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Robotic major liver resections: surgical outcomes compared with open major liver resections

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Introduction : Laparoscopic liver resection has been rapidly developed, laparoscopic major liver resections are still considered innovative procedures according to the second international consensus conference. Robotic surgery overcomes the limitations of laparoscopic techniques and is gaining popularity in many centers. In this study, we investigated surgical outcomes after robotic major liver resections.

Methods : From January 2009 to October 2018, 54 patients underwent robotic major liver resections, which included conventional major liver resections and sectionectomy of the right liver. Short-term and long-term outcomes were compared with 252 open major liver resections, which were performed during the same period.

Results : Hepatocellular carcinoma (HCC) was the most common diagnosis in robotic (n=33) and open group (n=170). Robotic major liver resections included right hepatectomy (n=13), left hepatectomy (n=29), central bisectionectomy (n=2), right posterior sectionectomy (n=8) and right anterior sectionectomy (n=2). Operative time was significantly longer in robotic group (478min vs 349 min, p<0.001), however estimated blood loss was significantly lower in robotic group compared with open group (251mL vs 549mL, p<0.001). Postoperative complication rate was not statistically different between the two groups and hospital stay was significantly shorter in robotic group (9.9 days vs 15.1 days, p<0.001). In patients with HCC, there were no significant differences in overall (p=0.294) and disease free survival (p=0.475) between the two groups.

Conclusions : Robotic major liver resections showed improved perioperative outcomes and comparable long-term oncologic outcome compared with open resections. Therefore, robotic surgery should be considered one of the options for minimally invasive major liver resections.

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