

Peer Review File

Article information: <https://dx.doi.org/10.21037/jtd-22-1377>

Reviewer A

Comment 1: English needs a review by a native English speaker because it is irregular along the manuscript.

Reply 1: Thank you for your comment. The manuscript was revised by a native English speaker.

Change in the text 1) I would keep the current form.

Comment 2: Please state which one is your hypothesis and the objective of the study

Reply 2: Your comment is reasonable. We introduced standardized intra- and peri-operative management to reduce the postoperative drainage time. Also, the aim of this study was whether the standardized management reduced the postoperative drainage time with the safety or not. They are added in the revised manuscript.

Change in the text 2) Please see lines 83-86 in the introduction section of the revised manuscript.

Comment 3: Please explain in detail how are going to manage the collected data. Of course, explanation is longer in the text than in the abstract.

Reply 3: Thank you for your comment. The clinical outcomes between standardized and non-standardized management groups were compared by univariate analysis. In addition, factors contributing to postoperative drainage time and re-admission within 30 days (because of pleural complications) were identified by multivariate analysis, which was already mentioned.

Change in the text 3) Please see line 34-35 and 104.

Comment 4: The weak point of the study is the learning curve and the moment of surgery in the comparison. Are your results related to your skills after some years of practice or is the change in the standardization? Probably, in 2019 when standardization was started, you did so because at that moment you master the technique. Therefore, the only way to know whether the standardization works is by comparison between patients in the second period. Another possibility is to introduce operative time in the propensity score and compare patients with equal operative time. Groups are far from equal: operative time is not balanced after matching and it is clearly longer in the non-standardized group (data on tables 1 and 2). It is true that lysis of pleural adhesions takes time, and it was done systematically in the first period. Therefore, I go back to comparison should be done using only patients of the second period.

Reply 4: Thank you for your excellent comment. First, the learning curve can affect the result, which was added in the limitation. Second, as you said, the standardization

management started in 2019. In the second period, any patients were treated using the standardized management. Therefore, it was unfortunately impossible to compare the standardized and non-standardized management in the second period. Finally, operative time was included in multivariate analysis as a variable. It might be related with the learning curve that operative time in the standardized management group was shorter than that in the non-standardized group.

Change in the text) I would keep the current form.

Comment 5: Please, clarify terminology: What do you mean by segmentectomy? A wedge resection (non-anatomical segmentectomy) or an anatomical segmentectomy.

Ans.) Thank you for your suggestion. In this manuscript, “segmentectomy” meant an anatomical segmentectomy.

Change in the text) Please see lines 135-138.

Comment 6: Normally length of hospital stay shows a positive skewed curve therefore it cannot be express using the mean. Present it using the median and IQR or adding the values of 25 and 75 quartiles. Please, amend this analysis because it discussed in the results section (lines 171 to 176) and it is not adequate.

Ans.) Thank you for your suggestion. The mean value of postoperative hospital stay was removed in the revised manuscript.

Change in the text) Please see lines 188-191 and table 1, 2 in the revised manuscript.

Comment 7: Please, explain why after chest tube removal in any group, patients remain in the hospital 2 or 4 days more (Table 1 data) is it related to complications?

Reply) Your question is reasonable. The hospital stay after the removal of drain was related with other morbidity, patient anxiety, postoperative pain or personal matter etc..

Change in the text: I would keep the current form.

Comment 8: It is already known that the sooner the chest tube is removed the better when performed keeping in mind certain details (no hemothorax, no chylothorax nor air leak). It is also well-known that fissure-less technique is favorable reducing air leaks and therefore shortening LOS. The strengthens of your paper are two: not eliminating the pleural adhesions and removing the chest tube when no air leak is present decreases the time with chest tube in, shortens LOS and produces no increase in postoperative pleural complications. Your discussion should turn around these ideas. It is of no utility to go back to things perfectly known. The discussion needs a major rework to focus on your topics.

Reply 8: I really appreciate your excellent suggestion. I added the validity of removing the postoperative drainage tube regardless of fluid volume in the discussion section of the revised manuscript. In addition, the patients with pleural adhesion were included in both groups, which might make bias in this study because the number of such a patient was unclear. Therefore, it was added in the limitation.

Change in the text 8: Please see lines 247-254 and 267-269.

Reviewer B

Comment 1: Standardization was implemented in 2019 and the majority of what the authors were doing was prior to that, so even though you propensity matched, there are too few patients in the latter period, thus the data may be skewed.

Reply 1: Your comment is reasonable. As you insisted, the difference of the number of included patients between the two groups might bring the bias in this study, which was added in the limitation of the revised manuscript.

Change in the text 1: Please see lines 255-257 in the revised manuscript.

Comment 2: In addition, there was also another standardized management technique that was introduced in 2021 that will further change and disrupt the results in the standardized management group, in other words, there are those variables that are not being accounted for.

Reply 2: Your comment is reasonable. However, the drain management which started in 2021 among the patients undergoing thoracoscopic pulmonary segmentectomy is performed to reduce the postoperative drainage time. Moreover, the management was standardized in any patients thoracoscopic undergoing pulmonary segmentectomy. Finally, the number of patients receiving the management is small.

Therefore, I think inclusion of those patients in this study is valid. Of course, it can be changed if you strongly recommend after receiving my comment.

Change in the text 2: I would keep the current form.

Comment 3: The sealants, glue, sutures, could also directly skew the results and are confounding factors.

Reply 3: Your comment is reasonable. Unfortunately, the number of patients receiving application of the sealants using fibrin glue or suture with absorbable monofilament was not recorded. The sentences about it were written in the limitation.

Change in the text 3: I would keep the current form.

Comment 4: What defines non standardized op report? was there detailed op reports that were looked at for all patients? were those felt to be accurate?

Reply 4: Thank you for your comment. In our department, it was always written in the operative record whether the fissureless technique or unidirectional dissection was applied or not in the operation. All operative reports were checked. Therefore, it was accurate.

Change in the text 4: I would keep the current form.

Comment 5: Benign and malignant disease were included, it may be prudent to just use malignant. Benign can be a different factor often.

Reply 5: I totally understand your opinion. In previous articles describing the efficacy of minimally invasive surgery, benign disease was occasionally excluded from the candidates. However, we included the patients with benign disease in this study because the same procedures including lobectomy or segmentectomy. In this study,

postoperative drainage time was focused. I think it does not depend on whether the tumor is malignant or benign.

Change in the text 5) I would keep the current form.

Comment 6: Uniportal vs. multiportal were used together in the standardized approach which need to be accounted for.

Reply 6: Thank you for your comment. Our department has introduced a uniportal approach for anatomical pulmonary resections since 2019. In the introduction period, the rate of a uniportal approach was small. However, the rate gradually increased in line with gaining the experience. Therefore, the standardized management group included both including uniportal and multiportal approaches.

Change in the text 6) Please see lines 112-116.

Comment 7: How do the authors describe "when air leakage stopped?" that is highly subjective and probably differs per surgeon, per advanced care provider, per resident?

Reply 7: Your question is reasonable. Our surgical team including senior and resident surgeons went the rounds of our patients in the morning every day. We argued whether air leakage was found or not at the rounds.

Change in the text 7) Please see lines 148-149.

Comment 8: Stage was not included and factored, higher stage may be more difficult and cause more air leaks.

Reply 8: Thank you for your comment. In this study, patients with benign disease were included. Moreover, although the advanced stage might negatively affect the occurrence of postoperative air leak, it was scientifically unclear. We consider that preoperative pulmonary function might affect it more strongly. Therefore, stages were not included in the variables.

Change in the text 8: I would keep the current form.

Comment 9: spelling in methods: "lobotomy"

Reply 9: Thank you for your pointing it out. I revised it.

Change in the text 9: Please see line 133.

Comment 10: Patients still seemed to stay 3 to 4 days in the standardized management group thus it is not completely clear if removing their chest tube on POD 0 and POD1 leads to any clear cut advantage?

Reply 10: Your question is appropriate. Our team usually permitted the discharge in the following day after the chest tube was removed. However, some patients tended to extend the hospital stay due to PONV, postoperative pain, or personal matter.

Change in the text 10: I would keep the current form.

Reviewer C

Comment 1: The only issue is related to the long period (more than 10 years), the case mix (malignant or benign disease) and the retrospective nature of the work. propensity matching may solve some points, but results and conclusion should keep in mind these limitations, that Authors already underline.

Reply 1: Thank you for your comment. As you said, they were limitations in this study. Change in the text 1) I would keep the current form.

Comment 2: Secondly, Authors state that, accordingly to data in the literature, "thoracoscopic fissureless lobectomy was significantly superior to conventional lobectomy in terms of prolonged air leakage," This is not always true.

Reply 2: Exactly. The result was just demonstrated in the article of Stamenovic and colleagues, which was not common in the daily clinical practice.

Change in the text 2: I would keep the current form.

Minor issues:

Comment 3: Please uniform decimals (usually no more than 3)

Reply 3: Thank you for your suggestion. I revised them.

Change in the text 3: Please see the revised tables (Table 1-3).

Comment 4: At line 208 Authors introduce ERAS, that looks conceptually far from the previous paragraph.

Reply 4: Thank you for your suggestion. I revised the sentences you pointed out.

Change in the text 4: Please see the sentences on lines 223-235 in the revised manuscript.

Comment 5: Analysis of costs may be added (or at least an estimated assessment)

Reply 5: Your comment is reasonable. However, the medical costs were unfortunately not compared between the two groups due to the lack of data, which was added in the limitations.

Change in the text 5: Please see lines 269-270.

Reviewer D

Comment 1: How many enrolled patients in each groups had intraoperative pleural adhesions or dense fissure adhesions? Please supplement the results section with this information. If a standardized management group consists of more patients with pleural adhesions or dense fissure adhesions, then standardized intraoperative management (any dense fissures were left untreated to avoid postoperative air leakage) would be more convincing.

Reply 1: Your comment is reasonable. However, among most of the enrolled patients, it was unfortunately not recorded whether the patient had pleural adhesions or dense fissure adhesions. Therefore, we added the sentence about it in the limitation.

Change in the text 1: Please see lines 267-269.

Comment 2: You have mentioned morbidities related to pleural disease (excessive pleural effusion, pleuritis, delayed pulmonary fistula, chylothorax). Do any patients have residual pneumothorax after drain removal? In addition, please specify the protocol for radiographic follow-up of post-operative management.

Reply 2) Thank you for your comment. First, unfortunately, we have no data about how many patients revealed residual pneumothorax after drain removal although some patients probably did it. Second, postoperative follow-up using chest X-ray in outpatient ward was performed for any patient on around postoperative day 10 and 30 after discharge, which was added in the revised manuscript.

Change in the text 2) Please see lines 159-160.

Comment 3: The authors noted that chest drainage was removed when air leaks ceased in a standardized management group. How many hours have you checked and removed chest drainage from when the air leak stopped?

Reply 3: Thank you for your question. Our surgical team including senior and resident surgeons went the rounds of our patients in the morning every day. After we argued whether air leakage was found or not at the rounds, we decided to remove the drainage tube or not. It did not depend on when the operation was performed, which meant that the chest tube can be removed even if the operation was performed in the evening.

Change in the text 3: Please see lines 148-149.

Reviewer E

Comment 1: The practices standardization period lasted 3 years and included 352 patients, whereas the non-standardization period lasted 7 years and included 463 patients, don't you think that the experience gained during years of practice is by itself sufficient to explain the results reported in your manuscript?

Reply 1: Your comment is very reasonable. The learning curve might affect the positive results in the standardization group because it was performed in the latter period. However, the bias related to the technical aspect was difficult to avoid. Therefore, it was added in the limitation.

Change in the text 1: Please see line 260.

Comment 2: Were ERAS protocols instituted over the last years, and could this have possibly contributed to the faster discharge of patients?

Reply 2: In our institution, other ERAS protocols including pre- and postoperative rehabilitation, early mobilization, pain relief or etc. were already introduced in the beginning of this study period. However, early discharge might be facilitated due to the recent tendency of desiring early social reintegration, which was added in the limitation.

Change in the text 2: Please see lines 270-271.

Comment 3: It would be advisable to add in tables 1 and 2 the details of the type of segmentectomies performed in the group that received standardized management? was there more simple segmentectomies? This could give a better picture of the complexity of the surgical procedure. Air leakage is more often associated with complex segmentectomies rather than simple ones.

Reply 3: Thank you for your suggestion. The details of the type of segmentectomies were added in the revised manuscript. Complex type of segmentectomy was more frequently performed in the standardized management group.

Change in the text: Please see table 1, 2 and lines 177-178.

Comment 4: As highlighted in the limitation section, the impact of the instrumentation used for parenchymal section was not considered, even though it is an important intraoperative concern in the management of postoperative air leakage. It would be desirable to describe how parenchymal section was managed in each group.

Reply 4: Your question is reasonable. Lung parenchyma including interlobar fissure or intersegmental plane was divided by staplers in thick parts while proximal ligation with string or electrocautery cutting was applied in thin parts, which was added in the revised manuscript.

Change in the text 4: Please see lines 127-130.

Comment 5: How do you think that operative time and blood loss impact air leakage?

Reply 5: Thank you for your question. In the difficult cases including dense fissure, severe adhesion, or severe emphysema, operative time tended to be longer and blood loss be larger. Also, postoperative air leakage tended to happen in those cases. Therefore, we speculated that operative time and blood loss contributed to the reduction of postoperative drainage time in multivariate analysis.

Change in the text 5: I would keep the current form.