



Reply to: The letter to the editor “More details are needed about the use of multicenter propensity score matching analysis” by Feng *et al.*

Xin-Fei Xu, Ming-Da Wang, Feng Shen, Tian Yang

Department of Hepatobiliary Surgery, Eastern Hepatobiliary Surgery Hospital, Naval Medical University (Second Military Medical University), Shanghai, China

Correspondence to: Prof. Tian Yang, MD. Department of Hepatobiliary Surgery, Eastern Hepatobiliary Surgery Hospital, Naval Medical University, Shanghai, China. Email: yangtianehbh@smmu.edu.cn.

Reply to: Feng Q, Chen X, Li H, *et al.* More details are needed about the use of multicenter propensity score matching analysis. *HepatoBiliary Surg Nutr* 2023;12:294-5.

Submitted Jan 14, 2023. Accepted for publication Feb 22, 2023. Published online Mar 16, 2023.

doi: 10.21037/hbsn-23-27

View this article at: <https://dx.doi.org/10.21037/hbsn-23-27>

We thank Dr. Feng and his colleagues for their interest and thoughtful commentaries on our recently published study on the association between tumor morphology and prognosis of solitary huge hepatocellular carcinoma (HCC) after curative liver resection (1). Based on propensity score matching (PSM) analysis, the present study demonstrated that balloon-shaped HCC (BS-HCC) was independently associated with better overall survival (OS) and recurrence-free survival (RFS) after surgery.

Dr. Feng *et al.* expressed his concern about the various differences in the baseline characteristics and survival rates of all patients before PSM. In the present study, an initial analysis of baseline demographics and preoperative imaging characteristics were performed, and Child-Pugh grading, tumor size, tumor location and pedunculated growing were incorporated into the PSM analysis to adjust for the existing differences and make the two groups more balanced. From our perspective, the results after PSM were of most importance and are more reflecting the true clinical associations in real-world setting. The results of all patients before PSM, to some extent, were less important and may cause some confusion and misunderstanding to readers. To our knowledge, many high-quality studies published in top journals did not report the results of all patients before PSM (2-4). We fully agree with Dr. Feng *et al.* that adding baseline characteristics, OS and RFS curves of all patients before PSM would make this study more comprehensive, however, the content and details of published articles are

determined jointly by the authors, reviewers and editors, and are limited by the number of words, tables and figures prescribed by the journal. As a result, we didn't include baseline characteristics, OS and RFS curves of all patients before PSM in this study, which may fail to meet the expectations of Dr. Feng *et al.*

In addition, Dr. Feng *et al.* wondered whether preoperative imaging characteristics other than tumor morphology were associated with outcomes after hepatectomy. As demonstrated, tumor size, tumor location, and presence or absence of pedicle growth were balanced between patients with BS-HCC and non-balloon-shaped HCC (NBS-HCC) after a PSM adjustment. Multivariate Cox-regression analysis showed that tumor size was independently associated with OS [hazard ratio (HR) 1.981, 95% confidence interval (CI): 1.311–2.994, $P=0.001$] and RFS (HR 1.628, 95% CI: 1.111–2.385, $P=0.012$) after hepatectomy, while univariate analysis revealed that tumor location, and presence or absence of pedicle growth were not independent risk factors associating postoperative OS and RFS (all $P>0.05$). Considering the retrospective inherent nature of this study, further large-scale multicenter studies or even randomized clinical trials are needed to clarify the relationship between these factors and long-term survival outcomes after liver resection for solitary huge HCCs.

In conclusion, we really appreciate the thoughtful commentaries from Dr. Feng *et al.* and hope further clinical and laboratory studies to elucidate the relationship between

tumor morphology and prognosis, as well as its detailed molecular mechanisms.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Hepatobiliary Surgery and Nutrition*. The article did not undergo external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://hbsn.amegroups.com/article/view/10.21037/hbsn-23-27/coif>). The authors have no conflicts of interest to declare.

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.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with

the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Xu XF, Wu H, Li JD, et al. Association of tumor morphology with long-term prognosis after liver resection for patients with a solitary huge hepatocellular carcinoma—a multicenter propensity score matching analysis. *HepatoBiliary Surg Nutr* 2022. doi: 10.21037/hbsn-21-423.
2. Sung SY, Jang HS, Kim SH, et al. Oncologic Outcome and Morbidity in the Elderly Rectal Cancer Patients After Preoperative Chemoradiotherapy and Total Mesorectal Excision: A Multi-institutional and Case-matched Control Study. *Ann Surg* 2019;269:108-13.
3. Landreneau RJ, Normolle DP, Christie NA, et al. Recurrence and survival outcomes after anatomic segmentectomy versus lobectomy for clinical stage I non-small-cell lung cancer: a propensity-matched analysis. *J Clin Oncol* 2014;32:2449-55.
4. Chao YK, Liu YH, Hsieh MJ, et al. Long-term outcomes after thoracoscopic resection of stage I and II thymoma: a propensity-matched study. *Ann Surg Oncol* 2015;22:1371-6.

Cite this article as: Xu XF, Wang MD, Shen F, Yang T. Reply to: The letter to the editor “More details are needed about the use of multicenter propensity score matching analysis” by Feng et al. *HepatoBiliary Surg Nutr* 2023;12(2):296-297. doi: 10.21037/hbsn-23-27