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Surgical And Long-term Outcome Between Open And Minimally Invasive Liver Resection For Multiple Hepatocellular Carcinoma A Propensity-score Matched Analysis

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Background : Currently, there is limited knowledge about the outcomes of minimally invasive liver resection (MILR) for multiple hepatocellular carcinoma (HCC). This study aimed to evaluate the surgical and long-term oncologic outcomes of MILR compared to open liver resection (OLR) for multiple HCC patients.

Methods : A total of 188 consecutive patients undergoing curative liver resection (LR) for multiple HCC between 2011 and 2022 were retrospectively reviewed. Patients were divided into the OLR group (130 patients) and MILR group (Laparoscopic 52, Robotic 6 patients). Propensity score matching (PSM) was conducted to minimize confounding effects using preoperative clinical and tumor-related factors and extent of resection. Surgical and long-term outcomes were compared between the two groups.

Results : In the total cohort, OLR group exhibited a significantly larger tumor size compared to MILR group, while the tumor number was no different. Major LR was conducted more in OLR group than in MILR group. After PSM, 52 well-balanced patients were included in each group. Estimated blood loss was significantly lower in MILR group compared to OLR group (517.5 vs. 229.9 mL, $P < 0.001$). The rate of complication was less in MILR group (36.5% vs. 17.3%, $P = 0.027$). The surgical margin had no difference between the two groups. MILR group showed comparable overall survival ($P = 0.091$) and disease-free survival ($P = 0.079$) with OLR group.

Conclusions : MILR for multiple HCC appears to be safe and feasible in selected patients, resulting in favorable surgical outcomes such as less intraoperative bleeding, shorter hospital stay, and lower complication rate, with comparable oncologic long-term outcomes compared to OLR.

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