

Peer Review File

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#1. Our manuscript was restructured as a clinical literature, adding literature search and result paragraph.

(Reviewer B, Comment 2 and 3; Reviewer C, Comment 1; Editor, Comment 1 and 8)

The *Introduction* includes 1) *Background, Rationale and knowledge gap, and 3) Objective.*”. *Literature search and Results* were also added. In addition to that, “*Discussion*” was restructured: **Surgical procedure for the intercostal approach** (*Incision, Instruments, Arrangement, Additional treatment and Learning curve*), **Indications** (*Surgical treatment, Intercostal approach, Transareolar approach and Subxiphoid approach*), **Summary**, and **Strengths and limitations**.

A literature search was as follows.

“A literature search was performed in the PubMed database (from 1995 to 2022). Articles on the intercostal approach, subxiphoid approach and transareolar approach were searched with the following keywords: [pneumothorax AND ("Video-assisted thoracoscopic surgery" OR "VATS" OR thoracoscopic) AND (uniportal OR "single-incision" OR "single-incisional" OR "single-port")], [(subxiphoid) AND (pneumothorax)] and [(transareolar) AND (pneumothorax)].” (page 7, *Methods*, para 1)

The literature search result was as follows.

“Among a total of 148 studies without duplication, 27, 6 and 3 studies used the intercostal, subxiphoid and transareolar approaches, respectively.” (page8, *Results*, para 1)

#2. We clarified the aim of this study.

(Reviewer B, Comment 1; Editor, Comment 2; Editor, Comment 3-1; Editor, Comment 7-1)

We revised our manuscript and added the aim of this study in the abstract and the main body as follows.

In *Abstract*,

“With the advent of the transareolar or subxiphoid approach, there is an increasing need to discuss the indications of these approaches in order to establish evidence. We therefore aimed to summarize the intercostal procedures of uniportal VATS for pneumothorax and discuss the favorable indications for this approach.” (page 2, line 4-7).

In *Objective of Introduction*,

“The present report summarizes the intercostal procedures of uniportal VATS for pneumothorax and discusses favorable indications for this approach compared with the subxiphoid and transareolar approaches.” (page 6, para 2, *Objective*).

#3. We reconsidered the conclusions.

(Reviewer B, Comment 4; Editor, Comment 3-2)

The revised conclusions were as follows.

“This article summarized reports on the intercostal procedure of uniportal VATS for pneumothorax and its indications compared with the subxiphoid and transareolar approaches. To generalize the indications for uniportal VATS, the surgical indication of the pneumothorax size should be taken into account. The presence of bullae and the initial thoracic surgery may be a favorable indication for uniportal VATS. In the uniportal intercostal approach, arrangements were performed to shorten the incision size. To further reduce invasiveness, eliminating or ameliorating postoperative air leakage appears to be the next challenge. Regarding the transareolar and subxiphoid approaches, reports are needed on the technical limitations and surgical outcomes, including resected lesions and complications. The technical feasibility, complications and cosmesis of each approach should be considered to determine the indications.” (Page 21, *Conclusions*).

#4. The indications for surgical treatment and uniportal approach were discussed compared with the guidelines.

As an introduction, we referred the guidelines as follows.

“As a surgical treatment for spontaneous primary pneumothorax, the British Thoracic Society Guideline describes video-assisted thoracoscopic surgery (VATS) as acceptable because of the 5% recurrence rate when it is performed with pleurectomy compared with open thoracotomy (1). In 2018, the German S3 guideline described VATS as the recommended surgical approach for pneumothorax (2).” (page 4, *Background*)

“There are no guidelines regarding the uniportal approach as a surgical approach for primary spontaneous pneumothorax.” (page 4, para 2, line 1-2)

Based on our literature search, we have discussed this issue as follows.

“The guideline recommends that the extent of the collapse be considered to determine the subjects most suited for surgical treatment (2). Conservative treatment is reported to be noninferior to interventional treatment (45). Our review found no literature describing the details concerning the extent of the collapse. This suggests that in the literature, such intervention, namely carrying out preoperative drainage with a chest tube, may have been performed based on different criteria described in the guideline.” (Page 14, para 4-page 15, para 1).

References

1. MacDuff A, Arnold A, Harvey J, et al. Management of spontaneous pneumothorax: British Thoracic Society Pleural Disease Guideline 2010. *Thorax* 2010;65 Suppl 2:ii18-31.
2. Schnell J, Beer M, Eggeling S, et al. Management of Spontaneous Pneumothorax and Post-Interventional Pneumothorax: German S3 Guideline. *Respiration* 2018;97:370-402.
45. Brown SGA, Ball EL, Perrin K, et al. Conservative versus Interventional Treatment for Spontaneous Pneumothorax. *N Engl J Med* 2020;382:405-15.

#5. Five tables and one figure were added.

Table 1 shows “Indications for uniportal VATS for pneumothorax in the literature”.

Table 2 shows “Surgical outcomes of intercostal uniportal VATS for pneumothorax”.

Table 3 shows “Surgical outcomes of transareolar uniportal VATS for pneumothorax”.

Table 4 shows “Comparison of surgical outcomes of subxiphoid approach to intercostal uniportal VATS for pneumothorax”.

Table 5 shows “Pros and cons of intercostal, transareolar and subxiphoid approaches for pneumothorax”.

Figure 1 shows “The procedures of uniportal VATS bullectomy: intercostal approach”, including surgical view and intrathoracic view.

#6. Along with a literature search, references were replaced as follows.

Removed 8 references: 1, 8, 10, 15, 18, 19, 22, 24 (in the original manuscript)

Added 24 references (as below): 1,2, 4, 8, 14-17, 20, 25-33, 35, 36, 38, 39, 45-48 (in the revised manuscript)

References

1. MacDuff A, Arnold A, Harvey J, et al. Management of spontaneous pneumothorax: British Thoracic Society Pleural Disease Guideline 2010. *Thorax* 2010;65 Suppl 2:ii18-31.
2. Schnell J, Beer M, Eggeling S, et al. Management of Spontaneous Pneumothorax and Post-Interventional Pneumothorax: German S3 Guideline. *Respiration* 2018;97:370-402.
4. Liu CY, Lin CS, Liu CC. Subxiphoid single-incision thoracoscopic surgery for bilateral primary spontaneous pneumothorax. *Wideochir Inne Tech Maloinwazyjne* 2015;10:125-8.
8. Kutluk AC, Kocaturk CI, Akin H, et al. Which is the Best Minimal Invasive Approach for the Treatment of Spontaneous Pneumothorax? Uniport, Two, or Three Ports: A Prospective Randomized Trail. *Thorac Cardiovasc Surg* 2018;66:589-94.
14. Salati M, Brunelli A, Xiume F, et al. Uniportal video-assisted thoracic surgery for primary spontaneous pneumothorax: clinical and economic analysis in comparison to the traditional approach. *Interact Cardiovasc Thorac Surg* 2008;7:63-6.
15. Berlanga LA, Gigirey O. Uniportal video-assisted thoracic surgery for primary spontaneous pneumothorax using a single-incision laparoscopic surgery port: a feasible and safe procedure. *Surg Endosc* 2011;25:2044-7.
16. Chen. Single-incision thoracoscopic surgery for primary spontaneous pneumothorax. *Journal of Cardiothoracic Surgery* 2011.
17. Chen. The adequacy of single-incisional thoracoscopic surgery as a first-line endoscopic approach for the management of recurrent primary spontaneous pneumothorax: a retrospective study. *Journal of Cardiothoracic Surgery* 2012.
20. Kang DK, Min HK, Jun HJ, et al. Early outcomes of single-port video-assisted thoracic surgery for primary spontaneous pneumothorax. *Korean J Thorac Cardiovasc Surg* 2014;47:384-8.
25. Chong Y, Cho HJ, Kang SK, et al. Outcomes of the Tower Crane Technique with a 15-mm Trocar in Primary

Spontaneous Pneumothorax. *Korean J Thorac Cardiovasc Surg* 2016;49:80-4.

26. Jeon HW, Kim YD. Does 11.5 mm guided single port surgery has clinical advantage than multi-port thoracoscopic surgery in spontaneous pneumothorax? *J Thorac Dis* 2016;8:2924-30.

27. Ocakcioglu I, Alpay L, Demir M, et al. Is single port enough in minimally surgery for pneumothorax? *Surg Endosc* 2016;30:59-64.

28. Jung H, Oh TH, Cho JY, et al. Mid-Term Outcomes of Single-Port versus Conventional Three-Port Video-Assisted Thoracoscopic Surgery for Primary Spontaneous Pneumothorax. *Korean J Thorac Cardiovasc Surg* 2017;50:184-9.

29. Al-Githmi I. Uniportal Video-Assisted Thoracoscopic Surgery and Outcomes for Recurrent Primary Spontaneous Pneumothorax: Single-Institution Experience. *Surgical Science* 2018;09:122-7.

30. Akcay O, Acar T, Cantay S, et al. Minimally invasive approach to pneumothorax: Single port or two ports? *Turk Gogus Kalp Damar Cerrahisi Derg* 2019;28:347-51.

31. Zhang C, Zhang M, Wang H, et al. Next-day discharge following small uniportal thoracoscopic bullectomy assisted with an anchoring suture. *J Int Med Res* 2020;48:300060519896926.

32. Kapicibasi HO. Uniportal VATS technique for primary spontaneous pneumothorax: An analysis of 46 cases. *Pak J Med Sci* 2020;36:224-8.

33. Fiorelli A, Cascone R, Carlucci A, et al. Uniportal thoracoscopic surgical management using a suture traction for primary pneumothorax. *Asian Cardiovasc Thorac Ann* 2021;29:195-202.

35. Lee SH, Lee SG, Cho SH, et al. Outcomes of Single-Incision Thoracoscopic Surgery Using the Spinal Needle Anchoring Technique for Primary Spontaneous Pneumothorax. *J Chest Surg* 2022;55:44-8.

36. Wang P, Zhang L, Zheng H, et al. Comparison of single-port vs. two-port VATS technique for primary spontaneous pneumothorax. *Minimally Invasive Therapy & Allied Technologies* 2022;31:462-7.

38. Liu CC, Shih CS, Liu YH, et al. Subxiphoid single-port video-assisted thoracoscopic surgery. *J Vis Surg* 2016;2:112.

39. Fok M, Karunanantham J, Ali JM, et al. Subxiphoid approach for spontaneous bilateral pneumothorax: a case report. *J Vis Surg* 2017;3:146.

45. Brown SGA, Ball EL, Perrin K, et al. Conservative versus Interventional Treatment for Spontaneous Pneumothorax. *N Engl J Med* 2020;382:405-15.

46. Olesen WH, Katballe N, Sindby JE, et al. Surgical treatment versus conventional chest tube drainage in primary spontaneous pneumothorax: a randomized controlled trial. *Eur J Cardiothorac Surg* 2018;54:113-21.

47. Yang Y, Dong J, Huang Y. Single-incision versus conventional three-port video-assisted surgery in the treatment of pneumothorax: a systematic review and meta-analysis. *Interact Cardiovasc Thorac Surg* 2016;23:722-8.

48. Xu W, Wang Y, Song J, et al. One-port video-assisted thoracic surgery versus three-port video-assisted thoracic surgery for primary spontaneous pneumothorax: a meta-analysis. *Surg Endosc* 2017;31:17-24.

#7. Besides your comments, we found a mistake in the original manuscript which might lead to another conclusion. The point is as follows.

In the original manuscript, “The intercostal approach was associated with significantly lower levels of postoperative pain in comparison to the other groups (29).” (page 10, para 3, line 2-3)

In the revised manuscript, the sentence above was replaced as follows.

“On comparing the postoperative pain among uniportal intercostal VATS, three-port VATS and a subxiphoid approach, the subxiphoid approach was associated with significantly lower levels of postoperative pain than the other approaches (11).” (page 5, para 2, line 4-7)

The reference #29 in the original manuscript is the same as the reference #11 in the revised manuscript.

To Reviewer A

Comment: *“The authors discuss the increasing global use of pneumothorax surgery through uniportal video-assisted thoracic surgery. The article highlights the intercostal, transareolar, and subxiphoid approaches, providing a detailed description of each. There are several issues raised in the article that require further consideration.”*

Reply: Thank you for your advice. We have addressed your comments.

Comment 1: *“Firstly, the subxiphoid approach is commonly used in some institutions but may require specific equipment to elevate the sternum. Additionally, performing surgery on patients with left pneumothorax and a large heart can be challenging due to obstruction. Additionally, bilateral pneumothoraces may present a higher risk of complications upon recurrence.”*

Reply 1:

Thank you for your comments based on your broad clinical experience.

In terms of operative manipulability, we added the sentences as follows.

“In this procedure, the authors utilized the sternum retractor to lessen the compression of the heart and obtain a surgical space. Anatomically, the existence of the heart may cause restriction of the working space in the surgical treatment for left-side pneumothorax.” (page 18, para 3, line4-page 19, para 1, line 1).

Moreover, the reported complication was arrhythmia and a longer operative time is described. Thus, we added sentences as follows.

“In terms of perioperative complications, no arrhythmia events were observed in that study (11). On the other hand, in another study that compared the subxiphoid approach and the three-port intercostal approach, the patients treated with the subxiphoid approach experienced more arrhythmia events in comparison to patients treated with an intercostal approach (12).” (page 18, para 3, line 1-4)

“Notably, in terms of the operative outcomes, the subxiphoid approach required a longer operative time for both unilateral surgery and bilateral surgery (10).” (page 19, para 1, line 5-7)

References

10. Li L, Tian H, Yue W, et al. Subxiphoid vs intercostal single-incision video-assisted thoracoscopic surgery for spontaneous pneumothorax: A randomised controlled trial. *Int J Surg* 2016;30:99-103.
11. Wang BY, Chang YC, Chang YC, et al. Thoracoscopic surgery via a single-incision subxiphoid approach is

associated with less postoperative pain than single-incision transthoracic or three-incision transthoracic approaches for spontaneous pneumothorax. *J Thorac Dis* 2016;8:S272-8.

12. Chen L, Liu F, Wang B, et al. Subxiphoid vs transthoracic approach thoracoscopic surgery for spontaneous pneumothorax: a propensity score-matched analysis. *BMC Surg* 2019;19:46.

Comment 2. *“Secondly, on the transareolar approach, an anterior approach, when utilizing a semi-sitting position for the left side pneumothorax, the presence of a large heart may also hinder the surgery's success. Furthermore, intercostal neuropathy is rare, but concerns exist regarding hypoesthesia or hypersensitivity near the nipple.”*

Reply 2: Thank you for your insightful comments based on your extensive clinical experience. Besides our lack of experience on transareolar approach, we could not find any description on such complications as hypoesthesia around the areola within the referred reports. We searched literatures on transareolar sympathectomy for hyperhidrosis; however, such surgery was performed with needle instrument and no postoperative symptoms were reported. We would like to add several discussion and references, when any literature is available.

Comment 3. *“Finally, the article suggests that the intercostal VATS surgery in the lateral decubitus position may be the best approach. However, to reduce intercostal neuralgia and minimize the incision size, a 5mm high-definition thoracoscope is essential, and narrow instruments may replace the need for complicated surgical techniques cited in the references. The authors' perspective aligns with the belief that simplicity is preferable in surgical procedures.”*

Reply 3: Thank you for your advice.

In terms of instruments, we added the sentences as follows.

“To minimize the size of the incision, a 5-mm thoracoscope is essential. In our experience, a 5-mm thoracoscope can provide a sufficient view to perform the procedure and is preferable for obtaining broader space for incision or minimizing the length of the incision.” (Page 12, para 1, line 1-4).

In terms of instruments, we added several references based on literature search, in which the authors described an additional instrument or suture instead of a grasper. In *Arrangement* section, we revised the manuscript as below.

“In six reports, a suture to retract the lung was inserted in addition to the initial incision. Son et al. reported that uniportal VATS with an anchoring suture was feasible and safe (21). Chong reported that their tower crane technique was feasible (25). Jeon et al. reported that pain was lessened the day after surgery in the uniportal group but was not markedly different after discharge from the conventional group (26). Zhang et al. reported that a small (<2 cm) original incision with an anchoring suture was safe and feasible (31). Fiorelli et al. used additional sutures with

sponges on the lung and reported that the technique reduced paresthesia compared to the conventional approach (33). Lee et al. used a spinal needle to retract the lung and reported that the technique was safe and easy (35).” (page 13, para 1)

Moreover, we think that the technique described in the reference #22 is unique as described in the manuscript. We agree that the simplicity on procedure is important. As suggestion, we added the sentences that the technique didn't need a longer operative time than the three-port approach.

“Eliminating the insertion of the grasper in the incision also resulted in greater maneuverability of the instruments. Tsuboshima et al. reported a feasible technique that does not use a suture passed through the chest wall (22). The procedure was called the pulley for lung resection (pulLE) method. In this method, the suture was placed on the parietal pleura in the third ICS, and the incision size was shortened. The operative time was 67.9 minutes in this group and 62.5 minutes in the conventional 3-port group, a non-significant difference.” (page 13, para 2)

References

21. Son BS, Kim DH, Lee SK, et al. Small Single-Incision Thoracoscopic Surgery Using an Anchoring Suture in Patients With Primary Spontaneous Pneumothorax: A Safe and Feasible Procedure. *Ann Thorac Surg* 2015;100:1224-9.
22. Tsuboshima K, Wakahara T, Matoba Y, et al. Single-incision thoracoscopic surgery using a chest wall pulley for lung excision in patients with primary spontaneous pneumothorax. *Surg Today* 2015;45:595-9.
25. Chong Y, Cho HJ, Kang SK, et al. Outcomes of the Tower Crane Technique with a 15-mm Trocar in Primary Spontaneous Pneumothorax. *Korean J Thorac Cardiovasc Surg* 2016;49:80-4.
26. Jeon HW, Kim YD. Does 11.5 mm guided single port surgery has clinical advantage than multi-port thoracoscopic surgery in spontaneous pneumothorax? *J Thorac Dis* 2016;8:2924-30.
31. Zhang C, Zhang M, Wang H, et al. Next-day discharge following small uniportal thoracoscopic bullectomy assisted with an anchoring suture. *J Int Med Res* 2020;48:300060519896926.
33. Fiorelli A, Cascone R, Carlucci A, et al. Uniportal thoracoscopic surgical management using a suture traction for primary pneumothorax. *Asian Cardiovasc Thorac Ann* 2021;29:195-202.
35. Lee SH, Lee SG, Cho SH, et al. Outcomes of Single-Incision Thoracoscopic Surgery Using the Spinal Needle Anchoring Technique for Primary Spontaneous Pneumothorax. *J Chest Surg* 2022;55:44-8.

Comment 4: *“In conclusion, the article provides valuable insights into the various approaches to uniportal VATS for pneumothorax treatment. The issues raised should be taken into account to ensure patient safety and a successful outcome. Overall, the article is commendable and provides a significant contribution to the medical field.”*

Reply 4:

Thank you for these excellent comments. We think the intercostal approach have several merits in terms of patient

safety and added several sentences as follows.

On patient safety,

“The intercostal approach is performed with the patient in the lateral decubitus position. Thus, the main advantage of the intercostal approach is easier conversion to a multiportal approach because of unexpected thoracic findings (e.g., adhesion and difficulty in finding the point of leakage.” (Page 16, para 2, line 1-4).

“VATS was performed with the intercostal approach. This universality of VATS results in safety in the surgical field and easier conversion in the uniportal approach.” (Page 16, para 2, line 5-6).

On a successful outcome,

“Reducing complications, such as PAL, is essential for reducing invasiveness, while reducing postoperative pain and improving cosmesis are important aspects of a low invasiveness.” (Page 16, para 1, line 4).

“Moreover, this approach allows for the easy exploration of the whole lung in order to not overlook any bullae.” (Page 16, para 2, line 6-8).

On the other hand, when we can provide safety and improved outcome, the new techniques such as the subxiphoid and transareolar approaches should be applied. Thus, we concluded as follows in *Conclusions*.

“The technical feasibility, complications and cosmesis of each approach should be considered to determine the indications.” (page 21, para 1, *Conclusions*, line 9)

To Reviewer B,

Comment: “*In their paper the authors aimed to conduct a review on indications and results of uniportal VATS approach for pneumothorax. I have several comments:*”

Reply: We sincerely appreciate the time spent by you and thank you for your advice. The points you noted were mentioned by another reviewer.

Comment 1: “*The aim of the study is not clearly defined in the abstract but also in the main text.*”

Reply 1: Thank you for your advice. We clarified the aim of this study. Please see the previous comment (For all reviewers, #2).

Comment 2: “*Material and methods: if it is a literature review, a short paragraph on searching strategy/ time frame etc should be added.* “

Reply 2: Thank you for your advice. We added the literature search and results. Please see the previous comment (For all reviewers, #1).

Comment 3: “*The whole paper seems to me blurry and not well structured.*”

Reply 3: Thank you for your review. We re-structured the manuscript and clarified the aim of this study. Additionally, the conclusion was redescribed. Please see the previous comment (For all reviewers, #1-3).

Comment 4: “*The conclusions are too weak.*”

Reply 4. Thank you for your advice. We revised the conclusions. Please see the previous comment (For all reviewers, #3).

Comment 5: “*From my side, a substantial revision on method and whole text is needed.*”

Reply 5: Thank you for your suggestion. We reconsidered the whole text and included *Methods* section.

To Reviewer C,

Comment: *“Thank you for the opportunity to review this paper. I commend you for the topic and intent, however there are significant methodological issues in the paper that need to be addressed prior to it being suitable for publication.”*

Reply: We sincerely appreciate the time spent by you and thank you for your suggestion. We included a literature search and reconsidered the whole manuscript.

Comment 1: *“The most pressing issue is the lack of a clear search structure and process leading to the literature that is used to support the article content. There is no documentation of how you came to your resources, if there is other literature out there that you have accidentally or deliberately excluded, etc. In other words - how do I know, from reading this article, that there aren't a greater number of studies out there claiming the opposite to what you are saying, and you haven't just ignored them? For a review/summary article I need to see what your strategy was for reviewing the literature and how you came to include (and exclude) particular studies, case series or case reports.”*

Reply 1: Thank you for advice. We clarified the aim of this study. Please see the previous comment (For all reviewers, #2).

Comment 2: *“There are broad statements that are not supported or elaborated on which makes it hard to assess how fair the claim is. For example line 52 "on large subjects" - what are large subjects?. Line 72: "In most reports, the...". What does most reports mean? There are many other examples of this scattered throughout the text.”*

Reply 2: Thank you for advice. We revised the manuscript based on a literature search, Please see the previous comment (For all reviewers, #1 and #5).

Comment 3: *“Some literature referenced is outdated - for example reference 15 (British Thoracic Society) - recommending placing the tube at the triangle of safety. Modern guidelines within respiratory and critical care medicine no longer refer to these anatomical structures and advocate for ultrasound guided placement.”*

Reply 3: Thank you for your advice. We removed that reference and also the description on the location of the prior incision. Thus, the use of the prior incision for chest tube become less recommended and revised the description as follows.

“When the drainage tube is placed for drainage prior to surgery, making an extension of the incision is thus an option to consider.” (page 11, para 2, line 7-8)

Comment 4-1: *"Acknowledging the nature of the article, it should still be defined as to whether the authors are referring to primary or secondary pneumothorax."*

Reply 4-1:

Thank you for advice. We focused on primary spontaneous pneumothorax. We added the literature search paragraph, in which we described inclusion criteria. In three studies, secondary pneumothorax was included as a part of the patients and we described them in the results section as follows.

"The included articles were as follows: primary spontaneous pneumothorax treated by surgery, resection of the bullae/blebs by a stapler under VATS with or without additional treatment, uniportal VATS of the intercostal, subxiphoid or transareolar approach, literature written in English and literature provided as a full article." (page 7, para2, line 1-4)

"Among the studies on the intercostal approach, 3 included secondary spontaneous pneumothorax, which accounted for 3.5%-25% of the cases (6,13,30). A study found that 3.5% of the population had catamenial pneumothorax (6)." (page 8, para2, line 1-3)

Comment 4-2: *"Additionally (to be transparent) consideration should be given to mentioning how the indications for interventional approaches in the management of pneumothorax are slowly reducing as there is a growing body of evidence for non-inferior outcomes with conservative (observational) management."*

Reply 4-2: Thank you for advice. We discussed the issue. Please see the previous comment (For all reviewers, #4).

To the editors,

Comment: *"The authors reviewed the literature and analyzed the operating procedures and indications of different surgical approaches for VATS treatment of pneumothorax. However, there are still some issues that need to be addressed. Please see the comments below."*

Reply: We sincerely appreciate the time spent by you. We have addressed your comments.

Comment 1: *"We think this paper is a Clinical Practice Review after reading. Thus, due to the Author's Instruction, please kindly organize the structure of the manuscript. Attached please see a structure template."*

Reply 1: Thank you for your suggestion. We revised our original manuscript. Please see the previous comment (For all reviewers, #1).

Comment 2: *"In the title, please clearly identify this manuscript as a clinical practice review."*

Reply 2: Thank you for your suggestion. We have changed the title as follows.

"Procedure of Uniportal Intercostal Bullectomy for Pneumothorax and its Indications: A Clinical Practice Review"

Comment 3-1: *"Please clarify the authors' purpose for this review in the abstract. "*

Reply 3-1: Thank you for your advice. We clarified the aim of this study. Please see the previous comment (For all reviewers, #2).

Comment 3-2: *"Additionally, in the Conclusion, we recommend that the authors describe the potential implications of this review for future research, clinical practice, and policy development, or the author's suggestions for future clinical practice or further research that needs to be carried out."*

Reply 3-2: Thank you for your suggestion. We reconsidered the conclusions. Please see the previous comment (For all reviewers, #3).

Comment 4: *“With the accumulation of clinical experience in this operation, the intercostal approach has been standardized.” Please describe in detail when or which guideline or document states that the intercostal approach is the standardized VATS procedure for pneumothorax.”*

Reply 4: We thank you for the careful review. No guidelines regard the uniportal approach as a standard approach. As suggestion, we removed the word “standard” and reconsidered the sentence as follows.

“With the spread of the procedure, the number of reports on surgical outcomes has increased.” (page 2, *Abstract*, line 2)

Comment 5: *“To ensure readers comprehend the rationale for this review, we recommend that the authors state the severity of the pneumothorax at the time of VATS surgery, such as mild pneumothorax should be managed conservatively. You can cite relevant guidelines.*

Reply 5: Thank you for your advice. We discussed the issue. Please see the previous comment (For all reviewers, #4).

Comment 6: *“In addition, the author can add whether the current guidelines of various countries have given suggestions on the surgical approach of VATS for the treatment of pneumothorax.”*

Reply 6: Thank you for your advice. We discussed the issue. Please see the previous comment (For all reviewers, #4).

Comment 7-1: *“We reviewed previous reports on uniportal VATS for pneumothorax focusing on the intercostal approach, with the aim of identifying favorable indications for this approach.” The author is objectively reviewing the content of the literature. the level of evidence in this review is not as high as that of systematic reviews and meta-analyses. the purpose of the study should not be to “identify...”, it is recommended that the author re-describe the aim of the study.”*

Reply 7-1: Thank you for your advice. As suggested, we have changed the description of the objective. Please see the previous comment (For all reviewers, #2).

Comment 7-2: *“Please highlight the novelty of this review in the introduction. What does this review add to existing knowledge? How does this review differ from previous reviews?”*

Reply 7-2: Thank you for your advice. We added several sentences to show the strengths of our review as follows.

“With the advent of the subxiphoid and transareolar approaches, the need for discussing the indications of these approaches is increasing. Therefore, reconfirming the procedures and indications of this approach may help clarify the differences in the indications for each approach. To our knowledge, no review has discussed the indications of uniportal VATS for pneumothorax in terms of these three approaches.” (page 5, para 3, line 6- page 6, para 1, line 2)

Comment 8: *“Please use a structured introduction to increase readability: 1) Background, 2) Rationale and knowledge gap, and 3) Objective.”*

Reply 8: Thank you for your advice. We have changed the structure. Please see the previous comment (For all reviewers, #1).

Comment 9: *“We recommend authors furnish anatomical drawings or surgical pictures without compromising patient confidentiality to help readers better understand the surgical process. For example, “...the patient in the lateral decubitus position”, “...the incision was placed between the fourth and sixth intercostal spaces at the anterior or middle axillary line” etc.”*

Reply 9: Thank you for your recommendation. As suggested, we added a figure explaining the surgical procedure, which was *Figure 1*.

Comment 10: “We recommend author also include their own surgical experience when presenting the surgical procedure, such as issues needing attention or possible adverse reactions.”

Reply 10: Thank you for your suggestion. We added our experience in several points as follows and also included a figure for better understanding, which was *Figure 1*.

“In our experience in Japan, better maneuverability is obtained when the incision is placed in the 5th or 6th ICS, as the distance between the target lesion and the incision becomes closer when the incision is placed on the 4th ICS.” (page 11, para 2, *Incision*, line 3-4)

“To minimize the size of the incision, a 5-mm thoracoscope is essential. In our experience, a 5-mm thoracoscope can provide a sufficient view to perform the procedure and is preferable for obtaining broader space for incision or minimizing the length of the incision.” (Page 12, para 1, line 1-4).

“Resistance of the instruments may induce inadvertent compression of the intercostal nerve and result in paresthesia. Therefore, sterile lubricant jelly should be applied to the instruments to increase the smoothness. Inserting the camera through the incision before the insertion of other instruments enables contamination of the scope lens with the superfluous jelly to be avoided.” (page 12, para 1, line 6-10)

“In our institution, we use a needle grasper (Suture GrasperTM; Mediflex, Islandia, New York, USA) inserted into the 3rd ICS in addition to the initial incision. This grasper is 14 gauge in outer diameter. The initial incision is placed at the 5th ICS. With this grasper, the caudal vicinity of the target bulla is retracted. After grasping the lung, the parenchyma is compressed using the tissue forceps. The surgical view is shown in *Figure 1*.” (page 13, para 2, line 7 – page 14, para 1, line 2)

Comment 11: ““*Tsuboshima et al. reported a feasible technique that does not use a suture passed through the chest wall (21). The procedure was called the pulley for lung resection (pulLE) method.*” “*Campisi et al. developed a technique in which a loop is created in the thoracic cavity using a slip-knot procedure (22).*” *When reporting different surgical methods in the literature, authors also need to report surgical outcomes or complications.*”

Reply 11: Thank you for your advice. We added *Table 2*, which summarized the surgical outcomes of all the referred studies on intercostal approach. The Procedures of the presented arrangements were described shortly in the main text. A case study on the intercostal approach was excluded on the literature search. The report by Campisi et al. was a case report and excluded.

In *Arrangement* section, we revised the manuscript as follows.

“In six reports, a suture to retract the lung was inserted in addition to the initial incision. Son et al. reported that uniportal VATS with an anchoring suture was feasible and safe (21). Chong reported that their tower crane technique was feasible (25). Jeon et al. reported that pain was lessened the day after surgery in the uniportal group but was not markedly different after discharge from the conventional group (26). Zhang et al. reported that a small (<2 cm) original incision with an anchoring suture was safe and feasible (31). Fiorelli et al. used additional sutures with sponges on the lung and reported that the technique reduced paresthesia compared to the conventional approach (33). Lee et al. used a spinal needle to retract the lung and reported that the technique was safe and easy (35).” (page 13, para 1)

“Eliminating the insertion of the grasper in the incision also resulted in greater maneuverability of the instruments. Tsuboshima et al. reported a feasible technique that does not use a suture passed through the chest wall (22). The procedure was called the pulley for lung resection (pulLE) method. In this method, the suture was placed on the parietal pleura in the third ICS, and the incision size was shortened. The operative time was 67.9 minutes in this group and 62.5 minutes in the conventional 3-port group, a non-significant difference.” (page 13, para 2)

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25. Chong Y, Cho HJ, Kang SK, et al. Outcomes of the Tower Crane Technique with a 15-mm Trocar in Primary Spontaneous Pneumothorax. *Korean J Thorac Cardiovasc Surg* 2016;49:80-4.
26. Jeon HW, Kim YD. Does 11.5 mm guided single port surgery has clinical advantage than multi-port thoracoscopic surgery in spontaneous pneumothorax? *J Thorac Dis* 2016;8:2924-30.
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assisted with an anchoring suture. J Int Med Res 2020;48:300060519896926.

33. Fiorelli A, Cascone R, Carlucci A, et al. Uniportal thoracoscopic surgical management using a suture traction for primary pneumothorax. Asian Cardiovasc Thorac Ann 2021;29:195-202.

35. Lee SH, Lee SG, Cho SH, et al. Outcomes of Single-Incision Thoracoscopic Surgery Using the Spinal Needle Anchoring Technique for Primary Spontaneous Pneumothorax. J Chest Surg 2022;55:44-8.

Comment 12: “We suggest authors merge the “Intercostal approach”, “Pros”, and “Cons” into one section and separate the content of “Indications” into the following sections:

Intercostal approach, Transareolar approach, Subxiphoid approach”

Reply 12: Thank you for your suggestion. With your advice, we reorganized the structure. In the revised manuscript, the indication for the surgical treatment were added. In addition to that, we added Table.5 and short paragraph named “Summary” were added. Please see the previous comment (For all reviewers, #1 and #5).

Comment 13: “*An independent table to present the cited studies with their surgical methods, results, and conclusions in each section of the main body is highly recommended.*”

Reply 13:

Thank you for your suggestion. We added three tables, referring the surgical outcomes of the intercostal approach, the transareolar approach and the subxiphoid approach, which were Table 2, Table 3 and Table 4, respectively. We reconsidered the conclusions of the literatures on the intercostal approach. The authors concluded that the technique was feasible and effective in a single-arm or a comparative study with the conventional multiport approach. These points were already discussed in meta-analyses. In the manuscript, we added the sentences with those references as follows.

“The feasibility of uniportal VATS is widely reported to be similar to that of conventional VATS (47, 48)” (page 15, para3, line 2- page 16, para 1, line 1)

Comment 14: *“We recommend that authors use a separate table to present the advantages, disadvantages, and indications of the Intercostal approach, Transareolar approach, and Subxiphoid approach.”*

Reply 14: Thank you for your suggestion on readability. As suggested, we added *Table 5*, describing the pros and cons of each approach.

Comment 15: *“Though it is a review, a separate section on the STRENGTHS and LIMITATIONS of this review is needed. We think this could promote a more intellectual interpretation.”*

Reply 15: Thank you for your advice. We added *the strengths and limitations* section in the main text as follows.

“Strengths and limitations There is no review discussing the indications of the uniportal approach comprehensively. Furthermore, there are several limitations associated with this review. First, the literature was searched from one database, so this is not a meta-analysis. Second, the studies were conducted at single institutions with relatively small sample sizes. Third, all of these previous studies but two were retrospective: namely, one compared the intercostal approach with the transareolar approach, while the other compared the intercostal approach with the subxiphoid approach.” (page 19, para 3- page 20, para 1)

Comment 16: *“The procedure of uniportal intercostal VATS bullectomy has been established.” This review cannot draw this conclusion, and this information has not been retrieved in relevant guidelines. Please give a rigorous explanation.”*

Reply 16: Thank you for advice. We should replace the word “establish”, because no guidelines regard the uniportal approach as a standard approach. Our review is not a meta-analysis and does not provide with solid evidence to support the guideline fully. We revised the sentence replacing “establish” with “summarize”. Please see the previous comment (For all reviewers, #2).

Comment 17: “Some points lack evidentiary support. The corresponding references should be cited. For example, An incision length of 1.5-2.5 cm has been widely used. Some authors used a 5-mm flexible thoracoscope. Please recheck the full text to ensure all the statement is evidence-based (not just the above).” “

Reply 17: Thank you for your advice. We included a literature search as a clinical review. Based on the literature search, we included a table which showed surgical outcomes including the incision size (*Table 2*). Thus, the sentence, “An incision length of 1.5-2.5 cm has been widely used.”, was comparable to the table and removed. In the original manuscript, we described the variations of thoracoscope. Based on a literature search, we reconsidered what is required to minimize the lengths of the incision. Accordingly, there found no reasons to facilitate the use of a flexible thoracoscope and removed the description. As a suggestion, a sentence was added as follows.

“Considering the sum of the diameters of each instrument (scope, grasper and stapler), an incision size of up to 2.5 cm appears to be an important criterion for selecting uniportal VATS for pneumothorax.” (page 11, para 2, *Incision*, line 5)