The clinical efficacy and safety of 3D vascular reconstruction combined with 3D navigation in laparoscopic hepatectomy

Hancong Li[1#], Xinyang Chen[1#], Qingbo Feng[2]

[1]West China School of Medicine, West China Hospital, Sichuan University, Chengdu, China; [2]Department of Liver Surgery and Liver Transplantation Centre, West China Hospital, Sichuan University, Chengdu, China

[#]These authors contributed equally to this work.

Correspondence to: Qingbo Feng, PhD, MD. Department of Liver Surgery and Liver Transplantation Centre, West China Hospital, Sichuan University, 37 Section, Guoxue Alley, Chengdu 610041, China. Email: fqb9175doc@163.com.

Comment on: Jiang J, Pei L, Jiang R. Clinical efficacy and safety of 3D vascular reconstruction combined with 3D navigation in laparoscopic hepatectomy: systematic review and meta-analysis. J Gastrointest Oncol 2022;13:1215-23.

With great interest, we carefully read a recent paper written by Jiang *et al.* entitled "Clinical efficacy and safety of 3D vascular reconstruction combined with 3D navigation in laparoscopic hepatectomy: systematic review and meta-analysis" (1), which was published in the latest issue of *Journal of Gastrointestinal Oncology*.

Meta analysis revealed that in comparison to standard 2D procedures, preoperative 3D reconstruction plays a significant role in preoperative evaluation and surgical planning, improving primary hepatic carcinoma (PHC) operation time and reducing intraoperative blood loss, but there is no difference in the length of hospital stay and complication rate. After carefully reviewing this work, there are a few important points that we would like to emphasize and raise out for further discussion in order to improve the validity of the conclusion.

To begin with, there are some issues with the literature search of the study. Neither the search strategy nor the manual search protocol was thoroughly described by the authors. There was a possibility that not all the articles on the subject were searched through with the stated search strategy. Furthermore, it is found that the literature had not been registered in PROSPERO and with no central registration depository (CRD) number through careful reviewing.

Secondly, some of the included studies failed to meet the inclusion criteria. The article mentioned that the included patients were pathologically diagnosed as PHC and underwent surgery for the first time, while the subjects of Kawai *et al.* were patients who underwent right hepatectomy, and the diagnoses in these patients included colorectal liver metastasis, hepatocellular carcinoma, other malignant disease, and benign disease (1,2). Obviously, not all of the patients were diagnosed with PHC. Similarly, Park *et al.* studied donors with separated right anterior and right posterior portal veins, whose cases also did not meet the requirements for being included in patients with PHC (3). In addition, in the inclusion criteria specified by the authors, the intervention of the control group was required to be 2D CT, but the intervention of Lim *et al.*'s control group was robotic liver resection, and Park *et al.*'s control group was equipped with the open hepatectomy, both of which were inconsistent with the intervention requirements for the control group (1,3,4). These problems may affect the conclusion of the article.

Thirdly, there were some problems in the evaluation of the trials. After careful reviewing, the authors appeared to have made an apparent mistake in this meta-analysis. In *Tab. 1*, the study of Wang *et al.* and Park *et al.* were shown as randomized controlled trials (RCTs), but with careful reading, it is found that the study of Wang *et al.* was a prospective non-RCT, while that of Park *et al.* was a cohort study (3,5). Moreover, the authors used Cochrane risk of bias 2.0 for quality and risk assessment of bias in all the articles (1). But the Cochrane Risk of Bias Tool should be applied to access RCTs according to the Cochrane manual.

The articles included in the study, however, were not RCT studies; thus, Newcastle-Ottawa Scale is recommended to be applied in assessing the quality of the articles in the study (6).

Fourthly, we discovered significant heterogeneity among the studies included in the analysis of the operation time and the total hospitalization days in the results section. It is essential to identify the source of heterogeneity. In order to explore potential sources of heterogeneity, covariates such as gender, country (China versus not China), year of publication (before 2018 versus after 2018), sample size (>30 case versus <30 case) and research type (non-RCT versus RCT) should be taken into account.

Finally, in *Fig.* 7, the authors used a funnel plot to detect publication bias among the included studies. Nevertheless, funnel plot was used to assess publication bias in more than 10 articles. Furthermore, to make the publication bias more reliable and legible, statistical testing should be conducted to make it a more quantitative method of evaluating the publication bias (e.g., Begg's or Egger's test). In addition, as sensitivity analysis is crucial for meta-analysis, authors should conduct sensitivity analysis to strengthen the results.

In conclusion, Jiang *et al.* performed an excellent meta-analysis to evaluate the effectiveness of 3D vascular reconstruction combined with 3D navigation during laparoscopic hepatectomy. But in our opinion, more research on the function of 3D vascular reconstruction in patients with primary liver cancer is necessary. Large-sample studies are required for the literature to be fully understood the precise function of 3D vascular reconstruction in combination with 3D navigation in patients with primary liver cancer.

Acknowledgments

Footnote

Provenance and Peer Review: This article was a standard submission to the journal. The article did not undergo external peer review.

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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