

Laparoscopic resection for hepatocellular carcinoma: comparison between Middle Eastern and Western experience

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Submitted Jun 16, 2014. Accepted for publication Jun 18, 2014.

doi: 10.3978/j.issn.1000-9604.2014.06.20

View this article at: <http://dx.doi.org/10.3978/j.issn.1000-9604.2014.06.20>

Laparoscopic liver resection (LLR) for hepatocellular carcinoma (HCC) is increasing in this era of minimal invasive liver surgery. LLR for HCC is currently known to be a safer procedure than it was before because of technical advances and improvement in postoperative patient management and remains the first-line treatment for HCC in compensated cirrhosis in many centers.

We have the chance of analyzing the paper about the comparison between Middle Eastern and Western experience for LLR as treatment of HCC.

Selection criteria

At the conference meeting in Louisville (1) the best indications for laparoscopic resection was a solitary lesion, less than 5 cm, located in segments II to VI, at a distance from the line of transection, the hepatic hilum, and the vena cava. But more recently, the limitation of LLR according to lesion location and size is being gradually overcome. In Western experience, the selection of patient is quite uniform but in Middle Eastern, that is less clear and similar to the ones of open surgery (2). Ishizawa *et al.* (3) recently reported a series of 62 laparoscopic segmentectomies, 26 of which involved the segment I, IVa, VII and VIII. Vibert *et al.* (4) and Soubrane *et al.* (5) reported maximal tumor sizes of 18 and 17 cm respectively. As the surgical technique has developed, these indications have continued to evolve.

Intraoperative and immediate postoperative outcomes

In Western and Middle Eastern, mean operative time was between 150 to 300 minutes, 147 to 325 minutes, respectively. Mean blood loss ranged from 55 to 452 mL, 88

to 808 mL, respectively. There were no large differences. The conversion rate ranged from 5% to 19.4%, 1.8% to 18.6%, in Western and Middle Eastern, respectively. In Western, the most frequent reasons of conversion were bleeding during parenchymal transection, technical difficulties in exposure, and adhesions. In Middle Eastern, those were uncontrolled bleeding, and inadequate margin or poor localization.

The French group Vigano *et al.* (6) reported that after an average 60 cases, the conversion rate of LLR (for minor hepatectomy) reached the average value and improved thereafter. Dagher *et al.* (7) suggest that after another 15 cases of laparoscopic major hepatectomies, surgeons will be more familiar with the procedure and will achieve better patient outcomes.

To prevent significant bleeding during laparoscopic liver surgery there should be a great understanding of hepatic anatomy, use of intraoperative ultrasound (IOUS). Also it is necessary extensive experience in open liver surgery and technical skill to control vascular and biliary structures (8).

Viewed in laparoscopic approach, generally, hybrid LLR is more frequent in eastern experience, but pure laparoscopic approach is more frequent in Western experience. Nowadays pure laparoscopic method is gradually increasing because of accumulation of experience and knowledge.

Long-term results: survival and recurrence

Viewed of oncologic outcomes, Tranchart *et al.* (9) reported no difference between LLR and open liver resection (OLR) with a 1-, 3-, and 5-year overall survival rate of 93.1%, 74.4%, and 59.5% versus 81.8%, 73%, and 47.4% (P=0.25) respectively. Chen *et al.* (10) differentiated minor and major

resection: the 1, 3 and 5 years were 85.4%, 66.4%, and 59.4% in the minor resection group, and 94.7%, 74.2%, and 61.7% in the major resection group respectively.

There was no significant difference in survival rate and recurrence between LLR and OLR in current review. RCT is necessary to confirm them, but it is difficult carry out.

LLR for HCC is a superior technique because it is associated with less blood loss, less transfusion requirement, less postoperative pain, shorter hospital stay, and no difference in the complication rates as compared with OLR. It has also been shown to have similar result in oncologic outcomes such as long-term survival and recurrence with those of OLR.

In the near future, LLR will have become a prevalent and standard treatment of HCC.

Acknowledgements

Disclosure: The authors declare no conflict of interest.

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Cite this article as: Kim HJ, Kim MK. Laparoscopic resection for hepatocellular carcinoma: comparison between Middle Eastern and Western experience. *Chin J Cancer Res* 2014;26(3):245-246. doi: 10.3978/j.issn.1000-9604.2014.06.20