

($p=0.146$). In the analysis of chronological changes of relative frequency according to the type of stone, the proportion of calcium bilirubinate stone has been decreased continuously ($p=0.030$).

Conclusions: In gallstone disease, total number of cases and mean age are continuously increased. The increasing tendency of GB stone and decreasing tendency of CBD stone was observed, and IHD stone remained unchanged in rural areas. The body mass indexes of the GB stone group and IHD stone group has been increased and the proportion of calcium bilirubinate stone has been decreased during past 30 years.

III-3

Multivariable Analysis of Cholecystectomy after Gastrectomy: Laparoscopy is a Feasible Initial Approach Even in the Presence of Common Bile Duct Stones or Acute Cholecystitis

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Research Purpose: When performing cholecystectomy after gastrectomy, we often encounter problems such as adhesions, nutritional insufficiency, and bowel reconstruction. The aim of this study is to identify the factors related to surgical outcome of these associated procedures, with emphasis on the use of a laparoscopic approach.

Materials and Methods: We retrospectively analyzed data from 58 patients who had a history of cholecystectomy after gastrectomy. Differences between subgroups with respect to operation time, length of postoperative hospital stay, and complications were analyzed. To identify the factors related with outcomes of cholecystectomy after gastrectomy, we performed multivariable analysis with the following variables: common bile duct (CBD) exploration, laparoscopic surgery, gender, acute cholecystitis, history of stomach cancer, age, body mass index, period of surgery, and interval between cholecystectomy and gastrectomy.

Results: We found one case (2.9%) of open

conversion. The CBD exploration was the most significant independent factor (adjusted OR, 45.15; 95% CI 4.53-450.55) related to longer operation time. Acute cholecystitis was also a significant independent factor (adjusted OR, 14.66; 95% CI 1.46-147.4). The laparoscopic approach was not related to operation time but was related to a shorter hospital stay (adjusted OR, 0.057; 95% CI 0.004-0.74). Acute cholecystitis was independently related to the occurrence of complications (adjusted OR, 27.68, 95% CI 1.15-666.24); however, CBD exploration and laparoscopic surgery were not. A lower BMI was also an independent predictor of the occurrence of complications (adjusted OR, 0.41; 95% CI 0.20-0.87).

Conclusions: The laparoscopic approach is feasible for cholecystectomy after gastrectomy, even in cases with CBD stones or acute cholecystitis. This approach does not appear to increase operation time nor complication rate and was shown to decrease the length of post-operative hospital stay.

III-4

Percutaneous Transhepatic Gallbladder Drainage (PTGBD) Changes Emergency Laparoscopic Cholecystectomy to an Elective Operation in Patients with Acute Cholecystitis

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Background: Many surgeons have found it difficult to decide whether to apply percutaneous transhepatic gallbladder drainage (PTGBD) in patients with acute cholecystitis that is not responsive to initial medical management (IMMx) because the indications of PTGBD are ambiguous. The aim of this study was to evaluate the appropriate treatment for acute cholecystitis that is not responsive to IMMx. Specifically, we focused on differences in surgical outcomes between elective and emergency laparoscopic surgeries.

Methods: Between March 2006 and February 2009, 738 patients with acute cholecystitis who had undergone laparoscopic cholecystectomy (LC) at our in-

stitution were studied retrospectively. We divided them into 3 groups. Group I included 494 patients who underwent elective LC without pre-operative PTGBD, group II included 97 patients who intended to undergo elective LC after preoperative PTGBD, and group III included 147 patients who underwent emergency LC without preoperative PTGBD. We compared age, sex, symptom duration, body temperature, leukocyte counts, and American Society of Anesthesiologists (ASA) class upon admission as clinical characteristics. We compared the time interval from symptom development and admission to surgery, operative time, the conversion rate to open surgery, postoperative complications, the total length of stay, and the postoperative length of stay as perioperative surgical outcomes.

Results: For ASA 2 and 3 patients, the conversion rate to open surgery in group II was significantly less than that in group III ($p < 0.05$). For ASA 1 patients in groups II and III, there were no significant differences in perioperative surgical outcomes, excluding operative times, between the two groups.

Conclusions: We recommend PTGBD as the first choice for acute cholecystitis in patients who show no improvement after IMMX, to allow the patient to undergo an elective LC rather than emergency surgery for ASA 2 and 3 patients.

III-5

The Value of Preoperative Magnetic Resonance Cholangiopancreatography (MRCP) to Prevent Bile Duct Injury in Patients Who Will Perform Laparoscopic Cholecystectomy

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Background: The aim of this study is to evaluate the value of preoperative MRCP prior to cholecystectomy by analyzing the rate of clinically inapparent common bile duct stone or duct anomaly and postoperative complication.

Methods: Between 2009.12 - 2010.12, 486 patients underwent cholecystectomy due to benign biliary disease. Among these patients, 144 were performed MRCP

preoperatively and classified as group I. Remaining 342 patients who were not taken MRCP were classified as group II. We analyzed preoperative biliary anomaly based on MRCP and postoperative complication in both group.

Results: In group I, pre-operative MRCP screening revealed clinically silent common bile duct (CBD) stones in 7 patients (4.9%), abnormal cystic duct insertion into CBD in 5 patients (3.5%) and intrahepatic duct stone in a patient. In 18 patients of group I (12.5%), bile duct anomalies were revealed including 11 patients of Type C2 anomaly and 5 patients of type B anomaly. Although, a case of bile duct injury was occurred in group II in contrast with no bile duct injury in group I, there was no significant difference of postoperative complication in both group.

Conclusion: MRCP may be useful to evaluate bile duct anomaly and reveal hidden bile duct stones. However, this modality did not show benefits for reducing bile duct injury in cholecystectomy. Therefore, routine MRCP scan for cholecystectomy may not be justified.

III-6

Early Experience of Laparoscopic Management for Choledochal Cysts

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Purpose: Choledochal cyst is a rare benign disease which has a congenital dilatation of the biliary tree. Total excision of cyst with hepaticojejunostomy is known as the treatment of choice because of the risk for biliary cancer including the gallbladder. Laparoscopic approaches have been reported as feasible in choledochal cyst. This study presents our early experience of laparoscopic excision for choledochal cysts with Roux-en-Y biliary reconstruction.

Materials and Methods: Between July 2009 and January 2011, 15 patients had been tried to undergo laparoscopic excision for choledochal cyst at Division of Hepatobiliary and Pancreatic Surgery, Asan Medical Center. Clinical, radiological and surgical data includ-