

Peer review file

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Reviewer A

Comment 1: For cosmetic results, why intercostal tube was inserted in the first place or post operatively. The nature of the study is prospective, even with the operating room constrains, pneumothorax in these patients are rarely life threatening. thoracocentesis can be sufficient to bridge the patient to OR.

Reply 1: Your question is reasonable. As you say, thoracocentesis might be sufficient in some patients. However, the lung might collapse again after the thoracocentesis if the air-leakage continues, which can bring desaturation or dyspnea to the patient. Therefore, we placed chest drainage tube for the patients who suffer from pneumothorax of moderate or severe collapsed lung, although the patient suffering from mild collapse was observed in outpatient clinic.

Changes in the text: No change.

Comment 2: Positioning could be difficult in lateral decubitus. As in Lin study, the semi-setting has better accessibility and can achieve the intended operative target.

Reply 2: Thank you for your suggestion. In our procedure, thoracoscopic port was placed in the mid axially line of the 5th intercostal space, while the thoracoscopy was inserted via transareolar incision in Lin's procedure. We could observe any part of thorax thoracoscopically via the port placed in the mid axially line of the 5th intercostal space even in lateral decubitus position. Moreover, we had no experiences of struggling to operating surgical instruments in lateral decubitus position. Therefore, lateral decubitus position has been adopted in our transareolar approach. The differences between our and Lin's procedures were mentioned in the first paragraph of the discussion section. Please see them line 15 of page14 to line 16 of page 15.

Changes in the text: No change.

I believe the work is good in terms of exploring surgical management options to address the patient's need, in this case cosmetics.

Reviewer B

[Comment 1: It would be interesting to compare the data retrieved with a historical control cohort.](#)

Reply 1: We totally agree with your opinion.

To our best knowledge, there have been no studies comparing the perioperative results, postoperative pain and cosmetic satisfaction between transareolar and conventional triportal approaches in pulmonary bullectomy. Xu's report is the only one comparing them between transareolar and multiportal approaches although the multiportal approach had two ports. In this report, transareolar approach revealed statistically superior postoperative pain relief and cosmetic satisfaction to multiportal approach with the equivalent perioperative results.

Change in the text 1: Please see the added sentences in the discussion section of the revised manuscript, line 16 of page 18 to line 7 of page 19.

[Comment 2: Did the authors perform this technique on consecutive patients?](#)

Reply 2: Yes, we did. We obtained informed consent and performed this surgery in 10 consecutive patients from September 2017.

Change in the text 2: The sentence "We performed thoracoscopic pulmonary bullectomy via transareolar approach on 10 patients consecutively." in the sample size section of the revised manuscript, line 6 to 7, page 8.

[Comment 3: Sample size calculation should be better explained.](#)

Reply 3: Your question is reasonable. I added the sentence describing sample size calculation in the sample size section of the revised manuscript, line 1 to 2, page 8.

Change in the text 3: The sentence “We have performed triportal thoracoscopic surgery for so many patients with primary or spontaneous pneumothorax” was added in the sample size section of the revised manuscript, line 1 to 2, page 8.

Comment 4: Regarding surgical technique: did the authors use any kind of pleurodesis technique (talc, pleurectomy, pleural abrasion)?

Reply 4: We have not used such pleurodesis techniques. Instead of them, polyglycolic acid felt (Neoveil; sheet type; Igaki Medical Planning Co., Ltd, Kyoto, Japan) was applied to the staple lines using fibrin glue sealant (Beriplast P; CSL Behring, PA, USA) to prevent any postoperative air leakage and reduce the postoperative recurrence rate.

Change in the text 4: The sentence “Therefore, we have not used pleurodesis techniques including administration of talc, pleurectomy or pleural abrasion.” was added in the surgical procedures section of the revised manuscript, line 1 to 3 of page 11.

Comment 5: Why did the authors use a subcutaneous tunnel instead of directly using the V intercostal space incision?

Reply 5: Thank you for giving me this quite important question. If the 19Fr thoracic drain is inserted via 5th intercostal incision directly, closure of the wound by stapling or suturing is required in order to avoid the inflow of air to the thorax. Subcutaneous tunnel can skip these procedures, which is advantageous for the patients.

Change in the text 5: The sentence “This chest drain was put into the thorax via subcutaneous tunnel between areolar and 5th intercostal incision in order to skip stapling when we removed it on patient’s bed side.” was added in the surgical procedures section of the revised manuscript line 8 to 11, page 11.

Comment 6: In table 1 I would add BMI of the patients.

Reply 6: Your suggestion is very reasonable. We added the data of BMI in the 10 patients.

Change in the text 6: The data of BMI in the 10 patients was added in the revised table 1.

[Comment 7: Did the authors have any experience with obese patients? Is obesity a contra-indication for such technique? Please discuss it in the discussion part.](#)

Reply 7: No, we didn't, because the patients suffering from primary spontaneous pneumothorax are usually thin. However, obesity might be a contra-indication for this technique as you say. We added the sentences about it in the discussion section.

Change in the text 7: Please see the added sentence in the discussion section of the revised manuscript, line 12 of page 16 to line 4 of page 17.

Reviewer C

[Comment 1: A comparison with the cosmetic results of the three portal technique would be interesting.](#)

Reply 1: We totally agree with your opinion.

To our best knowledge, there have been no studies comparing the perioperative results, postoperative pain and cosmetic satisfaction between transareolar and conventional triportal approaches in pulmonary bullectomy. Xu's report is the only one comparing them between transareolar and multiportal approaches although the multiportal approach had two ports. In this report, transareolar approach revealed statistically superior postoperative pain relief and cosmetic satisfaction to multiportal approach with the equivalent perioperative results.

Change in the text 1: Please see the added sentences in the discussion section of the revised manuscript, line 16 of page 18 to line 7 of page 19.

Comment 2: In the discussion could also be added other transareolar approaches for the thoracic surgery.

Reply 2: Thank you for your suggestion. We added two articles (Xu's and Chen's reports) describing transareolar approaches for thoracic surgery. While Xu's report was for wedge resection including bullectomy, Chen's report was for sympatricotomy.

Changes in the text 2: We added the sentences about Xu's report in the discussion section of the revised manuscript, page 14, line 12 to 15 and Chen's report, page 19, line 8 to 15.

Comment 3: Analysing of the possible complications transareolar approach could be helpful fo the future operators.

Reply 3: Thank you for your suggestion. Although we worried about the occurrence of mastitis before beginning the study, this complication did not happen. However, we might encounter it in the future. Therefore, we have to care about it.

Changes in the text 3: These sentences were added in the discussion section of the revised manuscript, page 19, line 8 to 15.

Reviewer D

This is a report of a small cohort (10 patients) who received transareolar bullectomy for primary spontaneous pneumothorax in a single institute.

Major comments.

Comment 1: The authors did not compare the potential benefits of transareolar approach (cosmetic satisfaction scores and pain scores) with conventional three ports technique. The reviewer thinks the authors should perform this comparison using other cohort who received bullectomy by 3 ports VATS.

Reply 1: Your opinion is appropriate.

To our best knowledge, there have been no studies comparing the perioperative results, postoperative pain and cosmetic satisfaction between transareolar and conventional triportal approaches in pulmonary bullectomy. Xu's report is the only one comparing them between transareolar and multiportal approaches although the multiportal approach had two ports. In this report, transareolar approach revealed statistically superior postoperative pain relief and cosmetic satisfaction to multiportal approach with the equivalent perioperative results.

Change in the text 1: Please see the added sentences in the discussion section of the revised manuscript, line 16 of page 18 to line 7 of page 19.

Comment 2: Please describe if the authors performed the air leak tests with water during the surgery. If they do, please describe if it is difficult or not compared with 3 ports VATS.

Reply 2: Thank you for your suggestion. We usually perform no sealing test during surgery for primary spontaneous pneumothorax except for the recurrent cases because the targeted bullae or blebs for resection are obvious in the preoperative CT examination and rarely encounter the air leak of the resected region by staplers.

Changes in the text 2: These sentences were added in surgical procedures section of the revised manuscript, line 3 to 6, page 11.

Comment 3: If a patient has high BMI (> 25), it would be difficult to perform this approach. Please make some discussion for this point. In addition, please provide the data for BMI and smoking status in this cohort.

Reply 3: Your suggestion is very reasonable. At first, we added the data of BMI and smoking status in the results section and table 1. In addition, obesity might be a contra-indication for this technique as you say. We added the sentences about it in the discussion section.

Change in the text 3: Please see the revised table 1, and the added sentence in the discussion section of the revised manuscript, page 16 line 12 to page 17 line 4.

Comment 4. The sizes of areola of the nipple may be different between patients. If the size is small, this approach may be difficult, since the authors inserted two ports in the areola. Please add some comments for this point.

Reply 4: Thank you for your important questions. In our procedure, both of the two transareolar incisions were put on the 4th intercostal space while Lin and colleagues put the two transareolar incisions on different intercostal spaces. When these incisions were placed on the same intercostal space, we could manipulate any surgical instruments appropriately regardless of the size of areola.

Change in the text 4: Please see the discussion section of the revised manuscript, line 7 to 11 of page 16.

Minor comments

Comment 1. Please add the reasons why there was an age restriction (age 40 or younger) in the inclusion criteria?

Reply 1: Your question is very reasonable. Based on our experience, the patient aged older than 40 occasionally reveal pneumothorax caused by the underlying diseases including pulmonary emphysema or interstitial pneumonia, which is considered as secondary spontaneous pneumothorax. On the contrary, the patients aged 40 or younger rarely have the underlying disease. This approach is for primary spontaneous pneumothorax. Therefore, we excluded the patients aged more than 40 from this prospective study.

Change in the text 1: Please see the added sentences in the patients selection section of the revised manuscript, line 4 to 11, page 7.

Comment 2. Table 1 is not necessary, since all data are described in the manuscript.

Reply 2: Your suggestion is very reasonable. However, we consider that summarized data in the table is easy to understand for readers. In addition, we added the data of BMI and smoking status in the revised manuscript. Therefore, we cut some parts of the results section instead of deletion of table 1.

Changes in the text 2: Please see the first paragraph of the results section, line 13, page 12, revised table 1.

Comment 3: The ranges of operating time should be added.

Reply 3: Thank you for your suggestion. We added the ranges of operating time in the results section and table 2.

Changes in the text 3: Please see the added sentences in the results section, line 13, page 12, revised table 2.