# Presentation

## Increasing burden of Chronic pancreatitis in a tertiary referral centre in the North East of England - Is there a role for outreach clinics?

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Category: Benign

Aim  
  
Natural history studies indicate high morbidity rates in patients with Chronic Pancreatitis . Additionally, it can impact quality of life, life-threatening long-term sequelae such as cancer and diabetes Mellitus. We retrospectively gathered data with all patients coded for chronic pancreatitis to see increasing burden in a tertiary referral center and whether outreach clinics would be beneficial  
  
  
  
Methods  
  
Retrospective analysis of patients were analysed from 2015-2016. All patients coded with chronic pancreatitits were included. Patients who either had surgery, procedures, or imaging not related to CP were excluded. Those treated by the GP service and outpatient management were not included in this analysis.   
  
  
  
Results  
  
1807 cases were coded for CP. A total of 943 patients were analyzed after excluding those patients who had chronic pancreatitis as a co-morbidity rather than the primary diagnosis. 611 were day case admissions and the rest were in patients with an average hospital stay of 10.7 days (range 1-277). Outpatient imaging was performed in 151 instances. 725 patients underwent procedures. 611 were performed as a day case. 387 patients underwent an Endoscopic Ultrasound (EUS) with or without a procedure (biopsy, cyst drainage). 373 patients had this procedure as a day case. 185 patients had ERCPs (112 as a day case). 46 patients had OGD and majority of them were day cases (n=31). The rest of the procedures were PEG (n=5), abdominal drainage (n=4), chest drainage (n=1), embolization of visceral vessels (n=3, 1 GDA and 2 splenic artery). During the same time period 97 surgeries were performed. The most common was cholecystectomy. 33 patients were admitted to ITU for various reasons, the commonest being for epidural infusions. The average ITU stay was 9.8 days (range 1-23 days). There were 3 deaths, all related to cholangitis.  
  
Conclusions  
  
In 2 years, 895 patients underwent procedures, 96 surgeries and had 151 imaging tests as outpatients. The inpatient admissions contributed to hospital 4362 days. We noticed a trend of decreased outpatient cross sectional imaging for the pancreas which would probably explain the increase in the number of day case EUS procedures. An improving remote pancreas care service many imaging modalities were performed at other institutes and reviewed by our team could contribute to this. Whether a dedicated team and outreach clinic will improve efficiency in managing chronic pancreatitis needs to be deciphered.

## Treatment with Volanesorsen (VLN) Reduced Triglycerides and Pancreatitis in Patients with Familial Chylomicronemia Syndrome (FCS) and Severe Hypertriglyceridemia (sHTG) vs Placebo: Results of the APP

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Category: Benign

Aim: To evaluate if VLN, an antisense inhibitor of apoC-III, reduced pancreatitis in patients with FCS and severe HTG (sHTG) participating in two Phase 3 trials. FCS is a rare genetic disease characterized by severe chylomicronemia, sHTG and consequent risk of potentially fatal recurrent and acute pancreatitis (AP). HTG-induced AP has a more severe course, leading to worse outcomes.  
  
Methods: The APPROACH study included 66 FCS patients with fasting TGs ?8.4 mmol/L randomized 1:1 to 52 weeks of wkly VLN (300mg) or placebo (PBO). The COMPASS study included 113 sHTG patients with fasting TG ? 5.7 mmol/L randomized 2:1 to VLN or PBO weekly for 26 weeks. Endpoints included percentage reduction in plasma TGs at 13 weeks and treatment-emergent pancreatitis.   
  
Results: Results from COMPASS & APPROACH combined showed a significant reduction (p=0.0185) in pancreatitis (1 event in 1 patient in VLN group; 9 events in 6 patients in PBO group). Also, in APPROACH, patients with ?2 episodes of pancreatitis in the 5 years before randomization suffered no attacks in the study treatment period (p=0.02). In APPROACH, TGs at month 3 decreased by 77% in VLN group (n=33) and increased by 18% in PBO group (n=33) (p<0.0001). In COMPASS, VLN decreased TG 73% (p<0.0001) (n=75) after 3 months, compared with 2% decrease in PBO (n=38). The most common AE with VLN was injection site reaction (percentage of injections affected: 12% FCS/24% sHTG). Declines in platelet counts led to 5 early terminations in APPROACH, 2 of which had platelets <25,000/µl; platelet counts recovered to normal after VLN stopped. There were no serious platelet events in COMPASS, but 1 potentially related SAE reported as serum sickness occurred 2 weeks after the last study dose.   
  
Conclusions: Volanesorsen treatment reduced TGs and consequent AP risk in FCS and sHTG patients.

## Risk prediction in patients undergoing Endoscopic Necrosectomy for infected pancreatic necrosis

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Category: Benign

Risk prediction in patients undergoing Endoscopic Necrosectomy for infected pancreatic necrosis  
  
  
  
Marianne Hollyman, Daniel Hughes, Sally Norton, Efstratios Alexandridis, James Skipworth, Jonathan Rees, Andrew Strickland  
  
  
  
Aims  
  
Laparotomy for the treatment of patients with infected pancreatic necrosis is associated with high rates of morbidity (~95%) and mortality (~50%); this has driven the development of minimally invasive alternatives for the treatment of such cases. Endoscopic Transgastric Necrosectomy (ETN) is becoming an accepted method for debriding infected necrosis in these challenging cases. The P-POSSUM scoring system is a well-validated risk stratification tool and is now used nationally for patients undergoing emergency laparotomy. This work aims to determine whether patients undergoing ETN for infected pancreatic necrosis can be risk stratified accurately using the P-POSSUM scoring system.  
  
  
  
Methods  
  
Prospective data were collected on all patients undergoing ETN for infected pancreatic necrosis in a single UK centre. All patients initially underwent an EUS guided stent placement to create a cystgastrostomy before subsequent transgastric necrosectomy.   
  
  
  
Patient demographics, timing of procedures and short-term post procedural outcomes were recorded. P-POSSUM scores were calculated at the time of the endoscopic cystgastrostomy.   
  
  
  
Demographic data were descriptively summarized, and ROC analysis was performed to assess the diagnostic accuracy of the P-POSSUM score. Data were analysed using SPSS version 22.  
  
  
  
Results  
  
Thirty-three patients underwent ETN between 2011 and 2017 with a median age of 52 years (range 21-84). Median number of interventions per patient was 5 (range 2–14); 60% of the patients were male and 42% required ITU admission. The overall morbidity was 40% (13 patients). Five patients died (15%) at between 10 to 53 days after their initial cystgastrostomy.  
  
   
  
Mean overall predicted mortality for ETN using P-POSSUM was 5.5% (p<0.001, unpaired T-test); range 0.4%-42%. All those who died had a predicted mortality of >5%, equivalent to a Physiology score of >28. Of those with a Physiology score >28, 42% died (p=0.004, Fisher exact), with the average predicted mortality of 10.9% (range 5.8%-14.7%).  
  
  
  
ROC analysis identified an area under the curve (AUROC) of 0.849 (SE =0.071; p<0.001) for morbidity and 0.904 (SE = 0.053; p < 0.005) for mortality.  
  
  
  
Conclusions  
  
P-POSSUM is a very useful tool in identifying patients at high-risk of mortality (and to a lesser extent morbidity) following Endoscopic Transgastric Necrosectomy, however, P-POSSUM underestimates the absolute mortality rate. Using a Physiology score of >28 allows us to identify a high-risk patient group, thereby informing decision making and discussions with family, patients and allied health care professionals.

## Inflammation and ageing in chronic pancreatitis: A single centre preliminary prospective study

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Category: Benign

Background  
  
  
  
Accelerated biological ageing is a recognised feature of many chronic diseases and is often associated with a chronic low grade inflammatory state. Whether accelerated ageing exists as a phenomenon in chronic pancreatitis and the characteristics of this have not been clearly defined.  
  
  
  
Aims  
  
  
  
To determine if chronic pancreatitis is associated with an ageing phenotype and, if so, the phenotypic characteristics of this.  
  
  
  
Methods  
  
76 patients with chronic pancreatitis and 26 healthy controls were recruited to this study. Their comorbidity, medication use, smoking status and physical characteristics were recorded.   
  
  
  
Blood was taken for routine clinical analysis as well as serum, plasma and leukocyte DNA for laboratory investigation. The serum cytokine profile was determined using a 30-plex panel. p<0.05 was considered significant.  
  
  
  
Results  
  
There was no difference in age between the groups (53vs.57 years p=0.552) although there were more males in the chronic pancreatitis group (68%vs.31% p=0.001). More patients in the pancreatitis group were smokers (55%vs.15%; p<0.0001) and were diabetic (53%vs.19%; p<0.0001).  
  
  
  
In regard to physiological function patients in the chronic pancreatitis group were more likely to have respiratory comorbidity (41%vs.12%; p=0.005) and had a higher modified frailty index score (1.4vs.0.4 p<0.0001).  
  
  
  
There was evidence of a chronic inflammatory state in chronic pancreatitis with a higher baseline CRP (10.1vs.5.9 p<0.05) and higher concentrations of the pro-inflammatory cytokines Eotaxin and IL-8.   
  
  
  
Conclusion  
  
Preliminary evidence would suggest chronic pancreatitis is related to an ageing phenotype. This warrants further characterisation and could probably be improved by focused targeting of patient’s comorbidity and risk taking behaviours e.g. smoking.

## Systemic Inflammation and its impact on quality of life in patients with chronic pancreatitis

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Category: Benign

Background  
  
  
  
It is beyond doubt that chronic pancreatitis is associated with a degree of systemic inflammation and it has more recently been proposed that such a process can lead to accelerated biological ageing – so called inflammageing. The aim of this study was to determine the relationship between systemic inflammation and quality of life in patients with chronic pancreatitis.  
  
  
  
Methods  
  
  
  
Patients were prospectively recruited for this study and had key clinical data recorded, underwent a quality of life assessment (EORTC QLQ-C30 and PAN 28). Blood samples were taken for full blood count, U&E, LFT, CRP, HbA1C as well as a serum sample for subsequent analysis of the serum inflammatory profile. This was measured using an MSD 30-plex pro-inflammatory mediator array.   
  
  
  
Results  
  
  
  
211 patients with a median age of 53 years were recruited across 5 European centres. 74% of participants were male.  
  
  
  
Smoking had a strong impact on quality of life having a negative impact on 21 of the measured domains including global quality of life (p=0.009), physical functioning (p<0.0001), role functioning (p<0.0001) and pain (p<0.0001). An alcohol aetiology was associated with increased insomnia (p=0.004), alcohol related guilt (p=0.001) and weight loss (p=0.009). There was no impact of diabetes mellitus on quality of life.  
  
  
  
A total of 13 of the measured inflammatory mediators had a negative association with quality of life. The strongest association was with MIP-1a which affected 13 domains including physical functioning (p<0.0001), cognitive functioning (p=0.002), dyspnoea (p=0.001), fatigue (p=0.003), insomnia (p=0.004), and decreased muscle strength (p=0.009).  
  
  
  
Serum IL-6 also had a strong negative impact on quality of life affecting a total of 9 domains. In particular IL-6 had a negative impact on all 3 pain related domains i.e. overall pain (p=0.003), pancreatic pain (p=0.01) and night pain (p=0.007).  
  
  
  
Elevated serum IL-8 had a negative impact again on 11 quality of life domains, many of which were related to related to nutritional status and body composition including nausea and vomiting (p=0.007), appetite loss (p=0.01), taste changes (p=0.004), weight loss (p=0.01) and decreased muscle strength(p=0.001).  
  
  
  
Conclusion  
  
  
  
Chronic pancreatitis is associated with a systemic inflammatory response which has a negative impact of quality of life suggesting that inflammageing may be a real phenomenon in this disease.

## Pancreatic duct decompression by EUS/ERCP rendezvous procedure – a novel intervention

Authors: Marianne Hollyman - HPB Bristol Royal Infirmary,Sally Norton - Endoscopy Bristol Royal Infirmary,Andrew Strickland - HPB Bristol Royal Infirmary,  
Category: Benign

Aims  
  
An 86-year-old gentleman presented with acute pancreatitis, and following investigation was diagnosed with an obstructing ampullary carcinoma as the cause. He was not a suitable candidate for surgery. He suffered monthly admissions to hospital with recurrent episodes of acute pancreatitis secondary to his pancreatic duct (PD) obstruction.   
  
  
  
Despite two attempts at PD decompression at ERCP, cannulation of the PD could not be achieved using standard ERCP techniques. To attempt to prevent his recurrent attacks of acute pancreatitis an unconventional approach using a EUS/ERCP rendezvous procedure was therefore attempted to decompress the PD.  
  
  
  
Methods  
  
Following appropriate counseling and under general anaesthesia, the linear EUS scope was placed into the patient’s stomach and the dilated PD visualised. It was punctured using a 19 gauge needle with successful placement confirmed by the aspiration of pancreatic juice. A 460cm “long ERCP wire” was placed through the needle into the PD. The wire was then manipulated along the PD and though the ampulla into the duodenum where it was captured by a snare introduced at ERCP. A pancreatic sphincterotomy was then undertaken using a standard ERCP sphincterotome and two single pigtail 5Fr plastic pancreatic duct stents were placed.  
  
  
  
Results  
  
The patient suffered some abdominal pain post procedure and required an inpatient stay of 5 days. Post procedural CT scan demonstrated successful placement of two stents in the PD. Some inflammatory change was noted in relation to the pancreas and stomach.  
  
  
  
Following discharge this man has been well for six months and has not attended hospital, in contrast to the previous four months, in which he was admitted as an emergency with pancreatitis on four occasions.  
  
  
  
Conclusions  
  
Pancreatitis due to an obstructing tumour in patients unsuitable for surgery can be very difficult to manage particularly if the PD can not be cannulated at ERCP. This EUS/ERCP rendezvous method presents an alternative therapy for patients who are not amenable to cannulation of the PD with standard ERCP methods. Such a technique requires high levels of operator experience

## Does High Serum IgG4 Level Affect the Course in IgG4-Related Disease ?

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Category: Benign

Aim  
  
IgG4-related disease (IRD) is a multisystem disease where raised serum IgG4 may predict relapse and multiorgan involvement (1). The aim of this study was to compare demographics, multi-organ involvement, response to treatment, relapse rate and end organ damage in patients with versus those without a raised serum IgG4 level.   
  
Methods  
  
Patients diagnosed with IgG4 disease between January 2005 and September 2016 according to the ICD Criteria were analysed. Patients were divided into two groups – Group 1: patients with elevated serum IgG4 and Group 2: normal serum IgG4. Patients’ demographics, other organs involvement, response to steroid treatment, relapse rate and long-term complications (organ dysfunction, exocrine and endocrine insufficiency) were compared between the 2 groups. For this study, we analysed the data based on 2 levels of IgG4 A: > than upper limit of normal and B: Twice the upper limit of normal as reported in literature (1). The patients were followed up for at least 12 months from the time of diagnosis.  
  
Results  
  
Of the 45 patients identified, 28 (62.2%) patients had elevated serum IgG4 at diagnosis. There was no statistically significant difference between the 2 groups in age (median age 66 vs 63, p=0.116) and sex (male sex 85.7% vs 58.8%, p=0.072); other organs involvements (85.7% vs 94.1%, p=0.635), response to steroids (92.6% vs 87.5%, p=0.062), relapse rate (32.1% vs 11.8%, p=0.165) and organ dysfunction (10.7% vs 5.9%, p=1.0). When the serum IgG4 cut-off was twice the upper limit of normal (ULN), more patients had exocrine dysfunction (78.9% vs 46.2%, p=0.035). However other organs involvement (89.4% vs 88.5%, p=1.0), response to steroids (94.4% vs 88.0%, p=0.628), relapse rate (36.8% vs 15.4%, p=0.160), organ dysfunction (10.5% vs 7.5%, p=1.0) and endocrine dysfunction (42.1% vs 46.2%, p=0.973) showed no statistically significant difference.  
  
Conclusion  
  
This single centre observational study shows that a raised serum IgG4 greater than ULN did not affect prognosis in patients with IRD. If the cut-off for serum IgG4 was doubled, significantly more patients were found to have exocrine dysfunction. However larger multicentre studies with longer term follow-up are needed to corroborate this finding and define the role of serum IgG4 level in diagnosis and management of IRD.  
  
  
  
Reference  
  
1. Culver E et al. Elevated Serum IgG4 Levels in Diagnosis, Treatment Response, Organ Involvement, and Relapse in a Prospective IgG4-Related Disease UK Cohort   
  
Am J Gastroenterol 2016; 111:733–743

## TRANSMISSION OF INFECTION AFTER PANCREATECTOMY AND AUTOLOGOUS ISLET CELL TRANSPLANTATION FOLLOWING POTENTIALLY HIGH RISK PROCEDURES

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Category: Benign

Aim  
  
Autologous islet transplantation (AIT) after pancreas resection has the potential to minimise glucose intolerance. Despite cell isolation being performed in a GMP facility some patients may be at an increased risk of infection. Two such cohorts could be those who have had previous drainage procedures (biliary or pancreatic) or those who have had significant pancreatic trauma. The risk of transmitting infection through the islet preparation in these types of patients is not well reported.   
  
  
  
Methods  
  
To date we have performed 8 islet autologous transplants (IAT) with 6 being in the relevant ‘high risk’ cohorts (previous pancreaticojejunostomy n=2, hepaticojejunostomy n=1 and pancreatic trauma n=3). Islets were isolated in a GMP HTA licensed facility. The pancreas is decontaminated with Fungizone, cephalosporin and a betadine wash prior to islet solation. We use BacT/ALERT SN culture bottles for detection of microbes in the pancreatic transport fluid (TF) and final washing (FW) steps. We also perform environmental monitoring by finger dabs, settle plates and from within the class II hoods. We also culture from the final islet preparation and perform a gram stain.  
  
  
  
Results  
  
Islet yields were significantly higher in the pancreatic trauma cohort (range 20,000 to 298,149 IEQ). All of those in this group (2 adults and 1 paediatric) remain insulin independent after more than 18 months follow up. In the drainage group 2 are C-peptide positive with the final patient still in the recovery phase but insulin independent. One pancreatic trauma patient grew staph epidermidis in the TF but had no post-operative infections. Another required a re-laparotomy after developing an infected collection in the pancreatic bed which cultured staph aureus after no growth during the isolation process. One pancreatic drainage patient had contaminated TF and a FW but did not develop any systemic sepsis other than a minor wound infection. The previous hepaticojejunostomy patient had contaminated TF and FW concordant with a bile swab taken at the time of the procedure (E. coli and Enterococcus casseliflavus) but developed no infectious complications.   
  
  
  
Conclusions  
  
Patients perceived to be at ‘high risk’ of developing contaminated islet isolations can be safely transplanted without any infection risk. Culture of microbes during pancreas transportation and islet isolation does not always lead to systemic infective episodes after transplantation despite also undergoing major abdominal surgery.

## Inadequate reporting of indications for, and inappropriate use of antibiotics continues in acute pancreatitis despite international guidelines

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Category: Benign

Aims  
  
  
  
Current international guidelines in acute pancreatitis state specifically that antibiotics should be used only to treat known infections. Antibiotic prophylaxis is not recommended and is actively discouraged due to the disadvantages this conveys, including later resistance and adverse side effects. The aim of this study was to analyse the general use of, and specific indications for, antibiotics in acute pancreatitis in a national review of management.  
  
  
  
Methods  
  
  
  
Data was collected from The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) study into the management of acute pancreatitis. Adult patients admitted between 31st of January 2014 and 30th of June 2014 with a coded diagnosis of acute pancreatitis were included. A clinical and organisational questionnaire was used to collect data for this study. The consultant responsible for each patient carried out the clinical questionnaire at the time of discharge. Antibiotic use, including indication and duration were recoded.  
  
  
  
Results  
  
  
  
Overall 439/712 (61%) patients received antimicrobials, with 891 separate prescriptions and 23 specified clinical indications recorded. Overall, 20 % (181/891) of prescriptions had the indication “unspecified”. This was the most common, followed by “pancreatitis” (15 %) and then “sepsis” (14 %). A maximum of three courses of antimicrobials were prescribed, with 41% (290/712) of patients receiving a second course and 24% (174/712) a third course.  
  
For the first antibiotic prescription, the most common indication for antimicrobial prescription was “unspecified” (85/439 therefore 19%). The second most common indication was “pancreatitis” (65/439) and thirdly “sepsis” (60/439). In 72/439 (18%) the indication was deemed inappropriate by the clinicians and case reviewers. The most common reason for this, in 83% (60/72) of cases, was that they were not indicated (60/72).   
  
The most common indication for the second course was sepsis (54/290) in 19% of patients, followed by “unspecified” (46/290) then “pancreatitis” (40/290). “Unspecified” was again the most commonly recorded indication in the third antimicrobial course (50/174).   
  
Overall, 20/891 prescriptions were based on documented confirmed bacteraemia and 9/891 were for infected pancreatic necrosis. 11 patients had measured procalcitonin levels and 1 antibiotic prescription was based on that result.  
  
  
  
  
  
  
  
Conclusions  
  
  
  
Stringent hospital policies should be put in place to ensure that antimicrobial prescriptions are reviewed for a clearly documented appropriate clinical indication and duration as part of an antimicrobial stewardship process. Use of procalcitonin should be considered in unclear cases. Implementing a guideline of specific, appropriate indications may facilitate improvement in antimicrobial use.

## Dietary fibre intake and the risk of pancreatic adenocarcinoma: a prospective cohort study using 7-day food diaries (EPIC-Norfolk).

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Category: Malignant

Introduction   
  
High dietary fibre intakes may protect against the development of pancreatic adenocarcinoma (PDA) by decreasing: hyperinsulinaemia, hyperglycaemia, adiposity, absorption of fat and carbohydrate and by increasing stool bulk thereby diluting the concentrations of potential stool carcinogens present in red and processed meats. The aim was to investigate associations between dietary fibre intakes and the risk of PDA using for first time, 7?day food diaries(7-DFDs), the most accurate dietary method in large scale epidemiological studies.   
  
Methods   
  
At recruitment 23 658 men and women aged 45-74 years participating in the EPIC-Norfolk prospective cohort study completed 7-DFDs. These recorded all foods and drinks consumed, plus portion sizes, brands and recipes. Participant recorded free text in the 7-DFDs was translated into nutrient values, including fibre, using a specifically designed data base of 55 000 different food items. The cohort was followed up for 17 years to identify those who developed PDA, with cases verified by clinical note review. Fibre intake was divided into quintiles in a sub-cohort of 4 056 participants and hazard ratios estimated using Cox regression adjusted for: age, gender, smoking, diabetes and calorie intake. A binary analysis investigated risk of PDA above and below 20 g fibre/day (mean daily intake in UK). Effects of fibre from fresh fruit and vegetables were examined. High and low fibre intakes were tested for effect modification of the positive association with high red and processed meat consumption.   
  
Results   
  
86 participants (0.36%) developed PDA (56% women, median age at diagnosis of 73.4 years). For total fibre intake there were no significant associations for any quintiles (HR Q?vs Q?= 1.08 95% CI = 0.56-2.08) and no trend across quintiles. Similarly, there were no effects of fibre from fruit or vegetables. Eating >=20g daily was not associated with risk (HR=1.12 95% CI = 0.62-2.05). There was a positive association of a high red meat intake in those eating low amounts of fibre (HRtrend=1.45, 95% CI=1.05-2.01), but red meat had no association in those with high fibre consumption (HRtrend=0.89, 95% CI = 0.47-1.69). There were similar effects for processed meats for high fibre (HRtrend=1.46, 95% CI=1.06- 2.02) and low fibre intakes (HRtrend=1.02, 95% CI=0.55- 1.88).  
  
Conclusion   
  
The findings do not support a role for fibre directly protecting against PDA, although it may reduce the effect of high meat intakes. Future epidemiological studies should measure fibre to confirm if fibre influences the potential carcinogenic effects of meats

## Adjuvant radiotherapy following pancreaticoduodenectomy for ampullary adenocarcinoma improves survival in node positive patients: A propensity score analysis

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Category: Malignant

Introduction  
  
This study aimed to evaluate the impact of adjuvant radiotherapy in patients undergoing pancreaticoduodenectomy (PD) for ampullary adenocarcinoma.  
  
  
  
Methods  
  
Using the Surveillance, Epidemiology, and End Results (SEER), patients with non-metastatic ampullary adenocarcinoma between 2004 - 2013 were identified. Cancer-specific survival and overall survival were estimated using Kaplan-Meier and Cox regression to obtain adjusted hazard ratio (HR) of survival.  
  
   
  
Results  
  
In this study, 1106 patients with ampullary adenocarcinoma were identified, of which 27% received adjuvant radiotherapy and the remaining 73% (803/1106) patients did not receive any adjuvant radiotherapy. In the matched cohort, there were still no significant difference in CSS (median 41 vs 35, p=0.28) and OS (median 32 vs 30, p=0.26) between patients receiving adjuvant radiotherapy and those under observation alone. However, in patients with N2 (Figure 5) disease, both CSS (median 27 vs 19 months, p=0.0044) and OS (median 23 vs 17 months, p=0.0091) were significantly longer for patients receiving adjuvant radiotherapy.  
  
  
  
Conclusion  
  
In summary, adjuvant radiotherapy following PD for ampullary adenocarcinoma significantly improves survival in patients with N2 disease. Future studies defining “high-risk” groups using larger cohorts will enable reliable appraisal on the benefit of adjuvant radiotherapy to allow for a more personalised approach in treating patients.

## Comparison of endoscopic ultrasound guided fine needle aspiration or biopsy for the diagnosis and accurate grading of pancreatic neuroendocrine tumours using surgical pathology as the gold standard.

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Category: Malignant

Introduction: Pancreatic neuroendocrine tumours (PanNET) are a distinct tumour type with outcomes dependent, in part, upon grading by Ki67. Some data shows fine needle aspiration (FNA) cytology at endoscopic ultrasound (EUS) may not be able to accurately determine Ki67 or grading whereas others show good correlation. Our aim was to assess whether Ki67 and grade can be more accurately determined using fine needle biopsy (FNB) compared to FNA using surgical excision histology as the gold standard.  
  
Methods: Retrospective analysis of all pancreatic pathology for neuroendocrine tumours was performed for the period Jan 2009 - Jun 2017. Patients were included if they had undergone EUS guided sampling of the lesion prior to surgical resection. Patient demographics, lesion size and location were noted. FNA and FNB results were examined and Ki67 and grade recorded. Surgical histology reports were examined and time from EUS to surgery, operation performed, TNM stage, Ki67 and grade recorded and compared using correlation coefficient and proportional analysis.  
  
Results: 162 patients were diagnosed with PanNET in our centre over the study period of which 55 underwent surgical resection (mean age 55.7, 30 males). 22 lesions (mean size 24.5mm) were located in the head, 9 in the body and 24 in the tail of the pancreas. 33 lesions underwent FNA and 25 FNB (3 lesions underwent both) all of which confirmed PanNET on cytology or histology respectively. 39 were solid, 8 cystic and 8 mixed morphology. On surgical histology 32 lesions were grade 1, 22 were grade 2 and 1 was grade 3. There was no significant difference in the median number of days from FNA or FNB to surgery (81 vs. 66 days, p=0.32). 21/33 FNA samples could report Ki67/grading compared to 25/25 FNB samples (p=0.0006). Ki67 on FNA showed a weak correlation with surgical pathology (R=-0.0789) whereas Ki67 on FNB showed a moderate correlation (R=0.6693). 14/33 FNA samples matched the surgical grade compared to 19/25 FNB samples (p=0.015).  
  
Conclusion: Both FNA and FNB can be used to confirm a diagnosis of PanNET. However, FNB samples were significantly more likely to provide adequate material for Ki67/grading and showed a closer match to Ki67/grading of the final surgical histology.

## Indeterminate Pulmonary Nodules in Patients Undergoing Pancreaticoduodenectomy for Periampullary Carcinoma: A Case-Control Study of Patient Outcomes

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Category: Malignant

Objective   
  
The prevalence and important of indeterminate pulmonary nodules (IPN) in periampullary carcinoma is unknown. We compared the outcomes of patients with and without IPN undergoing pancreaticoduodenectomy for periampullary carcinoma in order to determine whether they bear any clinical significance.  
  
  
  
Methods   
  
Patients undergoing pancreaticoduodenectomy for periampullary carcinoma with staging CT imaging demonstrating IPN were identified from a prospectively maintained multidisciplinary team (MDT) database. These cases were matched to control patients from the same database without IPN on staging imaging who also underwent surgical resection. Controls were matched to cases on four primary factors: age, TMN score, ASA grade and receipt of adjuvant chemotherapy.  
  
  
  
Results   
  
17 out of 260 (6.5%) patients undergoing pancreaticoduodenectomy for periampullary cancer demonstrated one or more IPN on their preoperative imaging. The median disease-free survival (DFS) of patients with IPN was 11.9 months (95% CI 8.2 – 21.5) compared with to a median DFS for the control group of 16.7 month (95% CI 6.7 – 22.5). This difference was not statistically significant (p = 0.97). The median overall survival (OS) of patient with IPN was 20.9 months (95% CI 10.0 – 7.5) compared to a median of 21.3 months (95% CI 13.2 – 29.7) for the control group. This difference was again not statistically significant (p = 0.91).  
  
  
  
Conclusion   
  
The majority of IPN demonstrated on staging CT imaging of patients with otherwise resectable periampullary carcinoma do not progress to become recogniseable pulmonary metastases. The presence of IPN preoperatively has no significant impact on either disease-free or overall survival of patients with periampullary carcinoma and can therefore be safely ignored in the context of its staging.

## Cancer-associated fibroblasts induce extracellular matrix expression by pancreatic ductal adenocarcinoma cells

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Category: Malignant

Aims  
  
Pancreatic ductal adenocarcinoma (PDAC) is characterised by an abundant stromal compartment, comprised primarily of extracellular matrix (ECM) proteins and cancer-associated fibroblasts (CAFs). In addition to providing a structural framework, the ECM has numerous biochemical and signalling functions that influence tumour progression and chemoresistance. RNA sequencing analysis of mouse xenograft tumours suggests that both PDAC and stromal cells contribute to the expression of ECM components, however when PDAC cells are cultured in vitro, such expression is absent. In this study, we sought to investigate the influence of cancer-associated fibroblasts on the expression of collagen I – an abundant ECM component – by PDAC cells.  
  
  
  
Methods  
  
An in vitro co-culture system was developed in which patient-derived CAF and PDAC cell lines were cultured in a 2:1 ratio in a 50/50 mixture of Dulbecco's Modified Eagle's medium and Ham’s F-12 medium (DMEM/F-12), supplemented with 10% foetal bovine serum. Parallel monocultures were used for comparison. For gene expression analyses, cultures were harvested after 24 hours and the CAF and PDAC cells separated by fluorescence-activated cell sorting. Total RNA was isolated and analysed by qPCR using a TaqMan assay specific to collagen I (COL1A1). Reactions were normalised to ?2-microglobulin expression. For analysis of collagen I protein, cells were cultured in DMEM/F-12 with 0.5% serum and 100 ?M L-ascorbic acid 2-phosphate for 4 days. Cultures were fixed in methanol and collagen I production examined by immunofluorescence. An antibody against cytokeratin 7 was used as a marker for PDAC cells. Experiments were also conducted in which PDAC cells were cultured in the presence of CAF-conditioned growth media. This was collected from CAF monocultures after 24 hours of growth and centrifuged before use.   
  
  
  
Results  
  
Relative expression of collagen I RNA by PDAC cells was 1146-fold greater following co-culture with CAFs compared to monoculture (standard deviation 243; n=3). This was also observed in immunofluorescence experiments that demonstrated expression of collagen I in cytokeratin-positive PDAC cells within the co-culture system, but not in PDAC monoculture. In contrast to these co-culture experiments, collagen production could not be detected in PDAC cells that were cultured in CAF-conditioned growth media.  
  
  
  
Conclusions  
  
Taken together, these observations demonstrate that cancer-associated fibroblasts can reprogramme PDAC cells to produce collagen I, and that this communication may be mediated by a contact-dependent intercellular signalling process. Ongoing work aims to identify the molecular pathways involved in this interaction and explore how modulation of these impacts on the growth and progression of pancreatic cancer.

## The presence of a metal biliary stent has a negative impact on tissue diagnosis of head of pancreas masses

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Category: Malignant

Objective & Aim  
  
Self-expanding metal stents (SEMS) are superior to plastic stents (PS) for relief of biliary obstruction due to a mass in the head of pancreas (HOP). Endoscopic ultrasound (EUS) fine needle aspiration (FNA) or fine needle biopsy (FNB) is recommended as the first line technique when a tissue diagnosis is required. However, it is unclear as to whether SEMS/ PS impair the performance of EUS- tissue sampling (TS). Therefore, the aim of this study was to assess whether SEMS/PS impair accurate EUS tissue diagnosis in HOP masses.   
  
Methods  
  
All patients with a HOP mass who had EUS guided TS between January 2010 and June 2016 were included. Strict pathological criteria were used for diagnosis of malignancy. All patients had at least 6 months follow-up.  
  
Results  
  
A total of 1861 EUS-TS were performed over the study period. 698 procedures were performed in 631 individuals for HOP mass (mean age was 65.4±10.9 years). 535 (85%) were malignant; 141 had prior SEMS, 149 prior PS and 341 without stent (WS). EUS-TS had 73% (511/698) overall accuracy; SEMS accuracy was 67% (109/163) compared to 69% (115/167) for PS and 78% (287/368) in WS. On multivariable analysis the presence of SEMS was associated with incorrect diagnosis (OR 1.96 95% CI 1.24-3.1, p=0.02). Increasing tumour size, increasing number of passes and use of a Sharkcore needle were independently associated with improved accuracy (Table 1). Repeat TS was more common (10.2%) in cases with SEMS than in those WS (4.5%) or PS (2.9%, p<0.02). There was no difference between PS and WS.  
  
Conclusion  
  
The presence of SEMS has a negative impact on tissue diagnosis of HOP masses, leading to more repeat procedures, which is likely to delay treatment.

## Understanding the molecular biology of pancreatic acinar cell carcinoma

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Category: Malignant

Introduction  
  
  
  
Pancreatic acinar cell cancer is extremely uncommon with an incidence in Europe of less than <0.02 cases per 100,000 population and is therefore considered a rare cancer. Understanding the molecular biology of this disease may provide a scientific basis on which to base therapy.  
  
  
  
Methods  
  
  
  
Patients diagnosed with acinar cell carcinoma and undergoing surgical resection from 2008-16 were identified by searching a histological database and there clinical details retrieved. Formalin fixed tissue was retrieved, H&E stained and using laser capture micro-dissection areas of normal pancreatic tissue and tumour were cut. Total RNA was isolated and analysed using the nanoString PanCaner Pathway analysis panel.   
  
  
  
Results  
  
  
  
A total of 8 patients with pancreatic acinar cell carcinoma were identified, 5 of whom had suitable tissue for molecular analysis. Patients were predominantly male (7/8) with a median age of 68 years (range 15-86).   
  
  
  
Differences in gene expression between normal and tumour tissue were demonstrated related to key cancer pathways including transcriptional misregulation (e.g. CEBPA 1.75 fold p=0.007; MMP3 1.98 fold p=0.009) PI3K signaling (e.g. BRCA1 2.0 fold p=0.03; NR4A1 0.3 fold p=0.017) chromatin modification (e.g. HMGA1 1.94 fold p=0.03; HDAC10 0.55 fold p=0.04) and apoptosis (e.g. WEE1 2.46 fold p=0.005; CHEK1 2.03 fold p=0.014).  
  
  
  
Conclusion  
  
  
  
Identification of gene expression changes in pancreatic acinar cell cancer using formalin fixed tissue has the potential to unpick the molecular landscape of this rare tumour and enable a scientific approach to therapy. A collaborative approach is required to increase sample numbers.

## The impact of pancreatic cancer cell exosomes on the phenotype of pancreatic cancer cells

Authors: Stuart Robinson - HPB Surgery Freeman Hospital,Derek Mann - Fibrosis Research Group Newcastle University,Steve White - HPB Surgery Freeman Hospital,Jelena Mann - HPB Surgery Freeman Hospital,  
Category: Malignant

Background  
  
Exosomes vesicles measuring up to 100nm in size and play key roles in cell-to-cell communication. They are particularly rich sources of miRNA and are a means by which one cell can impact on the phenotype of neighbouring cells.  
  
  
  
PSC’s are a key stromal component in pancreatic cancer. The aim of this study is to characterise PSC exosomes and their impact on pancreatic cancer cell phenotype.  
  
  
  
Methods  
  
Exosomes were isolated from conditioned media of PSC’s. Their miRNA cargo was identified using the nanostring system.   
  
  
  
MiaPACA2 and PANC1 cells were exposed to exosomes in 2D and 3D culture. RNA was isolated from hanging drop cells and used for next generation RNAseq. Data was analysed with MonkSeq and Ingenuity Pathway Analysis software.  
  
  
  
Results  
  
The top 15 miRNA’s identified in exosomes were implicated in a variety of cancer associated KEGG pathways e.g. proteoglycans in cancer (p<0.0001), pancreatic cancer (p<0.0001), p53 signalling (p<0.0001), pathways in cancer (p<0.0001).  
  
  
  
MiaPACA2 cells treated with exosomes demonstrate a 27% reduction in proliferation (p<0.05). This wasn’t replicated in PANC1 cells.   
  
  
  
MiaPACA2 cells do not form spheroids in hanging drop culture however in the presence of exosomes do form 3D structures. PANC1 formed more compact spheroids in the presence of exosomes (p<0.001). Both cell lines demonstrated increased cytotoxicity in 3D culture in the presence of exosomes.  
  
  
  
Next generation sequencing of RNA isolated from MiaPACA2 cells cultured in 3D either with or without PSC exosomes revealed changes in several key cell signalling pathways including ER Stress, circadian rhythm, metabolic control and ARE binding proteins.  
  
  
  
Conclusion  
  
PSC exosomes contain miRNA’s implicated in a variety of cancer related cell signalling processes and impact on the phenotype of pancreatic cancer cells.

## Endosonography-guided biliary drainage following failed ERCP: Experience from a UK tertiary referral centre 2016-2017

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Category: Malignant

Aims   
  
Percutaneous transhepatic biliary drainage (PTBD) is associated with significant morbidity and prolonged hospital stays. [1,2]  Endosonography-guided biliary drainage (EUS-BD) is an alternative to PTBD when endoscopic retrograde cholangiopancreatography (ERCP) biliary decompression has failed. EUS-BD transmural or facilitated transpapillary drainage is possible via the intrahepatic or extrahepatic bile ducts. The aims of this study were to review the technical success and adverse events with EUS-BD procedures performed at a tertiary care referral centre.   
  
  
  
Methods   
  
Data were prospectively recorded on EUS-BD procedures performed at a single centre from 1st January 2016 to 15th September 2017. Procedures were performed by two experienced endoscopists trained in interventional EUS and ERCP. Recorded variables were technical success, adverse events, length of stay, 30-day re-admission rate and all-cause mortality.   
  
  
  
Results    
  
17 patients (8 male) were included (table 1). Indications for drainage were choledocholithiasis (n=7) and malignant obstruction (pancreatic cancer, n = 6; cholangiocarcinoma, n = 1; diffuse large B-cell lymphoma, n = 1; duodenal adenocarcinoma, n = 1; and papillary carcinoma, n = 1). Reasons for failed ERCP were obscured intradiverticular ampulla (n = 7), duodenal stenosis with inaccessible papilla (n = 6; malignant, n = 5; Crohn's, n = 1), and failed cannulation (tumour infiltration of ampulla, n = 2; tumour ingrowth of existing metal stent, n = 1; malignant distal biliary stricture, n = 1) . The route of attempted biliary drainage was choledochoduodenostomy in 9, EUS-guided rendezvous in 7, and hepaticogastrostomy in 1. Overall technical success was achieved in 16 (94%), with one patient requiring PTBD. 16 cases (94%) were achieved under conscious sedation with midazolam and fentanyl. There was one instance of stent maldeployment, salvaged with fully covered metal stent placement over preserved wire access, and one TIA related to discontinuation of anticoagulation. 6 cases were performed as elective, out-patient procedures. The median length of stay post procedure was 5 days (range 2 – 80 days) for inpatient cases. There were no re-admissions or deaths within 30 days.    
  
   
  
Conclusions   
  
This study adds to the existing literature supporting EUS-BD as an effective and safe alternative to PTBD after failed ERCP, which can be performed under conscious sedation, often in the outpatient setting. Our technical success rate is comparable to published series.[3] Adverse event rates compared favourably with accepted rates from PTBD.[1] Experience and improved instruments should reduce procedural time and further prospective randomised studies are needed to compare outcomes for percutaneous versus EUS guided drainage.  
  
  
  
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## Robotic versus laparoscopic distal pancreatectomy: A systematic review and meta-analysis

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Category: Malignant

Background  
  
  
  
Robotic surgery offers several theoretical advantages to conventional laparoscopic surgery including improved instrument dexterity, 3D visualization and better ergonomics. The aim of this study was to determine if these theoretical advantages translate into improved patient outcomes.  
  
  
  
Method  
  
  
  
Studies were identified using the online databases Medline, Scopus, EMBASE, and Web of Science. The quality of included studies was assessed using the Newcastle-Ottawa scale and meta-analysis undertaken using RevMan using either a fixed-effects model, or in the case of significant heterogeneity a random-effects model.  
  
  
  
Result  
  
  
  
Fourteen non-randomized studies including 1326 patients (353 robotic and 973 laparoscopic) were considered appropriate for inclusion. All had a Newcastle-Ottawa score of 5 or greater.  
  
  
  
There was significant heterogeneity in the reported outcomes for operating time but overall there was no difference between robotic and conventional laparoscopic distal pancreatectomy (OR 17.23; p=0.27).  
  
  
  
The use of robotic surgery was associated with a lower conversion rate than conventional laparoscopic surgery (OR 0.4; p<0.0001) and a higher rate of splenic preservation (OR 2.7; p=0.006) when compared to conventional laparoscopic surgery. There was no difference with regard to R0 resection rates (OR 0.97; p=0.97) or lymph node harvest (OR 0.84; p=0.1).  
  
  
  
With regard to post-operative outcome there was no difference in either overall complication rates (OR 1.03; p=0.86) or the incidence of grade B/C pancreatic fistula (OR 0.90; p=0.57). There was similarly no difference in reported 90 day re-operation rates.  
  
  
  
Conclusion  
  
  
  
Robotic distal pancreatectomy offers significant advantages compared to conventional laparoscopic surgery in terms of lower conversion rates and  
  
  
  
splenic preservation and should be considered where appropriate surgical expertise exists.

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Category: Malignant

Background   
  
Excess body adiposity is associated with increased risk of pancreatic cancer (PC), and in animal models, excess intra-pancreatic fat accumulation is driver of pancreatic carcinogenesis. Within a long-term programme (PanORAMA) to evaluate pancreatic fat and PC risk in humans, we assessed whether MR-quantified pancreatic fat fraction (PFF) was ‘fit for purpose’ as an imaging biomarker.  
  
Methods   
  
We determined PFF using MR spectroscopy (MRS) and MR chemical shift (MR-CS), in two groups. In Group I, we determined precision of MR-derived PFF with histological digital fat quantification in 12 patients undergoing pancreatic resection. In a second study, we assessed reproducibility in 15 volunteers (Group IIa), and extended to 43 volunteers (Group IIb) to relate PFF with MR-derived hepatic fat fraction (HFF), body mass index (BMI), and waist circumference (WC) using linear regression models. We assessed intra- and inter-observer, and between imaging modality levels of agreement using Bland-Altman plots.  
  
Results   
  
In Group I patients, we found good levels of agreement between MRS and MR-CS derived PFF and digitally quantified on histology. In Group IIa, there was poor reproducibility in initial assessments. We refined our protocols to account for 3D dimensionality of the pancreas, and found substantially improved intra-observer agreements. In Group IIb, BMI and WC were strongly related with HFF (all p values < 0.001) but not with PFF.  
  
Conclusion  
  
Using a protocol that accounts for pancreatic 3D dimensionality, MRS is ‘fit for purpose’ and might add information on cancer prediction independent from measures of general body adiposity.

## Defining the learning curve in laparoscopic distal pancreatectomy

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Category: Malignant

Background  
  
  
  
Laparoscopic distal pancreatectomy (LDP) is increasingly utilised as an alternative to conventional open surgery. It is associated with decreased morbidity, improved post-operative pain control and a shorter hospital stay.  
  
  
  
The aim of this study is to define the length of the learning curve in LDP.  
  
  
  
Methods  
  
  
  
Case records for 49 patients who have undergone LDP at our centre were reviewed. The cumulative sum method was used to analyse operative time to determine the learning curve. Clinical outcome variables were compared between those who had their procedures during the initial learning curve and subsequent to this.  
  
  
  
Results  
  
  
  
Cumulative sum analysis revealed a learning curve of 36 cases for laparoscopic distal pancreatectomy. The median operating time in these initial 36 cases was 321 vs. 241 minutes (p=0.16) in 13 patients operated upon thereafter. Those patients in the learning curve were well matched in regard to later patients in regard to gender (44% vs. 46% male; p=1.0); age (67 vs. 63 years; p=0.292); lesion size (20 vs. 27mm; p=0.252) and the incidence of malignancy (47% vs. 69%; p=0.173).  
  
  
  
Those patients whose procedure was in the learning curve phase tended to have a higher chance of a positive resection margin (67% vs. 39%; p=0.621), an increased risk of major morbidity (67% vs. 33%; p=0.192) and a similar risk of post-operative pancreatic fistula (33% vs. 38%; p=0.746).  
  
  
  
Conclusion  
  
  
  
Our data would seem to suggest that a learning curve of approximately 36 cases is required for LDP.

## Comparison of Robotic versus Open and Laparoscopic Distal Pancreatectomy.

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Category: Malignant

Comparison of Robotic versus Open and Laparoscopic Distal Pancreatectomy.  
  
  
  
Introduction  
  
Laparoscopic distal pancreatectomy (LDP) has obvious advantages over its open equivalent (ODP) for pancreatic disease in the body and tail. Within the UK there is very limited experience describing the role of Robotic distal pancreatectomy (RDP) over LDP. The aim of the study was to perform the first UK comparison between open, LDP and RDP.  
  
  
  
Methods  
  
Data for LDP and RDP were collected prospectively whereas ODP was collected retrospectively. All patients performed during a 9 year period (2007-2017) were compared with RDP introduced as our standard approach 2014. Complications were graded according to the Dindo-Clavien classification and pancreatic fistula classified according to the ISGPS criteria.  
  
  
  
Results  
  
In total 107 patients (age range 17-85 yrs) underwent distal pancreatectomy with or without splenectomy.   
  
  
  
Conversion rates for LDP and RDP were 8/37 and 2/21 respectively. Operative blood loss was 1102ml for ODP, 571ml for LDP and 373ml for RDP (p=0.003). The splenic conservation rate was highest for ODP (47%) followed by RDP (33%) and lowest for LDP (2%;p<0.001). The incidence of Dindo-Clavien complications of grade 3 or greater was 11% for ODP, 27% for LDP and 14% for RDP (p=0.09). Grade C pancreatic fistula’s occurred most commonly in the LDP group (10%) followed by ODP (5%) and was lowest in the RDP group (0; p=0.003). There were no mortalities in any group.   
  
  
  
Conclusion   
  
Minimally invasive pancreatic resection offers significant advantages over ODP with RDP appearing to be superior to conventional LDP.

## Distal Pancreatectomy for Pancreatic Neuroendocrine Tumours (pNETS): Which Approach?

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Category: Malignant

Aim  
  
  
  
Pancreatic neuroendocrine tumours (pNETS) are rare. Laparoscopic distal pancreatectomy (LDP) is the mainstay of treatment in most specialist centres for those needing resection. To date, there has been no previous UK report of using the robotic approach (RDP) for resection of pNETs. The aim of this study was therefore to assess the safety and efficacy of RDP compared with established open and LDP.   
  
  
  
  
  
Methods  
  
  
  
Data for our minimally invasive approaches (laparoscopic and robotic) were recorded prospectively whereas details for the open group were collected retrospectively. All resections performed during a 10 year period (2007-2017) were compared with RDP introduced as our standard approach in 2014. Complications were graded according to the Clavien-Dindo classification.  
  
  
  
  
  
Results  
  
  
  
33 patients (age range 17-76 years) underwent distal pancreatectomy with or without splenectomy these included open (n=9), laparoscopic (n=14) and robotic (n=10). BMI (kg/m2) was equivalent across all groups. There were 2 conversions in the laparoscopic group, none in the robotic group with no mortality. Docking and robotic set up took an additional 47 minutes (range 27- 75). There was no difference in histological grade, Ki67, R0 resection margin status or lymph node yield between groups. Tumour size was largest in the open group (p = 0.03). Postoperative stay, pancreatic fistula rates, re-operation and blood loss were not statistically different. Splenic preservation was significantly higher in the robotic versus laparoscopic group (p=0.02) and major 30-day morbidity (Clavien-Dindo grade 3 or 4) was reduced in the robotic group (p=0.034).   
  
  
  
  
  
Conclusion   
  
  
  
RDP is a safe and efficacious technique for the management of pNETs. It offers the advantages of higher rates of splenic preservation over the laparoscopic approach and a reduction in incidence of major 30-day morbidity with comparable oncological outcomes.

## Clinicopathological Characteristics of Mixed Pancreatic Tumours – a 10-year Tertiary Centre Experience

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Category: Malignant

Aims  
  
To identify the clinico-pathological characteristics of resected mixed pancreatic tumours in our tertiary centre.   
  
Methods  
  
Retrospective review of the Histology Database at the Department of Liver Histology, Institute of liver Studies, King’s College Hospital for the pancreatic specimens with a diagnosis of mixed tumours accessioned between 2008 and 2017.  
  
Results  
  
Out of 1285 pancreatectomy specimens, nine mixed neoplasms were identified, with the following histopathological diagnosis: 1 acinar neuroendocrine ductal carcinoma (ANDC), 4 acinar neuroendocrine carcinomas (ANC), 2 ductal neuroendocrine carcinomas (DNC) and 2 acinar ductal carcinomas (ADC). Median age was 56 years (range 49 to 81, four females). Patients with acinar component were younger than those showing ductal differentiation (median 51 versus 68 years old). There was no definitive preoperative diagnostic imaging and most of those tumours had imaging compatible with either endocrine or exocrine tumour of the pancreas. In 2 out of three performed biopsies, mixed phenotype pancreatic tumour was diagnosed or suspected preoperatively. Presenting symptoms depend on the location of the tumour and are similar to the exocrine tumours of the pancreas. The majority of the patients had normal epithelial tumour markers (one ANC and one DNC had mild CA19-9 elevation only). Overall, two patients had elevated serum chromogranin (ANC, ADNC). One patient had functional ANC tumour presenting with hypercalcemia due to Parathyroid Hormone-Related Peptide (PTHrP) secretion. Eight patients underwent surgery with a curative intent (2 distal pancreatectomies, 5 Whipple’s procedures and 1 total pancreatectomy). The last patient with the functional ANC underwent debulking surgery for symptomatic control. None of the patients with ANC had lymph node metastases, where all the other mixed tumours had lymph node involvement. Vascular and perineural involvement was present in the majority of cases. With the limitations of this study, post-surgery one and two year survival was 62.5% and 12.5% respectively.   
  
Conclusions  
  
Mixed type tumours are very rare pancreatic tumours, with aggressive behaviour and poor outcome. Preoperative diagnosis is difficult, but a mixed phenotype can be demonstrated in biopsies. Data is scarce regarding management and standardization of treatment including chemotherapy regimens. Further multicentric studies of the pathology, genomics and clinical behaviour of these tumours are needed, in order to reveal their specific characteristics and appropriate treatment.   
  
\*please note that first and second authors contributed equally to the work

## Fast-track Pancreatoduodenectomy: quick, safe and effective for people with operable pancreatic cancer

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Category: Malignant

Aims:  
  
  
  
The outcome data for patients undergoing fast-track surgery for pancreatic head resection without biliary drainage is limited. The objective of this study is to compare outcomes of two groups of patients: fast-track (FT) with no biliary drainage versus non-fast-track (NFT) with pre-operative biliary drainage undergoing Whipple’s operation at a single centre.   
  
  
  
Methods:  
  
  
  
Patients from Dec. 2015 to June 2017 undergoing FT and NFT Whipple’s operation were recorded. All pre-operative and post-operative data was prospectively collected and analysed. For all patients 30-day morbidity and mortality were recorded. The primary outcome measure was the comprehensive complication index (CCI). Secondary outcome measures included: pancreatic fistula (PF), delayed gastric emptying (DGE) post-pancreatectomy haemorrhage (PPH), time from referral to surgery, hospital stay and readmission rate. Fischer’s exact test and unpaired t-test were employed for statistical analysis with p-value < 0.05 considered significant.   
  
  
  
Results:  
  
  
  
FT (n=34) and NFT (n=74) Whipple’s operation were performed during eighteen months (mean age (years) FT=62.3, NFT=64.6, p=0.31). There was no difference observed in overall 30-day mortality (FT n=0, NFT n=2, p=1.00) and morbidity (FT n=16, NFT n=28, p=0.40). There was no observed difference in the CCI (FT n=28.2, NFT n=34.3, p=0.37). Pre-operative bilirubin was significantly elevated in FT group (mean [mmol/l] FT=180.2 > NFT=24.4, p=0.0001). Four procedures were abandoned in NFT group (p=0.31). There was no significant difference in the incidence of PF (FT n=5, NFT n=9, p=0.76), DGE (FT n=8, NFT n=10, p=0.27), PPH (FT n=2, NFT n=5, p=1.00) and readmission (FT n=2, NFT n=5, p=1.00) and hospital stay (mean [days] FT 18.5 > NFT 14.7, p=0.067). However, there was significant difference observed in duration from referral to surgery (mean [days] FT 9.3 < NFT 73.2, p=0.0002).   
  
  
  
Conclusions:  
  
  
  
Fast-track Whipple’s surgery is feasible and can be safely performed without increased risk of morbidity and mortality in an NHS setting. Pre-operative biliary drainage can be avoided and patients can proceed to surgery within greatly improved timescales. Early surgery may help to increase chances of curative resection.

## Long Term Outcomes of Pancreatic Resections for Metastasis from Renal Cell Carcinoma – A Single Centre Experience.

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Category: Malignant

Introduction: Pancreatic metastatic disease from Renal Cell carcinoma is uncommon. There is limited evidence on the long term outcomes following a surgical resection as well as non-surgical management. We aim to present the long term outcomes of patients who underwent a surgical resection at our unit for renal cell carcinoma derived pancreatic metastases.  
  
  
  
Methods: A retrospective analysis was performed from 1980 onwards till July 2017. Data was collected from electronic patient records and medical notes using Microsoft excel. Kaplan-Meier survival analysis was performed using SPSS 24. Complications were graded using Clavien-Dindo classification system.  
  
  
  
Results: Overall 29 patients were found to have had pancreatic lesions derived from a renal cell carcinoma. 16 patients were managed conservatively and 13 eventually underwent a surgical resection. For patients who underwent a resection, mean age was 66 years, (7 Males and 6 Females). 6 patients had a solitary lesion and 7 had multiple lesions within the pancreas. 5 patients required a Whipple procedure, 5 underwent a Total pancreatectomy and splenectomy (2 requiring portal vein reconstruction), 2 had a distal pancreatectomy, splenectomy and adrenalectomy, 1 near total pancreatectomy and splenectomy and 1 had a multivisceral resection. 4 patients developed a post-operative complication of Clavien-Dindo Grade 2 or above; 1 had Grade 2, 2 patients had Grade 3a and 1 suffered Grade 4b. 1 patient eventually died as a result of complications. Median follow up was of 13 months. 6 (46%) patients developed recurrence at a mean of 16 months from the date of surgery. In comparison to conservatively managed patients, patients with surgical resection had a significantly better survival rates (p=0.018).  
  
  
  
Conclusion: Pancreatic resections for renal cell metastasis often involve complicated procedures and carry considerable morbidity. However, patients can achieve significantly longer survival if suitable for a surgical resection. Therefore surgery could be beneficial in carefully selected patients.