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Invited Commentary

A Commentary on "Robotic versus laparoscopic liver resection in complex cases of left lateral sectionectomy" (Int J Surg 2019; 67: 54–60)

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Dear Editor:

In the past few decades, minimally invasive surgery represents one of the most important advances in the field of surgery. Numerous case controlled studies show laparoscopic hepatectomy to be associated with decreased blood loss, less morbidity, shorter hospital stay, lower costs, quicker rehabilitation but similar ononcological long-term outcomes for malignant diseases compared with open hepatectomy. However, the limited degrees of freedom of handling laparoscopic instruments and the poor ergonomics hinder its wider use for all types of liver resections. The robotic platform overcomes many limitations of conventional laparoscopic surgery. The well-known advantages of the robotic system include: 1. three-dimensional view and magnification of operative field; 2. augmented dexterity by endowristed instruments; 3. tremor suppression.

Several retrospective studies and meta-analyses have been reported to compare the clinical outcomes of laparoscopic versus robotic hepatectomy [1,2]. Whether the robotic approach is superior to the conventional laparoscopic approach remains controversial. The current study by Hu M et al. [3] compared the perioperative outcomes of robotic left lateral sectionectomy (R-LLS) versus laparoscopic left lateral sectionectomy (L-LLS) in the overall cases and in a subgroup of complex cases. The authors found R-LLS to be comparable to L-LLS in postoperative hospital stay, and operative times in complex cases. Despite the increase in overall medical costs, the estimated blood loss was significantly less in the R-LLS group. They recommended R-LLS to be a better choice for the subgroup of patients with complex cases when compared to L-LLS.

As the extent of liver resection, the most important factor of perioperative outcomes, can be standardized in LLS, this operation can be used to compare these two different approaches in liver resection. However, this study has its own drawbacks. First, there is selection bias in this study as many kinds of liver neoplasms were included into the study. There were more patients with cholangiocarcinoma, hepatolithiasis and mixed HCC-CC in the R-LLS group when compared to the L-LLS group, suggesting that the surgeons preferred to use robot in difficult procedures involving perihepatic adhesions, anatomic alterations, intraoperative cholangiography/choledochoscopy, hilar dissection and lymphadenectomy. Moreover, when the patient characteristics of the complex-cases between L-LLS and R-LLS were compared, the data on the pathologies of the two groups were not provided. Second, the complications were not evaluated using the modified Clavien classified in this study. While Ji et al. [4] reported a lower complication rate after robotic than laparoscopic liver resection (7.8 vs. 10.5%, respectively), the largest comparative study which was recently reported showed similar complication rates (19 vs. 26%, respectively) [5]. Third, as the number of patients in the complex LLS group was small, the oncologic outcomes of robotic and laparoscopic LLS for malignant liver tumor could not be compared.

In view of the high costs of robotic liver resection, decision-making to select the resection modality should depend on evidence based medicine. There is increasing evidence to support that the robot system facilitates biliary reconstruction, major hepatectomies and resection of liver segments at difficult anatomical sites. Large comparative studies are required to adequately address the clinical and economic impacts of robotic liver surgery.

Provenance and peer review

Invited commentary, internally reviewed.

Declaration of competing interest

I declared that I have no conflicts of interest to this work.

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