

## Peer review file

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### Reviewer A

**Comment 1:** First, could you analyze the results separately according to the disease?

Authors mixed up the disease without differentiating whether they were malignant or benign. Two different disease categories usually required different surgical skills and operation time.

**Reply 1:** We usually added only hilum lymph node sampling or dissection in primary lung cancer cases. So required surgical skills are almost same in two different disease categories.

**Comment 2:** Second, please state the detailed pathologic results, is they are malignant ones. Different pathologic stages usually show different surgical results.

**Reply 2:** In this study, we focused on acute perioperative surgical outcomes. Hence, detailed pathologic results were excluded. Although not mentioned in the manuscript, all cases with primary lung cancer were in pathological stage 1.

**Comment 3:** Third, it would be better to state detailed indications for M-VATS and U-VATS. How did the authors decide to apply U-VATS and M-VATS? Were they radiologic, clinical, or other factors? To avoid selection bias, detailed and accurate indications are required.

**Reply 3:** U-VATS was started in February 2019 and the surgical procedure was decided by the surgeon. Although there is no clear definition, most cases were performed by U-VATS in 2020.

**Comment 4:** Fourth, if there were conversion cases from intended U-VATS to M-VATS, then please state them accurately. According to your VATS policy, conversion from U- to M-VATS could make inadequate and unnecessary ports to patients. Readers may want to know the know-how in such a case.

**Reply 4:** There were no conversions from U-VATS to M-VATS.

**Comment 5:** Finally, it is thought that the uncommon U-VATS required more time and advanced skills, but your results showed uncommon U-VATS showed better results. Please state the possible explanation.

**Reply 5:** I state the possible reasons for that results in the manuscript (Page 12, lines 206-214).

## **Reviewer B**

**Comment 1:** Small number of patient on each group.

**Reply 1:** As you pointed out, the total number of cases is relatively small, so a prospective and multicenter study is required.

**Comment 2:** I would prefer to use the terms simple and complex, instead of common and uncommon.

**Reply 2:** The terms simple and complex may be common now, but I think the terms common and uncommon are accepted as well.

**Comment 3:** It is debated if Rocco is the first to have ever published on Uniportal (Migliore et al. JTD 2018) Then, references should be adapted (for example: Impact of complex segmentectomies by video-assisted thoracic surgery on peri-operative outcomes. Bédaride B, Abdelnour-Berchtold E, Krueger T, Perentes JY, Zellweger M, Triponez F, Karenovics W, Gonzalez M. J Thorac Dis. 2019 Oct;11(10):4109-4118). Uniportal versus Multiportal Thoracoscopic Complex Segmentectomy: Propensity Matching Analysis. Chen YY, Huang WL, Chang CC, Yen YT, Tseng YL.

Ann Thorac Cardiovasc Surg. 2020. Uniportal versus multiportal video-assisted thoracoscopic surgery does not compromise the outcome of segmentectomy.

Xie D, Wu J, Hu X, Gonzalez-Rivas D, She Y, Chen Q, Zhu Y, Jiang G, Chen C.

Eur J Cardiothorac Surg. 2020 Nov 24

**Reply 3:** I checked all the references you pointed out.

## **Reviewer C**

**Comment 1:** The concept of uncommon or complex segmentectomy needs to be defined more clearly with references. It is defined by exclusion in the Methods however it has to be made clear is this is an arbitrary distinction by the authors or an accepted/agreed upon category of segmental resections.

**Reply 1:** Segmentectomy that creates one, linear intersegmental plane, with a relatively easier procedure, could be considered simple segmentectomy. We have added the reference number in the revised manuscript (Page 6. Line 88).

Changes in the text: Uncommon segmentectomy was defined as any segmentectomy other than segmentectomies of the lingual, basilar, or superior segment of the lower lobe (S6), and

the upper division of the left upper lobe<sup>11</sup>

**Comment 2:** There is no statement of the study hypothesis.

**Reply 2:** U-VATS has some difficulties compared with M-VATS because the angle of the forceps is limited, and the stapler is inserted in only one direction. Therefore, there are concerns that uncommon segmentectomy by U-VATS will have some technical problems and increase the risk. This study aimed to identify the safety and feasibility of U-VATS uncommon segmentectomy compared with U-VATS common segmentectomy and M-VATS uncommon segmentectomy. We have described this in the manuscript (Page 5, lines 72-77).

**Comment 3:** The technical descriptions of the procedures can be found elsewhere and do not contribute to the objective of the study. The authors should be more descriptive of the 3D imaging process and decision-making regarding which segment should be resected.

**Reply 3:** All patients in our department, except for cases with contrast agent allergy, underwent preoperative three-dimensional computed tomography (3D-CT) angiography and bronchography to image bronchovascular structures and tumor location and determine the resection line (Page 6, lines .89-91).

**Comment 4:** How are postoperative complications defined, documented, and graded.

**Reply 4:** Postoperative complication was defined as a complication occurring within 30 days from surgery. Complications were evaluated with the Common Terminology Criteria for Adverse Events version 5.0. We have added a description about this in the revised manuscript (Page 7, lines 99-100).

**Changes in the text:** Postoperative complications were evaluated with the Common

Terminology Criteria for Adverse Events version 5.0. The major complications were defined as requiring additional treatment.

**Comment 5:** The very small number of patients in each group does not allow meaningful comparisons because it is highly subject to bias. The authors should reconsider if they have a sufficient sample size to compare complex to non-complex s-VATS segmentectomy. Perhaps a comparison of s-VATS to m-VATS segmentectomy would be more appropriate given the sample size.

**Reply 5:** As you pointed out, the total number of cases is relatively small, so a prospective and multicenter study is required.

**Comment 6:** In a comparative trial, Table 1 is not necessary.

**Reply 6:** I believe it is necessary to be able to list the background factors for the entire patient.

**Comment 7:** The rate of complications is very low which gives the impression that tracking of complications was lacking. The authors should describe how complications are documented within their unit.

**Reply 7:** We listed major complications that required additional treatment. We have added a description about this in the revised manuscript (Page 7, lines 99-100).

**Changes in the text:** Postoperative complications were evaluated with the Common Terminology Criteria for Adverse Events version 5.0. The major complications were defined as requiring additional treatment.

**Comment 8:** Although the authors acknowledge the significant limitations of the study, the conclusion statements are not reflective of this and are not supported by the small number of patients summarized.

**Reply 8:** As you pointed out, the total number of cases is relatively small. However, common and uncommon segmentectomies can be achieved in U-VATS with similar results in this study. We would like to accumulate more cases and verify them.

#### **Reviewer D**

**Comment 1:** It is a retrospective study in which bias in patients' selection and treatment could not be avoided.

**Reply 1:** As you pointed out, this study was a retrospective, non-randomized, single-institution study. A prospective and multicenter study is required.

**Comment 2:** There are something wrong in descriptions of the values of operation time and postoperative hospitalization between M-VATS and U-VATS, in the sentences of abstract (line 52 to 53).

**Reply 2:** The details of the values are shown in Table 4, and there is no doubt.

**Comment 3:** The table 1 was not necessary, it did not help us to recognize the differences of the patients' profile between the M-VATS and U-VATS. There was no clinical profile mentioned about the underlying disease, sex, age, and so on. The calculation of percentage was also strange. The number of primary lung cancer was 87(72.5%), but the number of intentional was 50 (57.5) and unintentional was 37 (42.5%). 57.5 plus 42.5 was greater than

72.5.

**Reply 3:** I believe it is necessary to be able to list the background factors for the entire patient. The number of primary lung cancer was 87(72.5%), and among of them, the number of intentional was 50 (57.5%) and unintentional was 37 (42.5%).

**Comment 4:** This study aimed to determine the safety and feasibility of U-VATS uncommon segmentectomy compared with U-VATS common segmentectomy and M-VATS uncommon segmentectomy. The function of table 2 and 3 only told us the diversity of uncommon segmentectomy.

**Reply 4:** We believe that we need to show what kind of segmentectomy is being performed in each group.

**Comment 5:** The main defect of the current research was that the clinical data was not well organized and there was no strong evidence to persuade us the benefit of U-VATS for uncommon segmentectomy.

**Reply 5:** As you pointed out, this study was a retrospective, non-randomized, single-institution study. To determine whether U-VATS is truly effective for uncommon segmentectomy, long-term data for more cases, including minimal invasiveness, is needed.

## **Reviewer E**

**Comment 1:** The cases number of this series was too small. It was not easy to get conclusion from such a small number series.

**Reply 1:** As you pointed out, this study was a retrospective, non-randomized,

single-institution study. A prospective and multicenter study is required.

**Comment 2:** The information provided from this manuscript was not new or novel.

**Reply 2:** As you pointed out, this study was a retrospective, non-randomized, single-institution study. To determine whether U-VATS is truly effective for uncommon segmentectomy, long-term data for more cases, including minimal invasiveness, is needed.

**Comment 3:** Uncommon segments resected in this series were actually complex segments which were relative easy in comparison to other complex segment (such as combined subsegments or combined segment with subsegment). From the literature, Uniportal VATS has been shown to have not inferior result in comparison with M-VATS even in the combined subsegmentectomy or segmentectomy with subsegmentectomy.

**Reply 3:** As you pointed out, there were less complicated segmentectomy such as combined subsegments compared to M-VATS. In the future, we would like to accumulate cases by performing more complicated segmentectomy such as combined subsegments in U-VATS as well.

## **Reviewer F**

**Comment 1:** As they have an influence on the choice of surgical procedure, it would be useful to provide the following informations: Size of the lesion or Tumor. For lung cancer additionally radicality, pT and pN Stage. If there are significant differences between the groups, these should be discussed.

**Reply 1:** Size of the lesion had no influence on the choice of surgical procedure. In patients



who underwent intentional segmentectomy for primary lung cancer, clinical stage 0-IA1 (Tis-1aN0M0) was confirmed by careful preoperative staging with CT and/or FDG-PET. There were no significant differences between the two groups in pT and pN stage.

**Comment 2:** It would be interesting to know the number of open segmentectomies during the observed period.

**Reply 2:** There were 9 cases of open segmentectomy during the same period.

## **Reviewer G**

**Comment 1:** It is a retrospective study and using a crude comparison. It is not surprising that this conclusion is due to the difference in the age and experience of the two approaches.

**Reply 1:** As you pointed out, this study was a retrospective, non-randomized, single-institution study. To determine whether U-VATS is truly effective for uncommon segmentectomy, long-term data for more cases, including minimal invasiveness, is needed.

**Comment 2:** The "uncommon" segmentectomy in your article is a little bit "common" in complex segmentectomy.

**Reply 2:** As you pointed out, there were less complicated segmentectomy such as combined subsegments compared to M-VATS. In the future, we would like to accumulate cases by performing more complicated segmentectomy such as combined subsegments in U-VATS as well.

**Comment 3:** The case number of each group is too small.

**Reply 3:** As you pointed out, this study was a retrospective, non-randomized, single-institution study. A prospective and multicenter study is required.

**Reviewer H**

**Comment 1:** In your article, there is some bias related to operation time between U-VATS vs M-VATS in uncommon segmentectomy. As you mentioned, these two groups operated via the same operator and operating team. However, I think U-VATS cases were operated later than M-VATS. That means, even though these two groups operated by the same team but there were a time difference and significant difference in operating teams' experience.

Practically, this bias was related to the retrospective structure of this study. So, I think you have to add the time-related operation time change data in the two groups. Finally, I think it is difficult to say there is a significant difference in OP time between U-VATS vs M-VATS if this study was performed prospective and two groups operation were performed same time and period.

**Reply 1:** As your pointed out, there is a time difference and significant difference in operating teams' experience. Differences in experience and technology due to the operators who are familiar with M-VATS and have transitioned to U-VATS are the main reason of this time shortening. A prospective and multicenter study is required.