

Superior oncological outcome in laparoscopic hepatectomy for hepatocellular carcinoma, hype or hope?

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In the current study, I had reviewed retrospectively 110 cases of laparoscopic liver resection for patients with hepatocellular carcinoma (HCC) and the result were compared with 330 cases with open liver resection (1). The patients were matched using propensity score analysis in an attempted to eliminate as much bias as possible.

As we all know, the limitation of retrospective studies included an inborn error of potential selection bias. However, many of our important findings in the field of surgery come from retrospective studies and later confirmed with large scale randomized controlled trials.

The current study concluded that laparoscopic liver resection was safe for HCC and it was associated with improved shorted term outcome in laparoscopic liver resection in expert hands. The by-product of the current study showed a potential benefit of better oncological outcome.

I would not conclude that laparoscopic liver resection is superior on this single study nor would I totally denied this possibility.

In the current study, the number of hepatectomy was only 8% (110 of 1,358 patients). This is the correct figure but one had to consider also the background and history of HCC treatment.

The current standard of care for HCC was open hepatectomy which had not been changed for twenty years. The development of laparoscopic liver resection started at 2006 but at that time the development pace was very slow

due to poor instrument design, not to mention a very poor display unit using low resolution cathode ray tube monitor. Modern laparoscopic liver resection was only made possible after the mass production of high definition television unit in the 2010s. Most of the 110 cases we performed were accumulated over the recent 4 years out of the study period of 10 years' experience. In fact, the actually number of laparoscopic liver resection has growth from 10% to 40% of all cases when experienced had gained.

The most important factor that governed the oncological outcome was the cancer biology (2,3).

In general, the potential good a surgeon could deliver was limited but we all agreed that good surgical skills that reduced complication rate, resected with a wider margin if technically feasible, avoid unnecessary manipulation of the tumour during surgery may improve oncological outcome (4).

The potential benefit of laparoscopic surgery has been shown to reduce stress and/or circulating tumour cell in patient receiving cancer surgeries.

While biology of the cancer is key determination factor, laparoscopic liver resection may potentially facilitate good surgical practice by reducing operation time, reducing blood loss, reduce medical complication rate and manipulation of the tumour (1,5-7). The description of "no touch" techniques may potentiate a better outcome is based on our previous studies on anterior approach live resection lead to a lower circulating tumour cell measurement in open approach (1,5-8). Currently, a study on circulating

biomarker during laparoscopic liver resection is being carried out in my institute and I shall share with you the result soon.

Many other large scale retrospective studies had shown that laparoscopic liver resection for HCC was non inferior to open surgery in terms of oncological outcome (9-11). Propensity score matching has been an improved method to eliminate bias. Nevertheless, even this highly nuanced method of case matching cannot eliminate all bias particularly when the bias was not present in the data set.

Large scale randomized controlled trial undoubtedly gave one of the best evidence in the field of medicine but unfortunately, we lived in a real world that many factors could lead difficult execution of a perfect randomized controlled trial. With currently evidence on safety profile and non-inferior oncological result, it is very unlikely that a patient would volunteer to be enrolled to open surgery arm if laparoscopic liver resection deemed suitable after evaluated by the expert surgical team.

Whether laparoscopic liver resection produce a better survival outcome is still a question to be answered.

Further studies to more adequately match cohorts with longer survival data is warranted to support this concept.

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Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

References

- Cheung TT, Dai WC, Tsang SH, et al. Pure laparoscopic hepatectomy versus open hepatectomy for hepatocellular carcinoma in 110 patients with liver cirrhosis: a propensity analysis at a single center. *Ann Surg* 2016;264:612-20.
- Critelli RM, De Maria N, Villa E. Biology of Hepatocellular Carcinoma. *Dig Dis* 2015;33:635-41.
- Poon RT, Ng IO, Lau C, et al. Tumor microvessel density as a predictor of recurrence after resection of hepatocellular carcinoma: a prospective study. *J Clin Oncol* 2002;20:1775-85.
- Fan ST, Mau Lo C, Poon RT, et al. Continuous improvement of survival outcomes of resection of hepatocellular carcinoma: a 20-year experience. *Ann Surg* 2011;253:745-58.
- Yoon YI, Kim KH, Kang SH, et al. Pure laparoscopic versus open right hepatectomy for hepatocellular carcinoma in patients with cirrhosis: a propensity score matched analysis. *Ann Surg* 2017;265:856-63.
- Cheung TT, Poon RT, Dai WC, et al. Pure Laparoscopic Versus Open Left Lateral Sectionectomy for Hepatocellular Carcinoma: A Single-Center Experience. *World J Surg* 2016;40:198-205.
- Cheung TT, Poon RT, Yuen WK, et al. Long-term survival analysis of pure laparoscopic versus open hepatectomy for hepatocellular carcinoma in patients with cirrhosis: a single-center experience. *Ann Surg* 2013; 257:506-11.
- Liu CL, Fan ST, Cheung ST, et al. Anterior approach versus conventional approach right hepatic resection for large hepatocellular carcinoma: a prospective randomized controlled study. *Ann Surg* 2006;244:194-203.
- Xiong JJ, Altaf K, Javed MA, et al. Meta-analysis of laparoscopic vs open liver resection for hepatocellular carcinoma. *World J Gastroenterol* 2012;18:6657-68.
- Abu Hilal M, Di Fabio F, Syed S, et al. Assessment of the financial implications for laparoscopic liver surgery: a single-centre UK cost analysis for minor and major hepatectomy. *Surg Endosc* 2013;27:2542-50.
- Ciria R, Cherqui D, Geller DA, et al. Comparative Short-term Benefits of Laparoscopic Liver Resection: 9000 Cases and Climbing. *Ann Surg* 2016;263:761-77.

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