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Feasibility And Safety Of Laparoscopic Liver Resection For Intrahepatic Duct Stone Disease: A Comparative Analysis With An Open Approach

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Background : Although the laparoscopic approach has become mainstream in liver resection, laparoscopic liver resection for patients with intrahepatic duct stone disease is still considered challenging due to anatomic distortion and chronic inflammation. This study aimed to evaluate the feasibility and safety of laparoscopic liver resection for patients with intrahepatic duct stone disease and to compare its surgical outcomes with those of an open approach.

Methods : Consecutive patients who underwent liver resection for clinical manifestation related to intrahepatic duct stone disease between 2010 and 2023 were enrolled in this study. Liver resection was performed when patients suffered from recurrent cholangitis, biliary stricture, liver abscess, liver atrophy, and suspected cholangiocarcinoma. Patients diagnosed with cholangiocarcinoma at the final pathologic examination were excluded. Finally, patients were divided into laparoscopic and open groups, and clinical outcomes were compared between the groups.

Results : The study cohort comprised 23 (38.3%) in the laparoscopic group and 37 (61.7%) patients in the open group. BMI was significantly higher in the laparoscopic group compared to the open group (BMI 25.1 [21.1–42.2] kg/m² vs. 23.7 [20.1–30.5], P=0.042). Left-side hepatectomy was more frequently performed in the laparoscopic group than in the open group (23 [100%] vs. 26 [70.3%], P=0.004). Although the operation time was comparable between the groups (275 [140–630] vs. 285 [184–765], P=0.221), transfusion was performed less in the laparoscopic group than in the open group (1 [4.3%] vs. 10 [27.0%], P=0.039). There was no significant complication above Clavien–Dindo grade IIIA in both groups (3 [13.0%] vs. 6 [16.2%], P=1.000). Biliary leakage or stricture after liver resection did not occur in both groups. The hospital stay was significantly shorter in the laparoscopic groups compared to the open group (7 [5–23] vs. 10 [5–56], <0.001).

Conclusions : The major complication rate was comparable between the groups, and blood loss and hospital stays were shorter in the laparoscopic group. Laparoscopic liver resection could be a feasible and standard procedure for patients with intrahepatic duct stone diseases.

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