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Laparoscopic Liver Resection for Malignant Liver tumors; Early Results in Yeungnam University Hospital

Yeungnam University Hospital General Surgery Department
Ik Soo Kwon, Sung Su Yun, Dong Shick Lee, Hong Jin Kim

Research Purpose: The precise role of laparoscopic liver resection for liver malignancies remains controversial despite an increasing number of publications reporting laparoscopic resection of benign liver tumors. This study was performed to assess the feasibility, safety, and outcome of laparoscopic liver resection for malignant liver tumors.

Materials and Methods: This is a retrospective review of patient's profiles, pathology, surgery and outcome which was performed on 42 patients with laparoscopic liver resection for liver malignancies between January 2004 and December 2009.

Results: Among 42 patients, 23 patients had HCC, 16 patients had liver metastasis from colorectal cancer, 2 patients had cholangiocellular carcinoma, 2 patients had cystadenocarcinoma. The mean tumor size was 3.4 ± 3.0 cm (Mean \pm SD). Tumors located at segment number 2 to 8. The resection include 2 right hepatectomies, 2 left hepatectomies, 2 right posterior sectionectomies, 5 segmentectomies, 15 wedge resections. Mean surgical time was 239.0 ± 112.5 minutes. There was one operation related death because of ARDS after bleeding. Postoperative complication occurred in 8 patients (19%) including acute renal failure, wound infection, pleural effusion, etc. There were 2 conversion to laparotomy (5%) because of tumor rupture and bleeding. Mean post operative hospital stay was 9.3 ± 4.5 days. Blood transfusion needed in 10 patients (24%). Mean follow up period was 23.3 ± 11.1 months. The 1-year disease-free survival rate was 86% for patients with HCC (19/22), 100% for patients having liver metastasis from colorectal cancer (16/16). But the 2-year disease-free survival rate was 66% for patients with HCC (13/19), 90% for patients having liver metastasis from colorectal cancer (9/10).

Conclusions: Even though laparoscopic liver resection needs learning curve, it is feasible with minimal surgical trauma even in patients who had malignant liver tumor. This study provides evidence to

support further investigation and establishment of laparoscopic liver resection for malignant liver tumors.

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Short-term Results after Robotic Liver Resection

Department of Surgery, Yonsei University College of Medicine, Korea

Gi Hong Choi, Woo Jin Hyung, Ho Kyoung Hwang, Chang Moo Kang, Dong Sup Yoon, Jin Sub Choi, Woo Jung Lee

Background: Since the minimally invasive surgery has been developed in all surgical fields, laparoscopic liver resection has been more frequently performed by many surgeons. However, the laparoscopy has the limitations such as 2-dimensional imaging and restricted instrument motion. The da Vinci Robotic system provides 3-dimensional images and EndoWrist with a 360-degree range of motion. In this study, we reviewed single surgeon's experience of robotic liver resections.

Methods: From November 2008 to February 2011, twenty-seven patients underwent robot-assisted liver resection in Yonsei University Health System. We analyzed perioperative and short-term outcomes after robotic liver resection.

Results: The mean age was 52.6 years (range: 32-71) and 12 (44.4%) patients were male. There were 18 malignant tumors (12 hepatocellular carcinoma, 2 cholangiocellular carcinomas and 4 liver metastases from GI tract) and 9 benign lesions (7 intrahepatic stones, 1 recurrent liver cyst and 1 schwannoma). Right hepatectomy was performed in 6 patients, left hepatectomy in 13 patients, left lateral sectionectomy in 4 patients, segmentectomy in 1 patients and wedge resection in 2 patients. Five patients underwent combined procedures such as colon resection, stomach resection and radiofrequency ablation. The average operating times of right and left hepatectomy were 724 minutes (range: 648-812) and 520 minutes (range: 315-763), respectively. The average estimated blood loss of right and left hepatectomy were 629 cc (range: 100-1500) and 322 cc (range: 150-900), respectively. Four patients (14.8%) received perioperative transfusion. There were 2 conversions to open surgery (1 in