was no significant difference in preoperative patient or tumour characteristics, extent of resection, postoperative complications, length of stay, blood transfusion or resection margin status observed between study groups. Median overall preoperative monocyte count was 0.45 x109 in the group. In Group A(n = 83) and B (n = 521), the mean DFS was 44 and 35 months respectively (p = 0.105) and actuarial 1,3 and 5 year DFS 60%, 35%, 30% vs. 53%, 28%, 22% respectively. Multivariate analysis shows that only age >65 yrs, tumour number, blood transfusion, postoperative complications and R1 margin were associated with poorer long-term outcomes.

Conclusions: Study group numbers in previous reports have been less than 100 and in this larger group preoperative blood monocyte counts has failed to demonstrate it as an independent prognostic factor in patients undergoing hepatic resection for CRLM.

LIVER 0570
THE ONGOING EFFECTS OF ENHANCED RECOVERY FOR LIVER RESECTIONAL SURGERY
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Aims: Enhanced recovery is a key element of care for many surgical patients. The recognized benefits include a reduction in the length of hospital stay, promotion of early oral intake and mobilization and improved pain management. This study aimed to assess the ongoing effects eighteen months following the introduction of enhanced recovery in liver resectional surgery, and compare with the initial outcome.
Methods: Patients undergoing liver resectional surgery for primary or metastatic disease were included in this study. These results were then compared to the results obtained in the initial comparative study, which included 8 patients whose liver resectional surgery was performed immediately following the introduction of enhanced recovery. The primary endpoint was length of postoperative hospital stay. Secondary endpoints included time to oral diet, time to mobilisation, intraoperative blood loss and postoperative analgesia requirements. Statistical analysis was performed.
Results: 20 patients were included. The median day for recommencing oral diet was day 1 (previously day 1) and median mobilisation at day 3 (previously day 2). All patients in the follow-up group received local anaesthetic via a rectus sheath catheters reducing requirements for IV analgesia. The length of postoperative stay was 8.33 3.42 days, compared to 5.2 1.25 days in the initial study (p = 0.31). The mean intraoperative blood loss was 1341.1 860.1 mls, compared to 1077.3 802.7 mls 18 months previously. Completion of documentation had significantly reduced over the 18 months (8 patients versus 1 patient).
Conclusions: This study highlights that the key principles of early mobilization, the early introduction of oral diet and adequate analgesia are still adhered to. This complete audit highlights the importance of ongoing education of nursing and junior medical staff to ensure compliance with the enhanced recovery programme in the future.

LIVER 0575
EVALUATION OF FUTURE REMNANT LIVER FUNCTION BY HEPATOBILIARY SCINTIGRAPHY IN PATIENTS UNDERGOING LIVER RESSECTION.
MOSCOW CLINICAL SCIENTIFIC CENTER EXPERIENCE
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Aims: 99mTc-mebrofenin static and dynamic hepatobiliary scintigraphy enables anatomical and functional assessment of the liver. Role of using hepatobiliary scintigraphy in comparison with CT volumetry is not defined. The possibility of hepatobiliary scintigraphy in determining functional and volumetric parameters of liver parenchyma in patients undergoing liver resection was estimated in our study.
Methods: CT volumetry and hepatobiliary scintigraphy performed in 23 patients before major liver resection. After injection of 300 MBq 99mTc- mebrofenin static hepatobiliary scintigraphy estimated liver volume. Static images were obtained with a 1-cameral for 40 minutes. Dynamic hepatobiliary scintigraphy was made by calculating the coefficient of retention of the radiopharmaceutical drug in the blood (N = 0,42 0,01 m) and calculating the coefficient of retention of the radiopharmaceutical drug in the liver (N = 1,61 0,01 min). Comparison of scintigraphic data and anatomical model of the liver obtained by CT was made.
Results: CT data and scintigraphic volumetry comparable between patients with a normal liver parenchyma. In case of compromised liver parenchyma (steatosis, fibrosis, cirrhosis), there is a difference between scintigraphy functioning parenchyma volume and CT liver volumetry ranging from 25 to 31%. Conclusion: Static and dynamic hepatobiliary scintigraphy in combination with CT volumetry more accurately predict the extent and the functional reserve before liver resection, and the risk of postresection liver failure.

LIVER 0587
IS AN UPPER MIDLINE INCISION A SUITABLE INCISION FOR MAJOR LIVER RESECTIONS?
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Aims: Given the increased interest in minimal access surgery and its recognized advantages, we report our experience of patients undergoing liver resection through an upper midline incision as compared to a group who received a J-Shaped incision.
Methods: Seventy-three consecutive patients who underwent liver resection between May and December 2014 in a single tertiary HPB surgery unit, were retrospectively studied. They underwent upper midline (n = 31) and J-shaped (n = 42) incisions and postoperatively all of them followed the same enhanced recovery after surgery (ERAS) programme. Demographics, perioperative outcomes, postoperative hospital stay, laboratory data, postoperative pain
assessed by a visual analog scale (VAS) and complications were compared and analysed.

**Results:** The female ratio was higher ($P = 0.015$) and the body mass index (BMI) lower ($P = 0.015$) in the midline group versus the J-shaped group. Short-term oncological outcomes, postoperative wound complications (19.2% vs 16.66%; $P = 0.986$), major complications (including bleeding, bile leak and respiratory problems) (16.12% vs 28.57%; $P = 0.559$) and length of stay (7.97 vs 9.40; $P = 0.301$) were similar between groups. Also mean postoperative VAS scores were the same in both groups (5.19 vs 5.19; $P = 0.994$). More advanced statistical analysis were performed including group matching and multivariate analyses but no differences were found between midline and J-shaped incision groups.

**Conclusions:** This is a small cohort of patients, but was designed to demonstrate that an upper midline incision can be utilised for a spectrum of liver resections with no increased risk to the patient. Having demonstrated safety and proof of concept we will now go and perform a prospective analysis including detailed short and long term quality of life assessments to understand if the upper midline incision infers benefit to the patient.

LIVER 0589
**A SINGLE CENTER COMPARATIVE STUDY OF OPEN AND MINIMAL INVASIVE RADIOFREQUENCY ABLATION OF LIVER TUMOURS**

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**Aims:** Radiofrequency ablation (RFA) of liver tumours can be performed during laparotomy (RFA-LAP) or minimally invasive (RFA-MI) via laparoscopy or percutaneously, but comparative studies are lacking. Our prospectively created RFA database was analysed with morbidity as the primary aim and oncological outcome as the secondary aim.

**Methods:** RFA-LAP treated and RFA-MI treated patients were compared for rate and severity of complications and oncological outcome.

**Results:** 196 patients underwent 296 RFA sessions, 157 (58%) for colorectal liver metastases (CRLM), 72 (27%) for hepatocellular carcinoma (HCC) and 40 (15%) for other liver tumours. 111 (41%) were RFA-LAP and 158 (59%) RFA-MI procedures with a major complication rate of 29% and 13% respectively ($P = 0.03$). Incomplete ablations occurred in 3/111 (2.7%) of the RFA-LAP and in 18/158 (11.4%) of the RFA-MI sessions ($P = 0.01$). Median survival of HCC patients was 29 months, with 1-, 3- and 5-year overall survival rates of 75%, 38% and 8% (RFA-LAP) versus 81%, 50%, and 32% (RFA-MI). Median survival in CRLM patients was 48 months, with 1-, 3- and 5-year overall survival of 94%, 61% and 30% (RFA-LAP) and 95%, 72% and 64% (RFA-MI). Independent prognostic factors for survival in CRLM patients were the occurrence of major complications (HR 2.03), primary tumour localization in the rectum (HR 0.51) and clinical risk score $>2$ (HR 1.9).

**Conclusions:** The minimal invasive approach is associated with less severe complications and a comparable overall and disease-free survival albeit with a higher chance of incomplete ablations.

LIVER 0594
**ROBOT-ASSISTED LAPAROSCOPIC LIVER RESECTION: A SYSTEMATIC REVIEW OF THE LITERATURE**

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**Aims:** To overcome the limitations of conventional laparoscopy, robotic surgery has been introduced. This technique has possible advantages over laparoscopy, such as increased dexterity and 3-dimensional view. We performed a systematic review of the current literature to assess the safety and feasibility for three categories of hepatic resection: (1) minor resections of easily accessible segments: 2/3, 4B, 5, 6, (2) minor resections of difficult located segments: 1, 4A, 7, 8 and (3) major resections: $\geq$ 4 segments.

**Methods:** A systematic search was performed in PubMed, EMBASE and Cochrane Library. Studies that reported $\geq 5$ patients were included. Conference abstracts, studies not reporting morbidity or mortality, or studies that focused on biliary reconstruction were excluded. Patient demographics and peri-operative outcomes were extracted and analyzed.

**Results:** Eleven studies were included in this systematic review reporting on 343 patients. Data for three different groups of hepatic resection were pooled and analyzed. For the group of minor resections of easily accessible segments (1) the weighted mean operative time was 234 73 min. One conversion was needed in this group (1%). Weighted mean operative time for resections of the difficult segments (2) was 260 80 min. No conversions were needed in this group. For the group of major resections (3) the weighted mean operative time was 410 103 min. In this group 8 robotic procedures were converted to open surgery (9%).

**Conclusions:** Robot-assisted laparoscopic liver resection seems to be safe and feasible in selected patients. Especially in resections of the posterior segments the use of a robotic system may be superior to a standard laparoscopic approach with regard to the number of conversions. However, larger studies, including more patients, are needed to compare robot-assisted surgery with conventional laparoscopy and open surgery.

LIVER 0596
**RESECTION OF SYNCHRONIC LIVER METASTASES FROM RECTAL CANCER DURING THE WAITING INTERVAL AFTER NEOADJUVANT CHEMORADIATION: A VALUABLE OPTION?**

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**Aims:** As there is a trend to increase the waiting interval up to 10 weeks after neoadjuvant chemoradiation (CRT) for rectal adenocarcinoma to optimize treatment response, an interesting therapeutic window has opened up to treat patients with synchronous liver metastases. We describe 3 cases of patients with rectal cancer who underwent interval