

## O153 - Liver and Biliary Tract Surgery

### 2000 FUNDUS FIRST LAPAROSCOPIC CHOLECYSTECTOMIES WITHOUT MAIN BILE DUCT INJURIES—A GOOD STRATEGY FOR AVOIDING IATROGENIC LESIONS

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**Aims:** Avoiding iatrogenic Main Bile Duct (MBD) lesions is a permanent concern for surgeons. Various strategies regarding this issue are continuously debated upon, starting with the safety guidelines for cholecystectomy enounced by Sopper, going through intraoperative cholangiography or ultrasound, and ending with the concept of Critical View of Safety. Looking retrospectively at the over 100 years of experience with open cholecystectomy, we want to evaluate the fundus first laparoscopic cholecystectomy as a safe approach to difficult cases.

**Methods:** Records of all laparoscopic cholecystectomies performed in our institution between 2001 and 2011 were analyzed, including 2052 fundus first laparoscopic cholecystectomies (group 1), 7592 standard laparoscopic cholecystectomies (group 2), and 149 conversions. Our primary matter of consideration was the iatrogenic MBD lesion. Secondary concerns were postoperative bile leakage and hemorrhage. No significant differences in patients' characteristics were observed. We also compared the outcomes with that from an historic group (1994–2000) when we did not practice fundus first laparoscopic cholecystectomy.

**Results:** No iatrogenic MBD lesions were noted in group 1 comparing with 11 in group 2. Despite of what we have expected, the difference between the two groups is not statistically significant ( $p = 0.084$ ). As we have predicted, there are no differences in postoperative bile leakage (0.29 vs. 0.16 %  $p = 0.21$ ) or hemorrhage (0.10 vs. 0.12 %  $p = 0.80$ ). Compared with our previous experience there is a significant decrease in the rate of conversions (1.5 vs. 4.3 %  $p < 0.001$ ) but not in the rate of iatrogenic MBD lesions (0.11 vs. 0.20 %  $p = 0.28$ ).

**Conclusions:** Experience with open surgery has demonstrated that fundus first approach is safer. The relative lack of compliance with this strategy in our institution determined the number of cases in group 1 to be too small for a significant difference between the outcomes in the two groups. On the other hand, increasing skills with fundus first dissection enabled surgeons to complete the difficult cases by laparoscopic means.

## O154 - Liver and Biliary Tract Surgery

### A ONE YEARS EXPERIENCE IN LAPAROENDOSCOPIC SINGLE SITE (LESS) CHOLECYSTECTOMIES IN A TERTIARY TEACHING HOSPITAL

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Laparoscopic Single Site (LESS) surgery is proposed for obvious cosmetic benefits and in an attempt to decrease postoperative pain and improve postoperative convalescence. The aim of this prospective registration was to evaluate the feasibility and learning curve of the procedure, to investigate the demand of patients for this procedure in relation to costs, safety and outcome in a tertiary teaching hospital.

**Methods:** A prospective registration of all cholecystectomies performed in our center in 2011 were prospectively reviewed. Patients were medically evaluated to be candidate for LESS and if so (considering previous upper GI surgery, BMI, acute cholecystitis), both procedures were explained in detail. The first 6 months an extra cost for LESS port was explained to be a disadvantage of 300 Euro paid by patient. Indication, gender, BMI, operative technique, conversion rate, operation time and complications were recorded and analyzed.

**Results:** 150 patients had their cholecystectomy done in our center during this 1 year observation period. 109 patients were eligible for LESS, 34 agreed for LESS procedure (32 %), 3 had to be performed by laparoscopy because of logistic reasons (material not sterilized). All patients chose LESS procedure for cosmetic reasons (27 females, 4 males). Indications were symptomatic cholecystolithiasis in 28 cases (90 in the laparoscopy group) and gallbladder polyp in 3 (1 in the laparoscopy group, 1 in the laparoscopic assisted transvaginal group). The mean operating time was 74 min (45–150 min) in the first 18 cases and dropped to 62 min (45–90 min) in the next 13 cases. Mean operating time for the laparoscopy group was 72.9 min (22–184 min). Four patients had to be converted to laparoscopy because of leakage of CO<sub>2</sub> through the LESS port. One patient underwent a revision for bile leakage because of clip dislocation. No wound infections or incisional hernias were recorded yet.

**Conclusion:** LESS cholecystectomy is increasing in popularity, but it is remarkable that most patients don't want to pay more for cosmetic advantages. Even after the learning curve this procedure is demanding and surgeons should remain cautious not to give in to certain patient safety issues to achieve his goal.

## O155 - Liver and Biliary Tract Surgery

### LAPAROSCOPIC LIVER RESECTION: A SINGLE CENTER EXPERIENCE

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**Introduction:** Laparoscopic liver resection (LLR) is becoming more frequent for benign and malignant liver lesions. Indications and outcomes still need to be evaluated.

**Aim:** The aim of our study was to evaluate feasibility, security and specific postoperative course in the laparoscopic approach for liver resection as well as long term results of LLR in term of morbidity and mortality in a series with numerous associated surgeries.

**Methods:** We performed a retrospective analysis of a continuous series of LLR performed between March 2003 and December 2011. This series did not include any liver biopsies or radiofrequency ablation (RFA) without associated hepatic resection.

**Results:** There were 48 LLR in 47 patients, including 28 (58.3 %) benign lesions (15 HNF, 4 hydatid cysts, 3 polypadenomatosis, 2 adenoma, 1 angioma 1 inflammatory pseudo-tumor and 1 hemorrhagic necrotic zone, 1 biliary cyst) and 20 malignant lesions (41.7 %) (13 metastases and 7 hepatocarcinomas). The mean age was 50.6 years (range: 26–80). LLR constituted in a minor resection in 40 patients (83.3 %) (18 tumorectomies or wedge resections, 10 segmentectomies, 9 bisegmentectomies II–III, 3 bisegmentectomies except II–III) and a major resection, including 5 right hepatectomies, in 8 patients. In 22 patients (45.8 %), LLR was associated with an other surgery (cholecystectomy, adrenalectomy, appendicectomy, ileostomy closure, incisional hernia, ovarian kystectomy, right adnexectomy, rectosigmoidectomy, sigmoidectomy, and tubal ligation) and in 2 patients with radiofrequency. There were 4 conversions (8.3 %) and 1 per-operative and 17 post-operative complications (35.4 %) (2 bile leaks). One patient needed intensive care. Mean OR time was 159 min. Transfusion was required in 4 patients (8.3 %). Median hospital length of stay was 6 days (range: 3–36). Negative margins were achieved in 100 %. Overall survival at 1 and 3-years was 100 % in benign lesions and respectively 94.7 and 73.6 % in malignant lesions. Disease-free survival at 1 and 3-year was 88.5 and 54 %.

**Conclusion:** LLR is an alternative to open surgery for benign lesions as well as malignant ones, even when associated with other surgeries, when performed by experimented surgeons. The interest of LLR has to be further studied by randomized prospective controlled.

## O157 - Liver and Biliary Tract Surgery

### STEP-WISE SURGICAL COMPLEXITY IN SINGLE-STAGE TREATMENT OF GALLBLADDER AND BILE DUCT STONES

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**Introduction:** Bile duct stones are encountered in about 10 % of the patients who undergo laparoscopic cholecystectomy. Consensus favors a single-stage treatment when both gallbladder and bile duct stones are present. The aim of this study was to evaluate results in treating gallbladder and bile duct stones in a single-stage following a flow-chart based on a step-wise implementation of increasing technical difficulty: from the simplest, transcystic laparoscopic bile duct clearance, to the most complex, laparoendoscopic rendezvous.

**Methods:** From October 2004 to September 2011, we enrolled 1750 consecutive patients with gallbladder stones; 187 of whom also had bile duct stones. In 183 patients, single-stage laparoscopic management was selected as the treatment. The principle outcome was successful single-stage treatment. Secondary outcomes included intra- and post-operative complications, and length of surgery and hospital stay. Results were reported as number of cases and percentage. Statistical analysis was performed with Spearman's Rank Correlation.

**Results:** Major intra-operative complications and directly-related mortalities were not observed. The rate of conversion to open surgery was 5.5 % (10 patients): 6 immediately due to inflammatory adhesion and 4 after being assigned to laparoendoscopic rendezvous but presenting complications (guide wire due to blockage by stones) which excluded success. Transcystic laparoscopic bile duct clearance was successful in 141 (77.0 %) patients. The causes for unsuccessful transcystic laparoscopic bile duct clearance were the diameter and number of stones. The remaining 36 (33.0 %) required laparoendoscopic rendezvous to complete treatment but only 32 (88.9 %) were completed successfully. Overall, treatment was possible in a single-stage in 173 (94.5 %) patients. Intra- and post-operative complications were not correlated with the degree of complexity and length of surgery. As expected, the length of surgery was highly correlate with the number of steps required for completion but not with the length of post-operative hospital stay.

**Conclusion:** Single-stage treatment of gallbladder and bile duct stones was possible in 94.5 % of cases using a step-wise selection of surgical complexity from the simpler transcystic laparoscopic bile duct clearance in the majority of the cases while reserving laparoendoscopic rendezvous, a more complex procedure, for patients who were unresolved with the other procedure.