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Introduction Hepatocellular carcinoma (HCC) behaves differently in cirrhotic and non-cirrhotic livers. Microvascular invasion (MVI) is a key determinant of outcome following curative treatment for HCC. Despite attempts to reach a consensus, reliably identifying microvascular invasion remains difficult. Interrogating factors influencing MVI in patients with or without cirrhosis may determine more reliably identifiable factors or surrogates for MVI and provide valuable insight into the underlying biology of HCC.
Methods Review of a prospective database of 229 consecutive patients undergoing hepatectomy (n=164) or transplantation (n=65) for HCC at St James's University Hospital, UK between 1998 and 2011. Diagnosis was based on published guidelines and incidental explant tumours excluded. 115, 50.2% occurred in cirrhotic compared to 114, 49.8% in non-cirrhotic livers. Clinicopathological characteristics were correlated with survival and MVI. Survival was calculated using the Kaplan–Meier method with Log-rank and Cox stepwise regression for survival comparisons. Univariate χ^2 and multivariate logistic regression were used to analyse relationships between clinico-pathological variables and MVI ($p<0.05$ was indicative of statistical significance).
Results In non-cirrhotic patients recurrence independently predicted overall survival (OS) (p=0.001) while multifocal tumours (p=0.042) and viral aetiology (p=0.029) independently predicted disease free survival (DFS). In cirrhotic patients recurrence ($p<0.001$), MVI ($p<0.001$) and tumour size >5 cm ($p<0.005$) predicted overall survival (OS) and disease free survival (DFS) in univariate analysis. Only recurrence (p=0.001) for OS and MVI (p=0.002) and tumour size >5 cm (p=0.027) for DFS retained independence on multivariate analysis. Univariate analysis of pre-operative variables revealed MVI was significantly associated with multifocal HCC and poor differentiation in non-cirrhotic patients (p=0.04 and p=0.019), and with viral aetiology in cirrhotic patients (p=0.047).
Conclusion In cirrhotic patients MVI was an independent predictor of DFS while recurrence strongly determined OS. Viral aetiology was the only significant pre-operative factor associated with MVI in the explant. In non-cirrhotic patients multifocality strongly predicted DFS and was associated with MVI. We hypothesise that multifocality in non-cirrhotic HCC may actually be representative of MVI rather than multifocal de novo tumour formation. Given the challenges of robustly identifying MVI in these patients, multifocality could be an extremely useful prognosticator and histopathological indicator of MVI, which we know carries series implications for our patients.

Competing interests None declared.

PWE-142 ENDOSCOPIC STENTING FOR MALIGNANT BILIARY OBSTRUCTION: A 3-YEAR REVIEW

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Introduction Placement of biliary stents in malignant biliary obstruction is an area of controversy as ERCP and stent placement may cause morbidity in patients with operable disease. We review here our experience in a cohort of relevant patients.
Methods A 3-year database review to identify all relevant cases for case note review. Principal outcome measures were: success of stent placement; need for further endoscopic intervention; surgical resection rates and documented complications.
Results 124 cases were identified. 100 patients underwent ERCP; stent placement was successful at first ERCP in 82% of cases. A further 5% were stented at a second ERCP and 10% required percutaneous drainage. Plastic biliary stents were used in most cases (75/87, 86%); remaining patients had metal stents. Of plastic stents, 31/75 (41%) required unscheduled re-intervention for stent occlusion, after a median interval of 90 days. 66 patients were referred for a surgical opinion; remaining patients had inoperable disease or co-morbidity. Of the referred patients, 28 (23% of whole cohort) underwent resection surgery and of these 8/28 (29%) needed pre-operative revision of their biliary stents. The median post-operative stay was 11 days and serious complications including one death occurred in three cases (11%).
Conclusion In this review only 23% of patients with malignant biliary obstruction were suitable for surgical resection. However where prior plastic biliary stents were used, a high proportion required re-intervention and this practice may have contributed to post-operative complications.

Competing interests None declared.

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PWE-143 FACTORS PREDICTIVE OF SURVIVAL FOLLOWING RESECTION OF EITHER RECTAL OR COLONIC LIVER METASTASES

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Introduction While colonic and rectal cancers are often considered as a single disease entity there is a growing body of evidence that these are in fact separate disease processes. While a variety of factors have been identified in the literature as predictive of outcome following resection of metastatic disease from colorectal primaries it is not known if colonic liver metastases (CLM) behave differently to rectal liver metastases (RLM). The aim of this study was to determine those factors which predict long-term survival following resection of either CLM or RLM.
Methods We analysed a prospectively maintained Hepatobiliary database of 418 patients (with complete follow-up) who underwent liver resection for CRM between January 2000 and December 2010. The cohort was stratified according to the site of the primary tumour with rectal tumours being defined as those within 15 cm of the anal verge. Continous variables were compared with the Mann–Whitney U test whereas categorical variables were compared with χ^2 test. Survival analysis was performed with Kaplan–Meier plots and significance assessed with log rank test. Multivariate analysis was performed using a Cox-Regression model. A p value of <0.05 was considered significant.
Results 55% of patients had CLM (n=227) whereas 45% had RLM (n=191) (p=0.258). Patients with CLM were less likely to have node positive primary disease (52% vs 62%; $p<0.05$). Overall 5-year survival was similar for both CLM and RLM (42% vs 45%; p=0.62). Following resection of CLM multivariate analysis identified a CEA ≥200 (OR 2.39; $p<0.01$) and the presence of 4 or more tumours (OR 2.4; $p<0.05$) as independent predictors of long term survival. While there was a strong trend towards poorer 5-year overall survival in those with a resection margin <1 mm this did not reach statistical significance (p=0.383) on univariate analysis. Following resection of

RLM the presence of a resection margin <1 mm was the only independent predictor of survival (OR 2.86; p<0.001).

Conclusion Overall 5-year survival following resection of both CLM and RLM is similar. Those factors which predict long-term survival following liver resection however differ and this may have implications for selecting those for intensive follow-up or who may be candidates for adjuvant therapy.

Competing interests None declared.

PWE-144 ENDOSCOPIC ULTRASOUND IN THE EVALUATION OF LIVER HILAR PATHOLOGY

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Introduction Liver hilar pathology has traditionally been challenging to investigate as histological diagnosis is often difficult to obtain. The diagnostic yield of existing techniques including ERCP is suboptimal. Patients have consequently been managed in the absence of histological diagnosis, with the attendant hazards, including potential metal stent placement or unwarranted surgery in the absence of malignant disease. Upto 15% of patients with suspected biliary malignancy who undergo surgery are found to have benign disease. The utility of endoscopic ultrasound has not been established and our study aims to evaluate the role of EUS in this setting.

Methods This is a retrospective review of all patients with a hepatic hilar stricture and or mass, who were reviewed at the hepatobiliary multidisciplinary meeting between July 2006 and September 2011 and went on to have an EUS examination. Patients with presumed benign disease were followed until they underwent definitive surgery, or for 1-year with serial cross sectional imaging.

Results 95 patients with hilar lesions underwent 114 EUS examinations. 67 (70%) patients were diagnosed to have malignant disease. 58 patients had biliary tarct cancer. EUS-FNA yielded a positive cytological diagnosis in 52 (78%) patients. In 15 patients EUS cytology was false negative. 28 patients were diagnosed with benign disease. Factors that predicted malignant disease at EUS examination included the presence of a bile duct associated mass lesion (p value 0.0001) and an EUS morphological diagnosis of cancer (p value 0.03). The presence of "pathological" lymph nodes was not statistically significant (p value 0.79). Sensitivity in obtaining a cytological diagnosis, accuracy in defining benign and malignant disease, specificity and negative predictive value of EUS were 78%, 85%, 100%, and 66% respectively. Metal stent insertion was contemplated in atleast two patients following cross sectional imaging but was abandoned after EUS confirmed the benign nature of their condition.

Conclusion In the largest series to date we report high sensitivity (80%) for EUS cytology in the diagnosis of malignant disease and accuracy (85%) in distinguishing malignant from benign disease. EUS had a significant impact on the clinical management of our patients, including prevention of potential metal stent placement in atleast two patients who were eventually diagnosed with benign disease.

Competing interests None declared.

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PWE-145 PROGNOSTIC FACTORS INFLUENCING SURVIVAL AFTER LIVER RESECTION FOR COLORECTAL METASTASIS

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Introduction A variety of factors have been identified in the literature which influence survival following resection of colorectal liver metastases (CRLM). The aim of this study was to identify those factors which influence survival in patients undergoing resection of CRLM in a UK centre.

Methods All patients having liver resection for CRLM during an 11-year period up to 2011 were identified from a prospectively maintained database and relevant clinical data retrieved from case records. Prognostic factors analysed included tumour size (>5 cm or <5 cm), lymph node status of primary tumour, margin positivity R1 (<1 mm) or R0, neo-adjuvant chemotherapy (for liver), tumour differentiation, number of liver metastasis (4 or more), preoperative CEA (>200 or <200) and whether metastases were synchronous (ie, diagnosed <12 months) or metachronous to the primary tumour. Overall survival (OS) was compared with Kaplan–Meier plots, log rank test. Multi-variate analysis was performed using Cox regression model (SPSS V.19). p<0.05 considered significant.

Results 432 patients underwent resection of CRLM during this period (67% male; mean age 64.5 years). The overall 5-year survival in this series was 43%. A pre-op CEA>200 was present in 10% of patients and was associated with a poorer 5-year OS (24% vs 45%; p<0.001). A resection margin <1 mm was present in 16% of patients and this had a negative impact on 5 yr OS (15% vs 47%; p<0.001). Tumour differentiation, number, size, presence of biliary or vascular invasion, relationship to primary disease, nodal status of primary, or the use of neoadjuvant chemotherapy had no impact on OS. Multi-variate analysis identified only the presence of a positive resection margin (OR 1.75; p<0.05) and a pre-op CEA>200 (OR 1.88; p<0.01) as independent predictors of poorer OS.

Conclusion Despite the wide variety of prognostic factors reported in the literature we were only able to identify a pre-op CEA>200 and the presence of tumour within 1 mm of the resection margin as being of value in predicting survival. These variables are likely to identify patients who may benefit from intensive follow-up to enable early adjuvant chemotherapy postoperatively.

Competing interests None declared.

PWE-146 BILIARY INVASION IN COLORECTAL LIVER METASTASIS—DOES IT MATTER?

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Introduction Vascular invasion of colorectal liver metastasis following liver resection has a detrimental effect on patient outcome. However there are few studies specifically looking at the significance of biliary invasion in colorectal liver metastasis (CRLM). The aim of this study was therefore to evaluate the presence of biliary invasion and patient outcomes in those having liver resection for CRLM.

Methods All patients having liver resection for colorectal liver metastasis during an 11-year period up to 2011 were identified from a prospectively maintained database. The unit follows standardised pathological reporting for CRLM where biliary and vascular invasion are assessed and documented. Missing information was