Peer Review File

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Review Comments (Round 1)

We are grateful for the feedback provided by the editors and reviewers for this manuscript. All comments have been addressed point-by-point and in the required format. Both track-changed and clean versions of the revised manuscript have been resubmitted for your consideration. Please find below the responses to reviewer comments in blue.

Reviewer A

Thank you for the review opportunity.
Dr. Jones and colleagues researched patient perspective on pain, complication risks, cosmesis, travel burden, and functional outcomes of open thoracotomy (Open) versus minimally invasive surgery (MIS). They concluded that early deterioration with recovery of functional outcomes at 6-months were similar regardless of surgical approach, and safety, i.e. the risk of complications, was more important to patients than incision size, pain, and distance traveled for treatment. Moreover, They mentioned that the results suggest that patients may be willing to enter randomized trials comparing MIS and Open approaches, in regionalized cancer care models.
The issue is very important and interesting.

I have some comments.

INTRODUCTION
Comment 1: The references cited are ongoing clinical trials and large backward-looking analyses, and the level of evidence is not sufficient. Please examine the literature that should be cited. For example, I believe "Bendixen M. Lancet Oncol. 2016;17:836-44" should be cited.

The references cited are generally outdated and do not reflect the current state, do they?

Reply 1: We appreciate the feedback and have cited the suggested study, "Bendixen M. Lancet Oncol. 2016;17:836-44".

Changes in the text: Page 3, Lines 81 - 84

METHODS

Comment 2: First, shouldn't the author define what MIS is?

Reply 2: Thank you for your feedback. The definition of MIS has been modified to be more specific in the introduction section of the paper.

Changes in the text: Page 3, Lines 75 – 78

Comment 3: Please describe for which cases you selected MIS and for which cases you selected Open.

Reply 3: We apologize for the lack of clarity. This has now been clarified in the methods section of the paper. Patients were not randomly allocated to MIS or Open surgeries. Patients were asked to answer the surveys based on the surgery that they were scheduled to receive, determined by the surgeons based on the most appropriate course of action for the patients.

Changes in the text: Page 4, Lines 112 - 114

Comment 4: Why did the authors do a pain study on three organs, neck, chest, and abdomen? Neck surgery is particularly difficult to benefit from MIS.

Reply 4: The study was conducted on these regions as they fall under the scope of thoracic surgeries. We agree that there is no real benefit from an MIS approach in the neck however we wanted to understand in general the perspective of patients regarding these areas. It is indeed a potential limitation as no meaningful intervention can be implemented in these cases. However, as mentioned, an overall sense patient perception was the reason for including this body region.

Changes in the text: No changes were made in the text.

Comment 5: Please evaluate not only the results of the questionnaire, but also observed variables (length of surgery, length of wound, presence of postoperative complications, etc.).

Reply 5: Thank you. We have added post-operative complications in the baseline characteristics table. Future studies will address the difference between MIS and Open approaches in terms of length of stay and length of wound. The purpose of our current study is to truly assess the patients' perspective of these approaches. **Changes in the text:** Page 19, Line 448

Comment 6: Please describe statistical analysis.

Reply 6: The statistical analysis has been described in further detail, with specific information on the types of tests used for comparisons between groups.

Changes in the text: Page 1, Line 43 – 44, Page 5 – 6, Lines 137 – 140

RESULTS

Comment 7: The notation "P=NS" is not preferred. Please state the exact value.

Reply 7: The exact values for non-significant p-values have been added. As these p-values are referring to multiple comparisons with non-significant values, they have been changed to $p > 0.05$.

Changes in the text: Page 7 – 11, Lines 169, 175, 177, 180, 185, 195 – 196, 202, 221, 227, 234, 237 – 238, 250, 254

Page 23 – 25, Lines 503, 505, 524, 516, 524

DISCUSSION

Comment 8: Please mention the existence of selection bias of the surgical approach.

Reply 8: Thank you for your comment. Selection bias has been added to the limitations in the Discussion.

Changes in the text: Page 14, Lines 314 – 137

CONCLUSION

Comment 9: Lines 307-310: I think this conclusion is an overstatement. Please describe more clearly which results were the basis for this conclusion.

Reply 9: Thank you for the feedback. The conclusion has been revised. Please see the results supporting this conclusion under the "Importance" on Page 9, Lines 207 – 212. Additionally, we have summarized the results comparing the importance of different factors related to a surgical procedure from a patient's perspective in supplementary table S1.

Changes in the text: Page 14, Lines 322 – 327

Reviewer B

No comments. It is acceptable.

Reviewer C

Comment 10: Thank you for what was a well thought through study in an extremely important and expanding area. I think the difficulty arises in respect to the main conclusion which does not fit with the evidence currently available. I appreciate the time delay from when the abstract was first published/ presented in 2018 and to now – four years is a significant time and VIOLET has confirmed evidence of VATS including better quality of life and less in hospital and long term complications. This makes the conclusion in its current form rather redundant and would need significant modification.

Reply 10: Thank you for your comment. We agree that there is evidence showing support for MIS, however, in Europe and North America, it is not being fully adopted. Our study may shed some light on the willingness of patients to be randomized so that studies supporting this can be further conducted.

Changes in the text: No changes were made in the text.

Reviewer D

The authors are commended for their nicely written manuscript on the survey comparing open and minimally invasive thoracic surgery from the patient's perspective. However, there are a number of concerns raised by the reviewers that need to be addressed:

Comment 11: (1) please check the references are up to date and discuss about new evidence that occurred after the end of the study;

Reply 11: We appreciate the feedback and have included an additional reference in the study (Reference #3). Please refer to reference numbers 1, 2, 5, 13, 20, 25, 31and 33 for cited studies published in 2018 and onward, which the authors feel still have relevance for this specific project. Previously cited papers have been left in the main body of the paper as they support the purpose of the study.

Changes in the text: Page 3, Lines 81 – 84, Page 16, Lines 360 - 362

Comment 12: (2) more details regarding the procedure are required to support meaningful interpretation of the results, such as the definition of MIS and type of surgery, for instance, was mediastinal tumor resection included at all?

Reply 12: Thank you for comment. Patients with mediastinal tumour resections were included in the study, as stated in the inclusion criteria (Page 4, Line 115).

The definition of MIS has been modified and added in the introduction (Page 3, Lines 75 – 78).

Changes in the text: Page 3, Lines 75 – 78

Reviewer E

I find this is a well-written and informative paper. The idea of considering patient perspectives is an important one. The reviewers provided some useful comments that I encourage the authors to consider in revising their manuscript. I would also add the few comments below. We are very much looking forward to reading the revised version of the manuscript.

Comment 13: I would suggest considering how the objectives of the paper align with the discussion and conclusion. As written, the discussion is essentially an

interpretation of the results as a rationale for conducting RCTs of MIS vs open thoracic surgery. In the introduction, it is not imediately clear that this was the main objective of the paper. I would suggest the results of this paper are quite useful in informing pre- and intraoperative decision-making with regards to surgical approach (MIS vs open, intraop conversion) as well as informing preo-op surgeon-patient discussions and management of patient expectations.

Reply 13: Thank you for your comment. We have added to the objective of the paper for clarification.

Changes in the text: Page 4, Lines 100 - 102

Comment 14: I think it would be useful to provide the reader with some sense of case selection (for MIS vs open) as well as of the kind of preoperative discussion the patients had with their surgeon, as this would no doubt influence patients' expectations and possibly their overall experience as well. If, as would reasonably be expected, open surgery was reserved for larger tumors and more complex cases, then the expectation of a higher risk of complications would logically follow, and so would not be dependent on approach per se.

Reply 14: Thank you for your feedback. This has been clarified in the methods section of the paper. Patients were not randomly allocated to MIS or Open surgeries. Patients were asked to answer the surveys based on the surgery that they were scheduled to receive, determined by the surgeons based on the most appropriate course of action for the patients. Information regarding pre-operative discussions with surgeons was not collected for this study.

Changes in the text: Page 4, Lines 112 - 114

Comment 15: It would also be interesting to have some sense of pain control strategies, as this could also have an effect on pain (and other?) scores.

Reply 15: Thank you for this suggestion. However, this information was not collected for the study.

Changes in the text: No changes were made in the text.

Comment 16: As a final comment, it is not completely clear to me how to interpret patients' answers on the « expectations » portion of the survey. Expectation is by definition a prospective concept; so when expected pain outcomes are assessed on postoperative surveys, what do they mean? Are we to interpret the postoperative answers as either confirming or refuting pre-op expectations? Or are we to interpret these answers as providing expectations as to the subsequent clinical course? As an example, if a patient had a preop expectation of good pain control, and then provided the same answer (« expects good pain control ») on the 6 month questionnaire, does this mean that pain was actually well-controlled and resolved early post-op or that there is still significant pain at 6 months that is nevertheless expected to resolve? I would have the same question regarding expectation of complications.

Reply 16: Thank you addressing the lack of clarification. Questions regarding expectations were asked during the pre-operative period, whereas questions regarding experienced pain/ complications were answered during the post- operative periods. Both were compared in order to assess the level of agreement between patient expectations and experience and to compare the differences between MIS and Open groups. Pain control was not assessed in the study. We have clarified the interpretation of expected and experienced pain/complications in the methods section.

Changes in the text: Page 5, Lines 129 – 133

Miscellaneous :

Comment 17: The numbers of patients in the MIS plus open groups do not seem to add up to the total of 201 (lines 130-132). Also, I think that the number of completed surveys only applies to the SF-36 questionnaire, whereas the numbers for the PPOMITS are different (lines 133-35 vs table 2).

Reply 17: Thank you for bringing this error to our attention. The error has been addressed. The correct number of Open surgery patients has been entered into the text (n= 38). The number of completed surveys for each questionnaire (PPOMITS and SF-36) has also been clarified in the text.

Changes in the text: Page 6, Lines 144 – 145, 147 – 148

Review Comments (Round 2)

Comment 1: The revisions are satisfactory with the exception of the two following points:
It remains difficult to attribute any real meaning to « MIS » in the neck. The authors responded to the reviewers as to their rationale for including this surgical site nonetheless, but did not make any clarifications within the text for the benefit of the reader. Please add one or two sentences summarizing the rationale for including neck incisions.
Pain control strategies are critical to the evaluation of postoperative pain and both short and long term outcomes. The fact that this data was not able to be collected is still a crucial bit of information and should be included in a brief sentence or so.
Reply: Thank you for your comments. Both points have been added to the limitations section of the discussion.
Change in the text: Page 14, Lines 316 - 321