Symposium

S1
Postoperative Complications after Hepatopancreatoduodenectomy

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Hepatopancreatoduodenectomy (HPD) has improved the resectability of advanced biliary tract cancers, however, the curability and the safety are still under discussion. We have performed HPD for 12 patients with advanced biliary tract cancers including one hepatoligamentopancreato-duodenectomy (HLPD) from April 1989 to March 1993 in our Department. The extents of the hepatectomy were as follows; right trisegmentectomy for 2 patients, right extended hepatic lobectomy with caudate lobectomy for one, right extended hepatic lobectomy for one, central hepatectomy for one, medial segmentectomy (S4) with anterior inferior (S5) and posterior inferior (S6) subsegmentectomies for one, medial inferior (S4a) + S5 + S6 for 2 and S4a + S5 for 3 patients. Combined resections were as follows; portal vein for 3, hepatic artery for one, IVC for one, colon for 3 patients. Operative death occurred in one patient undergone HLPD on the 12th postoperative day. Three patients died during admission; one died of hepatic failure on the 34th p.o. day, one died of the progression of dermatomysitis associated with her gallbladder cancer, and the other one died of MRSA pneumonia on the 52th p.o. day. Durations of the operations were 8 to 15 hours (mean: 9.5 hours). Blood loss during the operations were 1000 to 2800 ml (mean: 1800 ml). All the patients experienced elevation of total bilirubin ranged from 1.1 to 41.6 mg/dl after operation. The patients whose peak value of the total bilirubin were less than 5 mg/dl survived the operation. The elevations of total bilirubin in the early postoperative phase correlated with the extent of the hepatectomy and the volume of CRC transfusion. The elevations of the total bilirubin in the late postoperative phase correlated with the presence of the focus of infection. HPD with the extent of hepatectomy more than two segments showed high mortality and morbidity. Therefore, in these cases, blood loss during operation should be lessened and CRC blood transfusion should be minimized. Furthermore, much efforts should be paid to avoid post-operative infections.

S2
Prevention of Complications after HPD

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Hepatopancreatoduodenectomy (HPD), simultaneuous resection of the hepatic lobe and pancreatic head, is a trial surgery for advanced gallbladder cancer which involves both the liver through the gallbladder bed and lymph nodes around the pancreatic head. Between 1978 and 1992, 22 patients underwent HPD. Of 22, 19 had right hepatic lobectomy and pancreatoduodenectomy as cancer invasion was mainly seen in the right lobe while 3 had left hepatic lobectomy and pancreatoduodenectomy as cancer invasion was in the median segment of the left lobe. Combined resection of the portal vein was performed in 9 of 22. HLPD, in which the portal vein and hepatic artery were resected, was performed in 4 of 22.

The operative deaths were seen in 6/22 (28%) before 1984, of which causes were anastomotic leak in pancreatojejunostomy and then to make more strict indication for hepatic lobectomy in HPD than in hepatic lobectomy only for other lesions. To connect the soft pancreatic tail to the jejunum, we adopted the intussusception method since 1985 instead of mucosal anastomosis. That successfully decreased the leak. To prevent hepatic failure, patients' indication is decided based on Mizumoto's criteria, among which on our experience ICG R15, OGTT and total bilirubin are important. In addition the age of a patient should be less than 70. Concerning massive gastrointestinal bleeding after HPD, one was due to an anastomotic ulcer of gastrojejunostomy but the other was impossible to be analyzed in spite of autopsy.
Complications and managements after pancreatoduodenectomy combined with liver resection for hepatic and biliary cancer.

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Pancreatoduodenectomy combined with liver resection underwent on 22 patients for hepatic and biliary cancer between October 1, 1980 and April 30, 1993. A breakdown of individual cases showed 1 cancer of the liver (cholangioma), 1 cancer of the bile duct and 20 cancers of the gallbladder. Hepatic resection of more than 2 segments (Group 1) underwent for 7 patients and hepatic resection of less than 2 segments (Group 2) underwent for 15 patients with pancreatoduodenectomy.

Postoperative complications such as leakage of hepaticojejunostomy or pancreaticojejunostomy, abdominal abscess, lung edema or/and liver failure were observed in 4 of 7 patients (57%) in Group 1 and 6 of 15 patients (40%) in Group 2. The operative mortality rates were 14.3% in Group 1 and 6.7% in Group 2, respectively. The morbidity and mortality rates were increased undoubtedly in Group 1.

Hepatopancreatoduodenectomy (especially associated with hepatic resection of more than 2 segments) can be detrimental to the diseased liver. Therefore, postoperative morbidity and mortality should be reduced as much as possible by accurate preoperative assessment and precise postoperative management.

Postoperative complications of hepato-(ligament-), pancreatoduodenectomy

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It is well known that biliary tract carcinomas locoregionally invade into adjacent vessels and frequently involve lymph node metastases, resulting in local recurrence after operation. This clinicopathological features strongly recommend extended surgery such as hepato-(ligament-), pancreatoduodenectomy H(L)PD operation. However, life-threatening complications are not rare in H(L)PD operation. In this report, major complications following H(L)PD operation will be clarified.

Patients: In our department, 25 H(L)PD operations were performed in 14 gallbladder, 8 bile duct carcinomas and 3 other diseases for these 10 years, consisting of 5 HLPD. Age distribution was between 46 and 73 (mean 65), mainly in 60'th. Results: Extent of hepatic resection was as followed; < one segmentectomy (including central resection), 7 patients; 1-2 segments, 2; bisegmentectomy, 5; extended lobectomy, 11. Reconstruction of alimentary tract was 5 cases in Billroth I (Bil-I) and 20 in Bil-II mode. Vascular reconstruction, artery in 8 patients and portal in 5 patients, was performed. Operative death was seen in 3 HLPD (2 extended right lobectomy and 1 extended left lobectomy) and 1 HPD (left lobectomy) patients and one hospital death was seen in HPD patient. In the 4 death cases, possible main causes were considered to be incomplete arterial reconstruction in 2 HLPD and leakage of pancreaticojejunostomy in 1 HLPD and 1 HPD. Leakage of hepaticojejunostomy was observed in 3 patients, among whom one patient resulted in hospital death 2 months later but another 2 patients could discharge. Intraperitoneal abscess and liver abscess, possibly caused by incomplete arterial reconstruction were also fatal, as indicated by operative death of both patients. Causative bacteria of severe postoperative infection were pseudomonus, enterobacter, enterococcus and klebsiella, possibly due to prolonged operation time and leakage of anastomoses. In conclusion, HPD operation itself is not necessarily dangerous operation. However, successful HLPD can be achieved at least by complete arterial reconstruction.