Long-Term Oncological Safety of Minimally Invasive Hepatectomy in Patients with Hepatocellular Carcinoma: A Case-Control Study

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Abstract

Introduction: Minimally invasive hepatectomy (MIH) for patients with hepatocellular carcinoma (HCC) is technically challenging, especially with large posteriorly located tumours or background of liver cirrhosis. This is a case-control study comparing the long-term oncological safety of HCC patients who underwent MIH and open hepatectomy (OH). Most of these patients have liver cirrhosis compared to other studies.

Materials and Methods: Sixty patients were divided into 2 groups, 30 underwent MIH and 30 underwent OH for HCC resection. The patients in both groups were matched for extent of tumour resection, age and cirrhosis status. Patient characteristics, risk factors of HCC and all oncological data were studied.

Results: Negative resection margins were achieved in 97% of patients in both groups. The mean blood loss during surgery was significantly lower in the MIH group compared to the OH group (361 mL vs 740 mL; 95% CI, 222.2, 734.9; \( P = 0.04 \)). Hospitalisation is significantly shorter in MIH group (7 days vs 11 days; 95% CI, 6.9, 12.2; \( P = 0.04 \)). Eight patients (27%) in the MIH group and 13 patients (43%) in the OH group developed HCC recurrence (\( P = 0.17 \)). One, 3 and 5 years disease-free survival between MIH and OH groups are 76% vs 55%, 58% vs 47%, and 58% vs 39% respectively (\( P = 0.18 \)). One, 3 and 5 years overall survival between MIH and OH groups are 93% vs 78%, 89% vs 70%, and 59% vs 65% respectively (\( P = 0.41 \)).

Conclusion: MIH is a safe and feasible curative treatment option for HCC with similar oncological outcomes compared to OH. MIH can be safely performed to remove tumours larger than 5 cm, in cirrhotic liver, as well as centrally and posterior located tumours. In addition, MIH patients have significant shorter hospitalisation and intraoperative blood loss.

Key words: Laparoscopy, Liver cirrhosis, Primary liver cancer

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