Peer Review File

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Reviewer A

Comment 1:

I have carefully read the paper titled "The state of robotic versus open pancreatoduodenectomy" and appreciate the opportunity to offer my review. The topic is undoubtedly interesting, and the chosen format, namely the editorial comment, is likely the most appropriate for such cases. However, the text as a whole appears to need revision. Paper like this one need to be particularly engaging. A particularly interesting point certainly concerns the intraoperative risk stratification of postoperative pancreatic fistula and the choice of the most appropriate mitigation strategy. This aspect is of fundamental importance, especially when opting for minimally invasive surgery. The authors could draw inspiration from the following work and make appropriate considerations on this matter: doi.org/10.1016/j.pan.2022.08.005.

Response:

Thank you for your feedback. In the revised manuscript, we have discussed concerns on POPF after RPD and OPD as suggested (page 7, line 105-110). We believe this is an important issue that should be discussed.

Reviewer B

I have a few comments. the authors reported on recent results comparing RPD vs OPD, as well as implementation of a RPD program with superior clinical outcomes compared to OPD. However, there are areas which are lacking.

Comment 1:

the authors mentioned that they will be focusing on RPD vs OPD, however i do note an entire paragraph (lines 88-106) on LPD vs OPD - this should be removed if not relevant.

Response:

Thank you for your feedback. In the revised manuscript, we have removed an entire paragraph (lines 88-106) on LPD vs OPD.

Comment 2:

the authors cited a systematic review on the learning curve of RPD vs LPD (line 108-109) and stated that there was no significant difference between the learning curve for RPD and LPD. However, the authors ought to explain that the authors attributed this due to the natural history of minimally invasive surgery, where prior experience in laparoscopic surgery is obtained first before transiting to robotic surgery. hence, the actual learning curve if transiting from open to robotic surgery may not be the same as that from open to laparoscopic surgery. a review (PMID: 37658172) on distal gastrectomy showed that the median no. of cases of open gastrectomy prior to laparoscopic distal gastrectomy was 80, and that prior to robotic distal gastrectomy was 3500. this suggest that the learning curve of robotic distal gastrectomy is in fact higher, but definitive conclusion cannot be made due to the small number of studies which report experience in open surgery with direct transition to robotic surgery. please consider discussing about this and citing the relevant study.

Response:

Thank you for your feedback. As the reviewer B pointed out, equivalent learning curves of RPD and LPD may be due to prior experience of laparoscopic surgery and ergonomic advantages of robotic surgery. We have discussed on this issue in the revised manuscript (page 8, line

125-127).

Comment 3:

in line with the discussion about the learning curve of RPD, the authors only briefly mentioned that RPD had similar learning curve compared to LPD. There was also brief mention of their RPD program after completing the LAELAPS-3. However, what are the ways which can be used to shorten the learning curve? This would be interesting and helpful. For instance, constant presence of proctorship and comparing the learning curve of proctor vs trainee. Additionally, use of surgical videos is also a useful adjunct (PMID: 32591845).

Response:

Thank you for your feedback. In the revised manuscript, we have discussed on this issue as the reviewer B suggested (page 8, line 128-131). We believe that structured training program for robotic surgery and proctoring system may be helpful to shorten the initial learning curve.

Comment 4:

please consider discussing about the recent guidelines on minimally invasive pancreatic surgery - the EGUMIPS 2023 (PMID: 37450702) which discussed about the use of LPD and RPD. Firstly, I feel that the authors should describe the pathology in which RPD will be beneficial - e.g., benign vs malignant diseases. a recent commentary summarised the EGUMIPS 2023 (PMID: 38720683). What are the authors thoughts on the recommendations - the recommendations for RPD is weaker compared to robotic distal pancreatectomy for pancreatic tail lesions. Additionally, recommendations for malignant diseases were weaker for robotic surgery compared to that for benign diseases. What are the authors thoughts?

- please reply to above and also include the relevant references

Response:

Thank you for your feedback. In the revised manuscript, we have discussed about the current evidence based on the EGUMIPS 2023 (page 6, line 87-96). Moreover, as the reviewer B suggested, weaker recommendations for malignant diseases could be because robotic surgery for malignant disease is more challenging to due to the extent of diseases with possibility of

invasion into surrounding tissues (page 6, line 92-95).

Comment 5:

will need edits on few areas

-line 85- 30-day mortality should be in %

-line 85- r0 resection rates should be in %?

-line 87- is this referring to number of lymph node removed? what is lymphadenectomy rate?

-table 1- operative time for okayama university hospital - 66 should be in brackets.

Response:

Thank you for your feedback. The results of variance ratio tests are demonstrated for 30-day mortality rate, R0 resection rate, and the yield of lymph node retrieval. We have revised the manuscript as suggested (page 7, line 113-119)

Reviewer C

I think this is a topical review on the current status of robotic pancreatoduodenectomy in comparison to open surgery. There is a broad coverage of outcomes and learning curve, but I must admit there are some unfounded conclusions made.

Comment 1:

In the introductory paragraph it is stated that equivalent outcomes have been achieved between MIS PD and open PD which I have disagree with. LEOPARD-2 was closed early as it demonstrated MIS PD resulted in greater mortality. The recent presentation of the DIPLOMA-2 study at IHPBA did show faster recovery with MIS and equivalent peri-operative outcomes, but this was only covering the first 90-days post-operatively and oncological outcomes long-term have not been considered. Additionally, this is a single randomized trial and I believe more prospective randomized data is required before we conclude equivalency.

Response:

Thank you for your feedback. Several meta-analyses investigating outcomes between RPD and OPD have reported equivalent short-term outcomes. However, data on oncological long-term outcomes are still lacking. Therefore, more prospective randomized data are required to support equivalency between RPD and OPD. In the revised manuscript, we have described on this issue (page 7, line 117-119).

Comment 2:

There is a lot of discussion around outcomes in high and low volume centres. This should be discussed more if mentioned. Do the authors believe robotic PD should only be performed in high volume centres? What would be the cut-off for annual cases? Does centre or surgeon volume matter?

Response:

Thank you for your feedback. As the recent guidelines of the EGUMIPS 2023 have been reported, better outcomes have been reported in centers performing at least 20 RPD procedures. In the revised manuscript, we have discussed on this issue (page 6, line 95-96).

Comment 3:

There could be a better segue between the 1st and 2nd paragraphs. The flow of the manuscript in whole could be improved. At the beginning of the manuscript more emphasis could be placed on why we are interested in robotic/MIS surgery for PD

Response:

Thank you for your feedback. We have revised the manuscript as the reviewer C suggested (page 3, line 32-44).

Comment 4:

The authors have described the benefits of robotics for the kocher maneuvre and SMA dissection but I see more benefits with regards to robotics in surgical technique. Finer more ergonomic dissection to skeletonise the porta hepatis in comparison to laparoscopic surgery as well as the magnified vision afforded during the pancreaticojejunostomy could also be discussed as examples.

Response:

Thank you for your feedback. We have added the benefits of robotics in the revised manuscript (page 8, line 136-138).