

BSIR IOUK ABSTRACTS 2023

SP003369 - The Scottish MUO Score for augmenting decision making in intervention for malignant ureteric obstruction – Oliver Llewellyn

SP003368 - A Retrospective Case Number Review for Image-Guided Thermal Ablation of Both Pulmonary Metastases and Primaries. 2006-2022 in a UK Tertiary Centre. - Peter McLoughlin

SP003367 - Liver vein deprivation to induce future liver remnant hypertrophy prior to major hepatectomy for primary and secondary liver cancer – a systematic review and meta-analysis. - Tymoteusz Turlejski

SP003366 - Complications Associated with Percutaneous Transhepatic Cholangiography and biliary drainage: a single-centre retrospective analysis. - Nethmee Malla

SP003364 - Hepatic ablation in a tertiary referral centre - Mark Macmillan-John

SP003362 - Does selective oesophageal stenting following endoscopic evaluation reduce stent migration? Aims – Paul Jenkins

SP003361 - The prognosticators to improve percutaneous transhepatic biliary drainage selection in obstructive biliary malignancies. – Keith Chan

SP003356 - Audit on effectiveness and technical success of the CT guided radiofrequency ablation of osteoid osteoma. - Sarthak Bahl

SP003355 - Ultrasound Guided Core Biopsy vs Fine Needle Aspiration Cytology in the Diagnosis of Parotid Neoplasia: An Up-to-Date Review. - Paulette Kumi

SP003354 - Oesophageal stenting – Time for a rethink? - Rahim Akram

BSIR IOUK 2023 ABSTRACT CONTENT

SP003369 - The Scottish MUO Score for augmenting decision making in intervention for malignant ureteric obstruction.

Category: Interventional Oncology

Author 1: Oliver Llewellyn

Introduction:

Malignant ureteric obstruction (MUO) occurs in advanced malignancy but there is no standard approach to management. Renal decompression can be achieved with percutaneous nephrostomy (PCN) or ureteric stenting (US). These interventions may improve renal function, facilitating further oncological treatment, but come with quality-of-life implications.

Methods:

Retrospective multicentre audit of patients who underwent PCN or US for MUO 2008-2020 across 6 Scottish healthboards. Patients were identified by OPERA (theatre) and RIS (radiology) codes. Primary outcomes were overall survival (OS) following decompression, and development of a scoring tool to predict 3month survival. Secondary outcomes were change in renal function 3months post-intervention, and receipt of further treatment. Cox and logistic regression were used to generate the Scottish MUO score. Missing variables were imputed. For validation, the entire cohort was split 70:30 into discovery:validation groups.

Results:

In 905 patients, OS was poor with 26% mortality at 3months, and 42% at 6months.

Increased age, potassium, WCC, CRP, and lower haemoglobin and bilateral hydronephrosis were associated with poorer OS. The Scottish MUO Score was developed and validated, available at: (https://webapps.igmm.ed.ac.uk/world/research/muo_calculator/). It compares favourably with other scores with higher AUC and specificity. 85% of patients had eGFR<60 prior to intervention. 50% of these had a >20% improvement in creatinine at 3months. 43% of patients received further oncological treatment following intervention.

Conclusion:

This study demonstrates MUO as a marker of advanced disease. We developed the Scottish MUO score which is valid for predicting low overall survival. We hope its use will guide decision making around intervention.

SP003368 - A Retrospective Case Number Review for Image-Guided Thermal Ablation of Both Pulmonary Metastases and Primaries. 2006-2022 in a UK Tertiary Centre.

Category: Interventional Oncology

Author 1: Peter McLoughlin

Author 2: Peter Kennedy

Author 3: Rohan Verma

Aims:

Image-guided percutaneous thermal ablation is becoming more widespread in its application for both pulmonary metastases and primaries. Offering a further therapeutic technique to the arsenal of oncology treatment. This study aims to assess the pulmonary tumour ablation case numbers from 2006-2022 and review the case mix's histological makeup. This will give essential insight required for future workforce planning and the potential requirement for investment in interventional oncology services.

Materials and Methods:

A retrospective study on patients treated from 2006-2022 inclusive. Data was collected from the PACS/RIS and entered into Excel. The total number of ablation procedures and the number of individual patients were collected for each tumour.

Results:

226 ablation procedures were carried out throughout the study period. On 179 individual patients. Colorectal pulmonary metastases were the most frequently ablated tumour making up 42% of the case mix. Followed by; Bronchial Carcinoma 28%, Sarcoma 13%, Renal Cell Carcinoma 7%, Other 10%. Annual cases increased from 4 in 2006 to 32 in 2022. The ratio of the number of ablations per patient for colorectal metastases was 1.42 compared with 1.02 for bronchial carcinoma. 1.3% of the total cases were repeat ablation procedures.

Conclusion:

There has been a significant increase in demand for thermal ablation for pulmonary tumours, with colorectal metastases making up the largest component typically due to multiple lesions per patient. This suggests a requirement for significant future investment in interventional oncology services to meet this increasing demand, relevant not just to our own centre but to others throughout the UK.

SP003367 - Liver vein deprivation to induce future liver remnant hypertrophy prior to major hepatectomy for primary and secondary liver cancer – a systematic review and meta-analysis.

Category: Interventional Oncology

Author 1: Tymoteusz Turlejski

Author 2: Yan-Lin Li

Author 3: Tomas Urbonas
Author 4: Alex Gordon-Weeks
Author 5: Philip Boardman
Author 6: Daniel Kearns
Author 7: Andrew MacDonald

Aims:

Liver venous deprivation (LVD) is a novel technique to facilitate future liver remnant (FLR) growth ahead of planned hepatic resection. However, the clinical outcomes after LVD are poorly understood. This study aims to quantify the rates of tumour resectability and FLR hypertrophy after LVD through systematic review of the literature and meta-analysis.

Materials and Methods:

PubMed, Embase and Cochrane Library were searched from 2000 to April 2023 using a pre-defined strategy consisting of synonyms of the LVD technique (in accordance to PRISMA guidelines). The following inclusion criteria were used: English language, peer-reviewed publication, sample size > 1, primary or secondary liver malignancy, study reporting resectability rate following LVD without simultaneous procedures to boost FLR growth. Of those, articles reporting %FLR hypertrophy compared to baseline were included in the second meta-analysis. The Newcastle-Ottawa Scale was used to assess study quality.

Results:

The literature search yielded 165 articles. Inclusion criteria were met by 16 studies (376 patients), of which 13 reported %FLR hypertrophy (344 patients). Only one prospective (non-randomised) study was identified. The pooled resectability rate was 89.2% [confidence interval 84.9% - 93.5%]. The pooled %FLR hypertrophy was 64.8% [confidence interval: 52.8% – 74.8%]. The most common indication for LVD were liver metastases (61.8% of reported). Only 4 pre-operative deaths (0.8%) were reported.

Conclusion:

LVD offers promising FLR hypertrophy and favourable tumour resectability rate, which should be interpreted with caution due to the risk of bias in predominantly small, retrospective studies. Prospective, randomised trials (DRAGON, HYPER-LIV01) will help to evaluate this further.

SP003366 - Complications Associated with Percutaneous Transhepatic Cholangiography and biliary drainage: a single-centre retrospective analysis.

Category: Interventional Oncology

Author 1: Nethmee Malla

Author 2: James Gordon-Smith

Aim:

To evaluate 30-day mortality and complication rates following percutaneous transhepatic cholangiography and biliary drainage (PTBD) procedures, and to compare local numbers with published literature.

Materials and methods:

Retrospective analysis of all adult (>18 years) patients who underwent PTBD within our health board was performed, during a period of 2 years (01/01/2019 – 31/01/2020). Primary objectives were development of infectious (sepsis not attributed to other causes, cholangitis, abscess, cholecystitis) and non-infectious (bile leakage, clinically significant haemorrhage) within one week post-biliary puncture, as well as 30-day mortality.

Results:

A total of 132 patients underwent 137 separate biliary punctures during the study period. 74% of patients underwent PTBD for an underlying malignant aetiology and 26% underwent PTBD for a benign aetiology (ex: post-transplant hepaticojejunostomy stricture).

30-day mortality for patients with benign aetiologies was 2.9%, and 19.4% for patients with a malignant aetiology. Overall 30-day mortality was 15.2%. The rate of post-biliary puncture pancreatitis was 7.3%. The rate of infectious complications was 11.0%, and non-infectious complications was 5.9%.

Conclusion:

Both non-infectious and infectious complications are common post-PTBD, however overall 30-day mortality and pancreatitis rates remain lower than numbers published in similar studies. There is an established practice amongst endoscopists of administering per rectal NSAIDs in the prevention of post-ERCP pancreatitis, and it would be interesting to consider extending this to our practice as well, as would administering routine antibiotic prophylaxis for the prevention of post-PTBD biliary sepsis. Future work could also involve the analysis of potential risk factors for complications.

SP003364 - Hepatic ablation in a tertiary referral centre

Category: Interventional Oncology

Author 1: Mark Thomas Macmillan

Author 2: James Gordon-Smith

Aims:

Hepatic ablation is an established therapy for the treatment of hepatic tumours most commonly HCC and colorectal cancer metastases. Reported recurrence rates are variable for local recurrence rate, and disease-free survival. This study reports hepatic ablations carried out in a tertiary referral centre.

Methods:

This audit was approved by the local Caldicott guardian. Retrospective analysis of hepatic ablations carried out in the interventional radiology department under ultrasound guidance at the Royal Infirmary between October 2017 and October 2020 were considered.

Results:

97 patients were included in this study, who underwent 113 ablations. 74 patients (76.2%) had HCC secondary to ALD most commonly, 31.1% of cases. A further 15 patients had metastatic colorectal cancer (15.5%). Median lesion size was 18mm (Range 8-37mm). Technical success was achieved in 96.9% of cases. 8 cases used fluoroscopic angiography and a further 8 cases used hydro-dissection. 89.2% of cases employed microwave ablation, the remainder using RFA. 2 cases of hepatic abscess occurred following ablation, 2 cases of bleeding requiring embolization and a case of pleural effusion requiring drainage occurred, overall significant complication rate of 5.2%. Median follow up was 2.82 years, during which 30.1% developed local recurrence and 43.0% developed nonlocal intrahepatic recurrence. 1 year disease free survival was 61.3%.

Conclusion:

The Edinburgh experience of hepatic ablation has demonstrated high technical success rate and low complication rate. Recurrence rates are commensurate with previously published data. Further analysis of this data set may unveil factors associated with reduced recurrence and improved survival.

SP003362 - Does selective oesophageal stenting following endoscopic evaluation reduce stent migration?

Aims

Category: Interventional Oncology

Author 1: Paul Jenkins

Author 2: Andrew MacCormick

Author 3: Robin Alridge

Author 4: Bruce Michael Fox

Aim:

Oesophageal malignancy is commonly diagnosed at a late oncological stage with dysphagia. Severe dysphagia may be treated with a covered stent however migration rates up to 23% are described with associated morbidity including obstruction and perforation. Assessment of the degree of obstruction may be made using ease of endoscope passage in addition to dysphagia scoring. The aim of this study is to establish whether the ease of passage of endoscope demonstrates low migration rates.

Methods:

15 year single operator retrospective review at a tertiary oesophageal cancer centre between 2006 and 2020 with a dysphagia score (Mellow&Pinkas) grade 3 or 4. Cases were identified on the radiological information system (RIS) and migration rates were assessed with follow up imaging.

Results:

299 patients were identified with a median age of 74.8 years (Range 44-97). 147 were stented at first assessment, although in 11 oesophageal stenting was performed despite the endoscope being able to traverse the lesion. 53/299 (26.5%) were not stented due to the ease of passage of the endoscope. 30/53 (56.6%) had no further intervention with 23/53 (43.4%) subsequently stented. Of the 136 that were stented in accordance with the established criteria, stent migration occurred in 8 cases (5.9%). The clinically relevant migration rate, defined as migration requiring further intervention, was only 1.5% overall (2/136). In the 11 that were stented despite not meeting the established criteria, 1 migrated.

Conclusion:

We demonstrate a low migration rate using ease of endoscope passage as a marker of suitability of stent insertion.

SP003361 - The prognosticators to improve percutaneous transhepatic biliary drainage selection in obstructive biliary malignancies.

Category: Interventional Oncology

Author 1: Keith Chan

Author 2: Ganesh Vigneswaran

Author 3: Sachin Modi

Author 4: Drew Maclean

Author 5: Brian Stedman

Author 6: Tim Bryant

Author 7: Ben Maher

Aim:

To identify prognosticators of first-time percutaneous transhepatic biliary drainage (PTBD) for obstructive malignant disease.

Materials and Methods:

A single centre retrospective data analysis was performed in first-time malignant PTBDs and their respective survival outcomes between 2017- 2021. Prospective preprocedural prognostic factors included age, underlying aetiology, serum haemoglobin and bilirubin levels. The data was subsequently analysed using Kaplan-Meier survival analysis and log rank test. Cox Proportional Hazards regression was also used for multivariate analysis.

Results:

156 patients were eligible. These included 62 pancreatic, 55 hilar cholangiocarcinoma, 19 ampullary/duodenal, and 20 non-hepatobiliary cancers. The median overall survival for the cohort was 136 days. The underlying aetiology significantly impacted median overall survival time. Median survival of non-hepatobiliary cancers was 53 days compared to cholangiocarcinoma survival of 347 days ($p < 0.001$). Median survival for pancreatic and duodenal/ampullary carcinomas were 120 and 105 days, respectively. On multivariate analysis, we found that in addition to aetiology, patients >70 years, preprocedural haemoglobin (<110 g/L) and bilirubin (>232 $\mu\text{mol/L}$) were all independent prognosticators and were associated with significantly lower survival (HR 1.2, 1.8, 1.6 and 1.4 respectively, all $p < 0.05$).

Conclusion:

There are significant differences in overall survival outcomes among patients with different malignant obstructive biliary aetiologies who undergo percutaneous transhepatic biliary drainage (PTBD). These differences highlight the heterogeneity of the PTBD cohort, despite common treatment pathways. These findings have the potential to improve the patient selection process, helping doctors identify which patients are most likely to benefit from PTBD and optimising their treatment plans accordingly.

SP003356 - Audit on effectiveness and technical success of the CT guided radiofrequency ablation of osteoid osteoma.

Category: Interventional Oncology

Author 1: Sarthak Bahl

Aims:

Osteoid osteoma is a painful benign neoplastic bone disease affecting children/young adults. Treatment historically involved surgical excision, although difficulty in lesion localization and need for dissection had its problems. Radiofrequency ablation (RFA) has been found to be a safe, fast, and reliable method of treating osteoid osteomas. We looked at the RFA for osteoid osteomas done at our university hospital retrospectively and compared it to literature.

Method:

Data collected for patients who underwent radiofrequency ablation for osteoid osteoma ($n=15$). The details collected included age of the patient, size of the nidus, site of osteoid osteoma, WHO checklist followed, technical success, histological confirmation, relative contraindications, post-op complications, day of discharge, change in symptoms and any recurrence. Follow-up period varied from 6 months to 2 years.

Results:

The age range for patients who underwent osteoid osteoma was 10-18 years. The site of osteoid osteoma was divided into typical sites ($n=12$) which included femur ($n=7$), tibia ($n=4$), distal radius ($n=1$) and atypical sites ($n=3$) which included Sacrum S1/2 ($n=2$) and capitate ($n=1$). The size of nidus ranged from 2mm-1.7cm. There was technical success in 14 out of 15 radiofrequency ablation procedures (93% technical success similar to literature). One case of technical failure was due to under-achieved temperature caused by machine fault.

Out of 15 patients who underwent RFA, all had some pain relief following the procedure (100%). There were 6 cases of recurrence, 5 of which underwent second RFA and following that have been asymptomatic.

Conclusion:

Radiofrequency ablation convincingly remains a popular method for management of benign osteoid osteomas, given better lesion localisation, less post-op complications, almost nil dissection and same day discharge. It has comparatively higher technical success and lower rate of recurrence compared to surgical excision for osteoid osteomas.

SP003355 - Ultrasound Guided Core Biopsy vs Fine Needle Aspiration Cytology in the Diagnosis of Parotid Neoplasia: An Up-to-Date Review.

Category: Interventional Oncology

Author 1: Paulette Kumi

Aims:

The authors performed a literature review to provide an update on current practice and outcomes of both Fine needle aspiration cytology (FNAC) and Ultrasound guided core biopsy.

Materials and Methods:

A literature review of EMBASE, Medline, PubMed and Google Scholar was conducted. Regarding USCB, four systematic reviews and meta analyses were identified, alongside three other studies that were not included within these papers. Regarding

FNAC, three systematic reviews and meta analyses were identified, alongside seven other studies, not included within these papers, using optimised FNAC in sample sizes of over fifty.

Results:

USCB has higher sensitivity, specificity and lower non-diagnostic rates than optimised fine needle aspiration cytology (FNAC). It also has a significantly higher sensitivity for the detection of malignancy. Complications post-USCB are uncommon, with only

one reported case of tumour seeding and no cases of permanent facial nerve dysfunction. The technique is less operator dependent than FNAC, with less variation in results between institutions.

Conclusions:

USCB can be considered as the optimum tool of choice for diagnosis of parotid neoplasia. This would particularly be the case in centres utilising FNAC with high non-diagnostic rates or reduced diagnostic accuracy when compared to USCB published data, or in centres establishing a new service.

SP003354 - Oesophageal stenting – Time for a rethink?

Category: Interventional Oncology

Author 1: Rahim Akram

Author 2: Hans-Ulrich Laasch

Aims:

Oesophageal stenting was considered a last resort for managing oesophageal occlusion from incurable oesophageal carcinoma. With advancing oncologic regimens, patient survival has dramatically increased from 3 months to 2 years. This presents an increasing challenge to stents and materials, but also requires a more involved approach of interventionalists. This case-series demonstrates the challenges presented by the

change of landscape of oesophageal cancer treatment and aims to identify changes required in the philosophy of stenting.

Methods & Materials:

Two of the longest-term survivors with oesophageal carcinoma who underwent multiple/repeat stent procedures were selected. SECTRA was used to identify the chronological events in which stent procedures occurred, using fluoroscopic studies. CT studies in between were also used to identify acute complications.

Results

Case1: 9 stent procedures. Patient experienced stent: migration, folding, impaction into bowel requiring laparotomy, fracture and conglomerate formation. Stent conglomerate revealed extra stent deployed at a different trust which was poorly documented.

Case 2: 4 stent procedures. Patient experienced mild dysphagia with multiple episodes of stent migration. Currently, interval scans demonstrate stable disease with minimal dysphagia-related symptoms. No stent in-situ.

Conclusion:

Recurrent dysphagia will inevitably occur. Hence, it is crucial that interventionists understand: 1) The correct characteristics and limitations of devices. 2) Patient anatomy and specific requirements for tailoring stents. 3) The need for re-intervention is expected, hence patients be actively followed up for stent function and maintenance. 4) Good communication and a multi-disciplinary team approach are paramount. 5) Not everyone will benefit from stenting.