, esophageal varices and encephalopathy. Endoscopic ligation, TIPS and liver transplantation have made surgical treatment rarely necessary.

Purpose: We present two cases of unconventional surgical treatment for PHT.

Case 1: 44-year-old woman with antiphospholipid syndrome, on oral anticoagulants, with portal cavernomatosis and a superior mesenteric vein (SMV) aneurysm treated with a PTFE meso-caval shunt 17 years prior, presented with abdominal pain and a palpable mass. CT showed a growing and partially thrombosed SMV aneurysm (11.6x8.4cm) and multiple venous collaterals. We performed spleno-rennal shunt with retroperitoneal (lumbotomy) approach using one of her two left renal veins, lowering HVPG from 18 to 4mmHg. A small renal cortical vessel hemorrhage required intervention without further complications. The aneurysm decreased in size and thrombosed completely, the shunt is open and she remains asymptomatic 18 months later.

Case 2: 50-year-old man with cirrhosis (HCV/alcohol) and a large intrahepatic cholangiocarcinoma. At surgery he had PP=17mmHg (HVPG=13mmHg). After right posterior sectorectomy PP increased to 21mmHg. A partial porto-caval shunt with end-to-side renoportal anastomosis using the right renal vein lowered PP to 16mmHg (HVPG=9mmHg). Postoperatively he presented mild encephalopathy and was discharged on the 8th day. Follow-up imaging demonstrated permeability in the shunt 45 days later. He died five months later due to worsening cirrhosis.

Conclusions: Portosystemic surgical bypass techniques are useful tools in selected cases and must remain in the surgical armamentarium.

EP288
PREDICTIVE FACTORS OF CONVERSION IN LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CALCULOUS CHOLECYSTITIS
F. Medhioub, G. Talbi, S. Gabsi, H. Ben Chaabane, H. Mestiri and B. Rached
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Conclusion: Transplant and Hepato-Pancreato-Biliary surgeons are familiarized with IVC approach, but surgical treatment is usually difficult and may require a major vascular reconstruction.

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ATYPICAL TREATMENT OF PORTAL HYPERTENSION. REPORT OF TWO CASES
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Conclusions: Portosystemic surgical bypass techniques are useful tools in selected cases and must remain in the surgical armamentarium.
Purpose: Identify the predictive factors for conversion and to evaluate conversion’s impact on postoperative morbidity and mortality.

Method: A retrospective study in the surgical department at Mongi Slim Hospital. We enrolled 300 patients who underwent LC for ACC between January 2015 and December 2018. Patients were divided into two groups: “Laparoscopy” for the 282 successful Laparoscopic cholecystectomies (LC) and “Conversion” for the 18 Conversions to open (CTO). A descriptive analysis of preoperative, intraoperative and postoperative data was performed, followed by a bivariate and a multivariate analysis comparing the two groups. The significance level was set at 0.05.

Results: The conversion rate was 6%. The sex-ratio was 0.47. The median age was 50 years with interquartile range of 38-62 years. Bivariate analysis identified the following factors: male gender (p=0.001), age over 57 years (p=0.002), right upper quadrant tenderness (p=0.009), right upper quadrant guarding (p=0.006), leukocytosis > 18000 cells /mL (p=0.002), leukopenia (<0.001), serum creatinine level > 20 mg/L (p=0.045), ultrasonographic findings like laminated gallbladder wall (p=0.033), pericholecystic abscess (p=0.045), liver abscess (p<0.001), intra-abdominal effusion (p=0.001), ACC grade II (p=0.009) and intraoperative findings like pericholecystic adhesions (p<0.001), gangrenous ACC (p=0.001), pericholecystic abscess (p=0.005), localized peritonitis (p=0.028), pectus (p=0.006), difficulties in identifying anatomical structures (p=0.014) and bile duct injuries (p<0.001). Multivariate analysis determined as predictive factors: male gender (OR=3.715; 95% CI [1.101-12.541]; p=0.03) and age over 57 years (OR=1.038; 95% CI [1.077]; p=0.04).

There were no differences between the two groups in terms of postoperative morbidity and mortality. However, CTO was associated with a prolonged length of stay (p=0.02).

Conclusion: The predictive factors of CTO are not modifiable. Their identification may help conduct a better communication with the patient and optimize the planning of the procedure.

EP289
HEMORRHAGE DUE TO AORTIC INJURY AFTER ERCP
M. Perez, A. Sanchez Gollarte, S. Soto, J. Minguéz, D. Cordova, R. Alvarado and A. Gutierrez
Hospital Universitario Príncipe de Asturias, Spain

Purpose: Endoscopic retrograde cholangiography is an established procedure for bile duct drainage that can lead to serious complications. The most common are acute pancreatitis, post sphincterotomy hemorrhage, cholangitis, and duodenal perforation. The objective of this work is to present a complication not described in the literature that occurred in our center: aortic perforation.

Method: We describe a case of aortic perforation after ERCP that occurred in our center. The patient underwent ERCP for cholecholithiasis during which sphincterotomy was performed, showing jet bleeding. Haemostasis with epinephrine injection was attempted without success. The patient began with hemodynamic instability after the procedure, for which she was transferred to the ICU. After stabilization, CT angiography was performed, which showed active bleeding from what appears to be the anterior aspect of the abdominal aorta at the infrarenal level.

Results: Given the hemodynamic instability and the area of the lesion, the patient was not considered a candidate for vascular embolization, and therefore a surgical intervention was decided. At surgery, retroperitoneal hematoma was evidenced in zone 1 due to a punctate lesion of about 2 mm on the anterior surface of the infrarenal aorta. The injury was sutured after clamping the aorta. The patient had a good postoperative evolution and she was discharged 5 days after the procedure.

Conclusion: Complications after ERCP are relatively rare but cause significant morbidity and mortality. Many of the patients who present bleeding as a complication can be managed conservatively. However, moderate bleeding may require a new endoscopy to perform hemostasis or angiography with embolization. In cases of severe bleeding such as the one we present, emergent surgical management should be considered first.

EP290
SURGERY OF ARTERIAL ANEURYSMS OF THE CELIAC TRUNK
HU Ramon y Cajal, Spain

Purpose: To evaluate the different techniques and results of open surgery for visceral aneurysms.

Methods: We present a series of all aneurysms that underwent surgery at a tertiary referral hospital of the Spanish Health System during the last 10 years.

Results: 6 patients underwent elective surgery for aneurysms of the celiac trunk or its branches (median age 67, female: male ratio 2:1). Splenic artery was the most frequent location (4 patients 67%), 1 celiac trunk and 1 proper hepatic. All of them were asymptomatic at diagnosis, the reason for surgery being size in 5 cases 83% and progressive growth during follow up examinations in another patient. Average diameter at surgery was 27.3 mm. Splenic artery aneurysms were treated with splenectomy in 75% of cases, with one ligation of aneurysm with spleen preservation. Celiac trunk aneurysm was ligated and excised, with reimplantation of the proper hepatic artery. Hepatic artery aneurysm required excision and transposition of the splenic artery with termino-lateral anastomosis of both hepatic branches (figure 1). 3 patients presented Clavien Dindo 3 or more complications, with collections that required percutaneous drainage in 2 cases (33%). Median hospital stay was 16 days.

Conclusion: Recent guidelines recommend treatment of all visceral aneurysms given their potential for rupture. Endovascular techniques have gradually become the elective treatment when anatomically feasible. Surgery can be technically demanding, especially when the hepatic supply could be compromised, and should be carried out by experienced professionals.
EP291

MANAGEMENT OF TUMOURS OF THE 3RD–4TH DUODENAL PORTION AND TREITZ ANGLE

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1University Hospital Juan Ramon Jimenez, HPB Surgery, and 2University Hospital Juan Ramon Jimenez, Spain

Purpose: Tumours located in the 3rd–4th duodenal portion and Treitz angle are a rare entity. GIST, neuroendocrine and carcinomas are the most frequent subtypes, however, due to the extremely low incidence there is not a strong evidence regarding which surgical approach is best. Local resection and Whipple procedure are the surgical approach most used but evidence is still lacking. Our purpose is to analyze the oncological and surgical outcome of each technique.

Methods: From 2010 to 2020, 6 patients with tumours in these locations were operated. Histology showed 3 adenocarcinomas, 1 GIST, 1 leiomyosarcoma and 1 neuroendocrine. Medium age was 67.5 years, sex distribution included 4 males and 2 females.

Results: Local resection and anastomosis were performed in 4 patients while Whipple procedure was performed in 2 patients. Tumour resection patients presented one IIIA, two II and one 0 Clavien-Dindo complications while Whipple patients presented one IIIA and one V (exitus) Clavien-Dindo complications.

Among patients with duodenal adenocarcinoma, one was T4 and a Whipple procedure was performed, the other 2 patients were T3 and T2, N0 and local resection was performed. All the local resection patients are still alive and disease free. Both Whipple patients died, due to surgical complications and the other one died because of brain metastases.

Conclusion: Duodenal resection seems to be a suitable approach for local tumours (T1-T3, N0) independently of the pathologic type while advanced (T4) or lymph nodes positive (N1) should be submitted to a Whipple procedure.

EP294

COMBINED INTRAOPERATIVE NAVIGATION FOR RFA ROBOTIC SURGICAL SYSTEM

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Background and purpose: Modern research shows that robotic systems for minimally invasive surgical operations significantly increase their quality and efficiency. In particular, this is due to the fact that modern robotic systems are able to achieve higher accuracy parameters than are allowed by natural human systems. Methods of minimally invasive diagnostics and local destruction of the affected tissues, such as radiofrequency ablation (RFA), require high precision at the operation stage. The movement and deformation of the organs in the abdominal zone, caused by breathing and other processes, leads to a deviation of the target neoplasm’s position from the preliminary
plan of the operation, built based on CT. In this regard, in the case of using robotic systems in minimally invasive surgery, there is a need for intraoperative navigation that provides operational data on the target’s position for automated control of a medical instrument.

Method: The project aims to develop an intraoperative navigation system for a robotic surgical system for minimally invasive surgery based on a combination of ultrasound, stereophotogrammetric navigation, and modern computer vision algorithms. It will allow for automatic tracking of the position of target areas of the patient’s operating area in real-time, thus increasing the accuracy of novel robotic systems for minimally invasive surgery.

Results and conclusion: Created RFA robotic surgical system integrates an automated ultrasonic needle localization system based on a vision system with stereotactic navigation. This approach involves the combined use of preoperative medical images based on CT / MRI and intraoperative ultrasound images to clarify the displacement of the target anatomical structures caused by breathing and other processes in the patient’s body.

EP295
HEPATOBLIARY MDM IN THE COVID-19 ERA: THE WESTERN HEALTH EXPERIENCE

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Introduction: The impact of Covid-19 pandemic has been felt across almost every facet of our health system. The hepatobiliary (HPB) multidisciplinary meeting (MDM) which is an integral part of HPB surgery has not been left out of this. Our goal is to determine the effect of the Covid-19 pandemic on the HPB MDM using a major metropolitan tertiary Hospital as our case study.

Methods: An audit of a prospectively collected data base was conducted for a 12-month period (pre and post Covid-19). All consecutive patients in the database were included. Demographic data, diagnosis, treatment offered, time to treatment and compliance to treatment were recorded. The MDM attendance and length of meeting were also noted.

Results: Data analysis demonstrated an increase in the number of cases discussed, advanced presentations during the pandemic, leading to fewer curative resections and lower compliance to MDM recommendations. However, MDM attendance was 28% more during the pandemic with meetings taking 15% longer.

Conclusion: It appears the Covid-19 pandemic has both a positive and negative impact on the HPB MDM. We recommend building on the “benefits” of the pandemic while we minimise its disadvantages.

EP296
HPB AMBULATORY CLINIC — A RESPONSE TO EASE INPATIENT PRESSURES DURING THE COVID-19 PANDEMIC?

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Purpose: The COVID-19 pandemic has had a devastating impact on surgical services globally. Due to increasing demands on healthcare and attempts to minimise patients’ exposure to COVID-19, surgical admissions were avoided where possible and early discharge promoted.

Specialist HPB practice including the management of necrotising pancreatitis and biliary sepsis, often requires prolonged hospital stay. To facilitate earlier discharge, a consultant-led HPB ambulatory clinic was introduced for a single clinical session per week. This study aims to review the safety and efficacy of this pilot pathway.

Methods: A retrospective review of all patients seen at the ambulatory HPB clinic from September to November 2020 inclusively was performed. Patient demographics, clinical investigations, readmission rate and other outcomes were recorded.

Results: 57 episodes of patient care were provided, with a mean age of 60.9 years (range 29-93). The mean number of patients requiring review per week was 4.38, and the mean number of visits per patient was 1.46 (range 1-5). Indications for review included drain management (n=28), interval imaging (n=12), early clinical review (n=11) and wound management (n=6). The most common underlying diagnosis was pancreatitis (24.4%), followed by conservatively managed cholecystitis (17.8%) and post-operative complications (22.2%). Other diagnoses included cholecolithiasis, liver abscess and trauma. The readmission rate was 6.66%, with no significant adverse events reported.

Conclusion: This retrospective review demonstrates a safe pathway for the ongoing management of these complex patients, providing consultant-led specialist care in a timely fashion and with an acceptable readmission rate.

EP297
MANAGEMENT OF ISOLATED SPLENIC VEIN THROMBOSIS: RISKS AND BENEFITS OF ANTICOAGULATION

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Purpose: We report the outcome of isolated splenic vein thrombosis management from tertiary referral HPB units including impact of anti-coagulation on recanalization rates and subsequent variceal bleeding risk.

Methods: A retrospective cohort study including all patients diagnosed with iSVT on CT scan abdomen and pelvis between 2011 and 2019 from two institutions. Patients with both SVT and portal vein thrombosis at diagnosis, and isolated splenic vein thrombosis secondary to cancer were excluded. Response to anti-coagulation, recanalization rates, risk of bleeding and progression to portal vein thrombosis were examined.

Results: Ninety-eight patients with iSVT were included of which thirty-nine patients received anti-coagulation (40%). The most common cause of iSVT was acute pancreatitis n=88 (90%). The recanalization rate in the anticoagulation group was 46% vs 15% in patients receiving no anti-coagulation (p=0.0008, OR = 4.7, 95% CI 1.775 to 11.72). Upper abdominal vascular collaterals (demonstrated on CT scan angiography) was significantly less among patients.
who received anticoagulation treatment ($p = 0.03$, OR = 0.4, 95% CI 0.1736 to 0.9288). The overall rate of upper GI variceal related bleeding was 3% (n=3/98) and it was independent of anticoagulation treatment, two patients received therapeutic anticoagulation.

**Conclusion:** The current data supports that therapeutic anti-coagulation is associated with a statistically significant increase in recanalization rates of the splenic vein; with a subsequent reduction in radiological left sided portal hypertension, with a very low risk of bleeding from varices. The findings from this retrospective study should be confirmed in a randomised clinical trial.

**EP298**

**OPEN SPLENIC ARTERY ANEURYSM REPAIR IN THE CONTEXT OF A PATIENT WITH ALTERED ANATOMY FROM A PREVIOUS GASTRIC SLEEVE: A CASE REPORT**

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**Introduction:** We present the case of a 47 year old female who underwent a splenic artery aneurysm (SAA) repair following a previous laparoscopic sleeve gastrectomy. We aim to discuss the approach to SAA repair and considerations in the setting of previous bariatric surgery.

SAAs have a risk of rupture and this can be fatal. Surgical repair is indicated when risk factors for rupture are present. Multiple management approaches exist to SAA, including endovascular, open and laparoscopic with emphasis on splenic preservation. We present the first case to our knowledge of SAA repair following sleeve gastrectomy.

**Methods:** The patient consented to this case report and we include pre-operative work-up radiological images and operative images.

**Results:** A 47 year old female had persistent post-cholecystectomy epigastric pain which was investigated by a computed tomography (CT) scan. Her past medical history included a laparoscopic adjustable gastric band 8 years ago which was converted to a sleeve gastrectomy 4 years ago and thyroidectomy 19 years ago for multinodular goiter. There was no history of pancreatitis, and her bariatric surgeries were uncomplicated. She is a non-smoker and only takes thyroxine.

Her CT showed a 2cm saccular aneurysm which was at the mid body of the pancreas and was unsuitable for embolisation or stenting because of loss of the short gastric arteries. She was consented for an open SAA repair. The gastrocolic omentum was divided and the lesser sac entered. The splenic artery was encircled and mobilized proximal and distal to the SAA on the upper border of the pancreas. Proximal and distal splenic artery clamps were applied, and the SAA was resected. An end-to-end anastomosis was performed and leakage was assessed. The aneurysm was excised and the proximal and distal anastomoses were performed with a running 5-0 prolene suture. The patient had an uneventful recovery.

**Conclusion:** While pseudoaneurysms following bariatric surgery have been reported, we report the first case of a true SAA following sleeve gastrectomy to our knowledge. Our experience may assist others who come across similar cases in the future.

**EP299**

**SHIELDS: A PROSPECTIVE, MULTICENTER STUDY TO EVALUATE THE SAFETY AND PERFORMANCE OF A SYNTHETIC TISSUE SEALANT IN HEPATO-PANCREATO-BILIARY SURGERY – AN INTERIMS ANALYSIS**

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**Introduction:** Pancreatic fistulas (POPF) or bile leakage still belong to the most relevant and harmful complications after hepato-pancreato-biliary (HPB) surgery. To date, no approved sealants are available indicated for the prevention of POPF or bile leakage. To overcome this shortcoming, we developed a biodegradable tissue sealant patch to prevent POPF as well as bile leakage and to achieve bleeding control. The prevention of POPF and bile leakage was tested in a randomized porcine distal pancreatectomy model as well as in a liver resection model. The sealant patch was able to prevent POPF and postoperative bile leakage and was superior to the standard of care. The aim of this first-in-human study was now to assess safety and efficacy of this new synthetic and biodegradable polyurethane-based sealant patch (PBSP) in HPB surgery.

**Methods:** Patients eligible to this multicenter efficacy and safety study receive either a distal pancreatectomy or a liver resection. 80 patients — 40 patients in the pancreas group and 40 patients in the liver group — will be included at 6 European high-volume centers.

In both groups the defect is closed as per usual. Afterwards, the resection surface is sealed with the sealant patch. The primary objective is to assess for adverse events related to the patch in order to control for safety of the new sealant patch. The second endpoint of this first-in-human study is to test for efficacy with regard to the prevention of pancreatic and bile leakage. Additionally, intraoperative bleeding is monitored by the surgeon and via photo and video documentation. Postoperatively, drains are controlled for signs of POPF or bile leakage and the patients are monitored for postoperative complications such as pancreatitis or biloma.

**Results:** In this interim analysis of the SHIELDS trial, we included 10 patients from two university hospitals — 5 patients for pancreatic resection and 5 patients for liver resection. This first-in-human applications were a critical step in order to gain experience on how to apply the patch. We observed no adverse events related to the sealant patch. One patient presented with a type B pancreatic fistula. All patients were followed-up for at least 30 days and the remaining patients did not present with a pancreatic fistula or bile leakage.

**Conclusion:** To date, the new biodegradable tissue sealant patch is easy to apply as well as safe and effective in preventing pancreatic fistula and bile leakage.
EP301
SUSTAINING A CLINICAL PRACTICE IMPROVEMENT PROJECT IN ELECTIVE MAJOR HEPATOPANCREATOBILIARY SURGERY DURING THE HEIGHT OF THE CORONAVIRUS DISEASE 2019 (COVID-19) PANDEMIC

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Purpose: Early mobilization post-operatively reduces morbidity. However, compliance has been reported to be poor. This is a one-year follow-up post implementation of our clinical practice improvement project (CPIP) to improve post-operative mobilization rate during the Coronavirus Disease 2019 (COVID-19) pandemic.

Method: This is a descriptive study on patients who underwent elective major hepatopancreatobiliary surgery one year (Oct 2019-Sep 2020) following the implementation (May-Sep 2019) of our CPIP to achieve successful mobilization (defined as ≥30m on post-operative day (POD) 2) with a target mobilization rate of 75% across all patients. Our data is categorized into (a) baseline data (pre-implementation from Jan-Apr 2019) (b) implementation phase (c) sustainability phase (pre-COVID-19) and (d) sustainability phase (during COVID-19).

Results: 152 patients underwent elective major hepatopancreatobiliary surgery from Jan 2019 to Sep 2020; 38(25.0%), 33(21.7%), 45(29.6%) and 36(23.7%) patients underwent surgery in the pre-implementation, implementation, sustainability (pre-COVID-19) and sustainability phase (during COVID-19) respectively. Majority of the patients were male (65.1%). Median length of hospitalisation stay was 6 days (interquartile range 5-12). There were 102(67.1%) patients who had On-Q PainBuster insertion intra-operatively. Mean pain score was 2.7±1.1 on POD1 and 2.0±1.6 on POD2. During the sustainability phase (both pre-COVID-19 and COVID-19), target mobilization rate of ≥75% was achieved for 4 of 6 months (66.7%), with a median target mobilization rate of 94.4% and 79.2% respectively. This is summarized in Figure 1.

Conclusion: Our study shows the sustainability of our CPIP in improvement of target mobilization rate one year following implementation even during the COVID-19 pandemic.