

prolong the overall survival.

IV-4

**A Pitfall of Hanging Maneuver in Central Bisectionectomy for the Giant HCC Located on Hepatic Hilar Area**

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**Introduction:** A central bisectionectomy of the liver removes segments 4, 5, and 8, and this is a technically demanding operation because it requires two transection planes. For preservation of remnant right posterior and left lateral Glissonian pedicles, right hepatic vein and left hepatic vein, exact anatomical resection is necessary. However, in large tumor which is hanged on hilar area, it is difficult to determine exact resection plane because of difficult to approach the Glissonian pedicle. We report on performing central bisectionectomy with hanging maneuver for giant tumors located on hilar area to evaluate whether this procedure represent a valuable technique in this situation.

**Patients and Methods:** From October 2004 to February 2011, 670 patients underwent liver resection in Dong-San medical center and ten patients of them (nine of hepatocellular carcinoma and one of mass forming cholangiocarcinoma), central bisectionectomy was performed. In 3 patients (group 1), masses were located on hilar area with abutting and compromising of right posterior and left lateral Glissonian pedicles. Remaining 7 patients (group 2), masses were not contact with hilar structure. In all patients of group 1, preoperative MRCP was taken. We reterospectively analyzed surgical technique and postoperative outcome in two groups.

**Results:** In group 2, resection line was determined by inflow control of Glisson of right anterior section and S4. In contrast, in group 1, inflow control was impossible due to contacting mass with hilar structure, so resection line was guided by hanging maneuver. In both group, mean tumor size (8.8 vs 7.0cm), operative time (376.7 min Vs 350.5 min), resection margin (3.0mm Vs 6.4mm) were not sig-

nificantly different. In contrast to a case of post-operative complication in group 2 (ascites), bile leakage was occurred in all three patients of group 1, including a case of transaction of left lateral duct (B2&3).

**Conclusion:** In central bisectionectomy for giant tumor located on hilar area, hanging maneuver can guide to transect easily and safely with keeping enough resection margin bilaterally and posteriorly. However, this procedure can accompany bile duct injury, because those are not dilated and collapsed by compressing the ducts while hanging. Therefore, very careful evaluation of the biliary tree and careful transaction is demanded (This presentation includes video clip).

IV-5

**What We Learned from Difficult Hepatectomy for Advanced Hepatic Malignancy**

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**Purpose and Method:** It is difficult to resect a primary hepatic malignancy which is huge and tightly invaded or adhered to the surrounding structures, especially inferior vena cava (IVC), hepatic vein, diaphragm etc. The aim is to present five cases with favorable outcome that we have experienced as difficult resection for advanced tumor with multiple metastases, with invasion of surrounding structures, and with pulmonary embolism, and to discuss about extension of indication of hepatectomy in advanced tumor.

**Results:** (Case 1) a 53-year-old woman had a 16cm sized mass in the segment VIII in the imaging studies. Diagnosis is intrahepatic cholangiocarcinoma (IHCC) with left portal vein invasion. We performed a right hemihepatectomy and bile duct and left portal vein resection. At the 34-months after surgery, she is still alive without any evidence of tumor recurrence or metastasis. (Case 2) a 74-year-old man had multi-

ple variable sized masses in right hepatic lobe and segment IV, variable sized nodules in both lungs and about 1 cm sized nodule in left adrenal gland in the imaging studies. Largest liver mass is more than 10 cm. We performed a palliative right trisectionectomy. At the 32-months after surgery, the patient is still alive with a good general performance status. (Case 3) a 50-year-old man had huge mass replaced right hemiliver with malignant thrombosis in right posterior portal vein and invasion of right and middle hepatic vein. We performed right hemihepatectomy, diaphragm excision due to invasion, and evacuation of tumor thrombus from hepatic vein and plasty of IVC. During the 5-months follow-up period after surgery, imaging studies revealed no unusual postoperative findings. (Case4) a 66-year-old man had two large (10 cm and 11 cm) nodular HCC, three tiny intrahepatic metastatic lesions in left lobe, tumor thrombus in right hepatic vein and thromboembolism in both pulmonary artery. We performed a right trisectionectomy. At the 2-months after surgery, imaging study showed no evidence of recurred HCC. (Case 5) a 43-year-old woman had 5 cm sized IHCC in the caudate lobe with invasion of IVC and main portal vein. After pre-operative chemo-and radiotherapy, left trisectionectomy and resection of IVC was performed. At the 15-months after surgery, she is well tolerated despite of IVC thrombus.

**Conclusion:** In spite of macroscopic extrahepatic metastases or major vessels involvements, extensive surgery for primary hepatic malignancy could lead to a relatively favorable outcomes. An aggressive surgical treatment would be an optional treatment modality to improve survival.

IV-6

**Left Trisectionectomy for Hepatocellular Carcinoma after Portal Vein Embolization (Video Presentation)**

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**Background:** Major hepatic resections are increasingly performed for large hepatocellular carcinoma (HCC) to achieve complete resection and provide the possibility of cure, given that liver transplantation or ablative therapy is not indicated for these tumors. However, major hepatic resection is frequently contraindicated in many HCC patients because of the increased risk of postoperative hepatic failure. Portal vein embolization (PVE), which induces atrophy of the embolized lobe with compensatory hypertrophy of the nonembolized future liver remnant, has been increasingly used to reduce the risk of postoperative hepatic failure in patients undergoing major hepatic resection. Here, I introduce my video clip. 63 year-old patient with HBV-LC and HCC was admitted to undergo liver resection after TACE from another hospital. The patient's MRI showed two abutting large mass in S4 and S8 of the liver and the tumor in S4 that was suspicious of invasion to left lateral section. There were no extrahepatic metastases in chest CT, bone scan and whole body PET. The laboratory findings were as follows; CBC 6100-13.7-40.9%-214k, PT 90.3%, SGOT/SGPT 57/25, TB 1.0, AFP 4918 ng/ml, PIVKA II >20,000 mAU/ml and ICGR15 14.1%. We decided to perform left trisectionectomy after left and right anterior PVE because of the small remnant right posterior liver volume. The operative time was 320 mins and estimated blood loss was less than 800 ml. There was no complication and no transfusion. The patient was discharged on postoperative day 13.