

Peer Review File

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Reviewer A

This is a nice article about the treatment options in patients with secondary pneumothorax with ILD. However, I think certain aspects could be described more accurate and extensive.

Comment 1: Abstract, r 44: rest alone, consider to change to observation or conservative

Reply 1: Thank you for your good comment. We have modified our text as advised (see Page 4, line 49)".

Changes in the text: Fifty-one patients with observation only were excluded.

Comment 2: Page 11 r 186-190: can you describe in how much of treated patients the air leak was localized to a specific subsegment with balloon? Or what was the method to determine where the Watanabe spigot should be placed. Did you have data on the air leak during bronchoscopy? It can probably be moved from the discussion session to results session with more accurate data (for example: if there was no lower flow after identification of air leak with balloon, why place Watanabe)

Reply 2: Thank you for your good comment. All of the four effective patients could be identified the bronchi which involved in the air leak. All patients who performed bronchoscopic treatments were having the air leak during bronchoscopy. As you say, we added these important points in results session (see Page 12, line 202-205)" and discussion session (see Page 15-16, line 261-263).

Changes in the text: The bronchi involved in the air leak were able to be identified by a bronchial occlusion test using a balloon catheter in all 4 patients in whom treatment was effective; in contrast, identification was impossible for the 10 patients in whom treatment was ineffective **(REVISED IN RESULTS)**.

In addition, in the present study, the bronchi involved in the air leak were only able to be identified by a bronchial occlusion test using a balloon catheter in the patients for whom treatment was effective **(REVISED IN DISCUSSION)**.

Comment 3: Table 1 and in general: do you have data on lung function (most important: FEV1, FVC, TLC, diffusion capacity). Both as baseline. And probably as selection or outcome parameter? Perhaps this is an additional risk factor for death. Furthermore, the severity is important for you success of treatment (e.g. Extensive IPF is probably more severe then localized organizing pneumonia). Can you include this in baseline and perhaps in risk stratification?

Reply 3: Thank you for your very good comment, and it is so important. We have no detail data on lung function of the patients in this study. In the first place, the patients with secondary pneumothorax caused by ILD were under pulmonary dysfunction, and performing the examination of lung function in onset of pneumothorax was very difficult. Therefore, SpO2 and blood gas analysis were often substituted for lung function when making treatment decisions, including whether surgery was possible. The fact that this study was a retrospective study also contributes to the data loss. I think it is desirable to have a setting that can aggregate data on pre-treatment lung function when prospective studies can be conducted in the future. We added this point to the discussion as a limitation. (see Page 17 , line 294-295).

Changes in the text: and data on the pulmonary function before treatment were missing.

Comment 4: Title and conclusion: Based on the current results, I would prefer another title, as you describe all options including surgery.

Reply 4: Thank you for your comments. We consider that the surgery is most important treatment, and this point was highlighted in the title (see Page 1, line 6-7).

Changes in the text: Treatment of secondary pneumothorax with interstitial lung disease: The surgical indications at the start of treatment is important

Comment 5: Furthermore: I am interested to know what subgroup underwent surgery with this outcome. Probably there are selection criteria which make surgery more successfull (diffusion, FEV1, comorbidities, underlying ILD). This could be better defined in the article.

Reply 5: Thank you for your comments. The surgical indication was comprehensively determined by thoracic surgeons based on the patients' PS, cardiopulmonary function, and comorbidities, but it is difficult to clarify the indications for surgery. Importantly, we consider that it would be desirable for surgeons and physicians to discuss the

surgical indications at the start of treatment, and only a physician should not determine that some pneumothorax patients not have the surgical indications.

Changes in the text: None.

Reviewer B

The incidence of recurrence of pneumothorax in the immediate time frame could be a good inclusion

Comment: The incidence of recurrence of pneumothorax in the immediate time frame could be a good inclusion.

Reply: Thank you for your kindly comment.

Changes in the text: None.

Reviewer C

Thank you for your nice works, but some revisions are inevitable.

Comment 1: First. How to define ILD with sub-classification? Usually ILD can be diagnosed just by chest CT, but to define the exact sub-classification, tissue confirmation should be required. However, authors did not perform biopsy for the all patients. Please state details of the whole process of ILD diagnosis.

Reply 1: Thank you for your good comment, and it is very important. As it was mentioned in methods, the diagnosis of ILD, including the sub-classification, was performed by expert diagnostic radiologists and physicians according to thin-section CT findings in this study. As you say, tissue confirmation should be required, but the aggressive biopsy is not often performed for the ILD patients in clinical practice in Japan. Based on your opinion, I added this to the limitation (see Page 17, line 293-294).

Changes in the text: Second, because this study was retrospective, a biopsy to define the exact sub-classification of ILD was not performed for all patients,

Comment 2: Second. What is the indications of each treatment? Authors performed a variety of treatments including pleurodesis, chest tube only, bronchoscopic treatments, and surgery, but did not state the indications. Please state the indications of each treatment.

Reply 2: Thank you for your comment. Because this study was retrospective, the indications of treatment were decided by each physician and/or surgeon. Because the treatment of secondary pneumothorax with ILD is still an area where there is no clear treatment standard and we want respiratory doctors to be noticed the importance of surgery, we wrote this paper. Thank you.

Changes in the text: None.

Comment 3: Third. Authors analyzed patients with broad spectrum. The characteristics of patients with IPF and those of autoimmunity would be different. Moreover, patients managed only by chest tube and by surgery would be very different. Therefore, it seems inappropriate that analysis of the ILD patients with different treatment options simultaneously. In other words, apple and orange could not be compared. Please re-define the study group.

Reply 3: Thank you for your comment. As you say, chest drainage and surgery are very different. On the other hand, pneumothorax patients with ILD have various backgrounds, and it is equally difficult to unify them. In such complicated backgrounds, analyzing what treatments were performed and what the outcomes were, was one of the subjects of this study. Thank you.

Changes in the text: None.

Comment 4: Finally, authors concluded that it is desirable to consider the surgical indications, but I cannot find any logical reasons or evidences supporting the conclusions. Please present more evidences or change the conclusions.

Reply 4: Thank you for your comment. As you say, in retrospective study, we cannot have the statistical evidence for superiority of surgery. We mentioned in limitations, there were a bias with regard to patient selection for treatment, especially the choice of surgical or non-surgical treatment. However, the outcomes of surgery were favorable, in other words, we believe that the selection of secondary pneumothorax patients who are able to tolerate surgery is most important. Then, thoracic surgeons should perform appropriate surgery for each patient. Thank you.

Changes in the text: None.

