

Minimally Invasive Versus Open Liver Resection For Intrahepatic Cholangiocarcinoma : A Multi Center Propensity Score Matched Study

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Background : Intrahepatic cholangiocarcinoma (ICC) is the second most common primary liver cancer and its incidence has increased in recent reports. Surgical resection is the only known option for curative treatment. However, there have been few studies about the feasibility and safe of minimally invasive liver resection for ICC. This study aimed to compare short- and long term oncologic outcomes between minimally invasive and open liver resection in patients with ICC

Methods : This study retrospectively reviewed minimally invasive (laparoscopic and robotic) (N=74) and open liver resection (N=157) cases for ICC from 2010 to 2021 from four institutes in Korea. A multivariable logistic model based on factors related to the patient, tumor and surgical procedure were then used to estimate a propensity score. Before and after matching, short and long-term outcomes were compared between the two groups.

Results : There was no statistical difference in operative time, postoperative complication rate, transfusion rate, re-admission rate and R0 resection rate, however, the minimally invasive group provided less blood loss (median 365cc vs 588cc, P=0.004) and shorter hospital stay (median 10.55 days vs. 13.24 days, p=0.032) than the open approach. There were 5 open conversion cases in minimally invasive group. After propensity score matching, no significant difference was found in overall (P=0.171) and disease free survival (0.317) between the two groups. 5-year survival rate was 69.6% in minimally invasive group and 65.5% in open group. Lymph node dissection was more frequently performed in the open group (37.84% vs. 65.61%, P<0.001) and there was higher tendency of lymph node dissection in the robotic approach than laparoscopic group (63.64% vs 33.33%, p=0.09).

Conclusions : Minimally invasive liver resection provided less blood loss and shorter hospital stay and comparable long term oncologic outcomes compared with open resection in patients with ICC. Therefore, laparoscopic or robotic surgery should be considered one of the options for surgical resection of ICC in well-selected patients.

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