Peer Review File

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Review Comments

Reviewer A

General Comments

Overall, the manuscript shows potential, but a more rigorous structure and additional details are needed to enhance its clarity and scientific value. I would suggest a substantial revision to address the following points.

Reply A-1: Thank you for your valuable input.

Specific Feedback

Introduction

It would be beneficial to expand on the current state of non-intubated surgery in the introduction. The current information in lines 38-39 seems limited and could be strengthened with more context.

Reply A-2: The introduction has been re-written to provide more background on non-intubated surgery with a focus on risks of mechanical ventilation.

Change in the text: Between the line 98 and 119.

Please also consider adding a section on the perioperative risks specifically related to severe lung injury. This would provide important background for the study.

Reply A-3: The perioperative risks have been depicted in more detail

Change in the text: (as aforementioned in the Reply A-2.)

Methods

Please provide more explicit details on the surgical technique, anesthesia management, and drain management. This would improve the manuscript's reproducibility and allow readers to better understand the procedure.

Reply A-4: Thank you for your suggestion. A comprehensive modification of the methods section has been made accordingly.

Change in the text: Between the line 143 and 192.

A clear and comprehensive definition of how patients were divided into the non-intubated and intubated groups should be included in this section.

Reply A-5: We initiated the non-intubated surgery in 2018 and have gradually expanded its indications since then. Therefore, there are no clear criteria distinguishing between patients undergoing niuVATS and those undergoing intubated VATS. Moreover, the present study retrospectively included only niuVATS patients. As this study does not aim to discuss the indications for niuVATS, but rather could cause confusion if distinguish it from intubation VATS, we believe that such criteria are not necessary for this manuscript.

The abbreviation uniVATS is a point of potential confusion, as it could be misread as simply "uniportal VATS." I would recommend using a different abbreviation to better distinguish your specific technique.
Replay A-6: Thank you for your suggestion. We now utilize the abbreviation niuVATS (non-intubated uniportal VATS) throughout the entire manuscript.

The manuscript introduces the full term "Uniportal non-intubated video-assisted thoracoscopic surgery" in line 4 but does not use it consistently or provide a clear explanation in line 37. To maintain consistency, please ensure the abbreviation is introduced and used throughout the text. I also noted that the abbreviation changes to niVATS in line 77, which may cause confusion for the reader.
Replay A-7: Thank you again; we now coherently utilize the abbreviation niuVATS

The definition of severe lung injury needs to be clearly stated and supported by a rationale. The description in lines 49-50 is not specific enough to allow for a proper assessment of patient selection.
Replay A-8: Please see the line from 266 to 268. However, as noted above, this is a retrospective study, and the severe lung injury was not a criterion for determining the indication for niuVATS but rather for selecting the present cohort. Our statement was meant only to clarify the basis for our cohort selection, and we do not see the rationale for providing further specificity beyond this point.

I found that some methodological details were described in the Results section instead of the Methods. Please ensure that all information related to study design, patient selection, and procedures is moved to the Methods section to improve the paper's overall organization.
Replay A-9: Thank you, this has been addressed
Change in the text: Between the line 200 and 204.

I hope these comments are helpful in strengthening your manuscript for a future submission.

Reviewer B

The paper evaluated an institutional experience on Non-intubated uniportal video-assisted thoracoscopic surgery (NIUVTS) anatomical resections.
NIUVTS is a surgical treatment that cannot be achieved without close cooperation between surgeons and anaesthesiologists. From the point of view of the anaesthesiologist, compared with uniportal video-assisted thoracoscopic surgery (UVATS), NIUVTS is expected to cause greater stress during surgery on the

anaesthesiologist than careful observation of the patient during anesthesia and attention to transition to intubation. Contraindications usually included patients with chronic bronchitis, asthma, pneumonia, etc., who often produce intraoperative sputum and require frequent intraoperative sputum suction, and patients with low cardiopulmonary function, such as arrhythmia complications and patients with stent placement.

On the contrary, the series focuses on BPCO patients, where a lung volume reduction is achieved throughout an anatomical resection (i.e. 10 lobectomies and 2 segmentectomies).

There are several points not clear to me:

- Inclusion criteria: what is the surgical indication? It's not clear to me when indication is lung cancer surgery or just LVRS

Replay B-1: We did screen our records to include all patients that underwent anatomical resection through niuVATS. Of these just 12 did meet our inclusion criteria for severely impaired lung function, and all of them received LVRS.

- Middle lobe lobectomy and lower lobectomy should be discussed, since they are not a standard indication for LVRS.

Replay B-2: Lobectomy was performed to respect the portion of lung most affected by emphysema as described by preoperative diagnostics up to PREFUL MRI scanning. (Please refer the line 139)

- During NIUVTS, a vague nerve block is usually performed to suppress coughing during surgery, and an intercostal nerve block is performed with a local anesthetic to control pain in the chest wall, so that the surgical technique is not affected. The authors do not describe these techniques. They don't need them?

Replay B-3: Thank you for your comment. We did address the issue be rewriting the methods section to include this information.

Change in the text: Between the line 143 and 192, especially the line 158 and 160.

- In case of oncological resection, node dissection should be reported since it is considered a limit of NIUVATS.

Replay B-4: Nodal dissection certainly is challenging in niuVATS; as mentioned, the reported patients all underwent LVRS.

- The hyper insufflation is usually a big problem during non-intubated surgery; it's different in case of "awake" or not "awake" non intubated anesthesia. There are non-details on the anesthesiologic technique.

Replay B-5: Thank you for your comment. We did try to expand on our anesthesiologic technique in more detail in the methods section.

Change in the text: Between the line 143 and 192.

- Since this is an early experience (small series), the paper should focus more extensively on surgical and anesthesiologic technique. A video would help in

understanding.
Replay B-6: A very valid point.
Change in the text: (as aforementioned in the Reply B-5.)

Reviewer C

I thank the editors for the opportunity to review this interesting work about the results of volume reduction in patients undergoing non-intubated uniportal VATS. The study provides results from patients over a period of 4 years, totaling 12 cases. The work is well written with an adequate presentation of the problem and each of the sections. The authors are aware of the limitations of their study given the small group of patients analyzed and the fact that it is from a single center, and all of this is reflected in the 'limitations' section. However, studying the results, I believe that the discussion, and particularly the final conclusion drawn, is not accurate. In my opinion, it would not be appropriate to say 'anatomical lung resection for LVRS via uniVATS appears to be safely feasible in patients with severely impaired pulmonary function,' as we have the following results:

- The length of stay and drainage days have been considerably high compared to patients from other series in other centers where drainage days or hospital stay usually range from 2 to 5 days after major resection via VATS or RATS (attached articles 1-4).
- 6 out of 12 patients experienced a prolonged air leak (50%)
- 3 patients suffered from atelectasis (25%)
- 2 out of 12 (16.7%) experienced pneumonia.

Thank you for your comment

Considering all of this, and taking into account the high morbidity present in these patients, I think it would be more appropriate in the conclusion to say something similar to the following: 'the niVATS technique may be safe for treating LVRS in certain selected patients, considering the high morbidity of this population group.'
Replay C-1: Thank you; this has been addressed accordingly. In addition, we added our chest tube removal protocol.
Change in the text: Changed the line 72 and 73 and between the line 191 and 192.

Even considering the limitations of this work and its hasty conclusions, I find this study interesting given the scarce evidence we currently have regarding the results of LVRS, which is why I believe this work could add some value to the scientific evidence to continue progressing in the treatment of these patients.

Thank you for your kind comment.

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