Peer Review File

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Reviewer A

This article is well-organized and well-written.

Comment 1: CT visual grading of emphysema in group A and B should be addressed and compared since higher degree of centrilobular emphysema may be associated with higher pneumothorax risk.

Reply 1: Thank you for this comment. We re-analyzed the dataset and had a board-certified radiologist do the CT visual grading of emphysema. We have included the results in both Tables 1 and 2.

Changes in the text: See changes in both page 6, lines 97 "the presence and visual grading of emphysema was determined by reviewing cross-sectional imaging by a board-certified radiologist" and page 8, lines 153 "There was no difference in the presence of emphysema or emphysema grading between both groups." We have also included changes in both Tables 1 and 2.

Comment 2: Data of pathologic reports of nodules are needed and percentage confirmed pathologic diagnosis are needed.

Reply 2: Thank you for this insight. We have analyzed the results of the path reports of nodules and percentage confirmed path diagnosis and have included the sensitivity and specificity of both the 18-gauge and 20-gauge biopsy gun. We found that the sensitivity of the 18G gun is higher than the 20G gun, which strengthens our overall conclusion, in that we may consider safely using larger gauge biopsy systems as they also produce more sensitive results.

Changes in the text: Changes have been made in several areas. In the abstract, a sentence has been added to the results (line 45, page 3) and conclusion (line 51, page 3). The "Key findings" part of the highlight box has also been updated. In addition, we have added the fact that pathological results were collected to methods section at line 113, page 7. Next, at line 158, page 9 in the results section, we added a sentence with our sensitivity/specificity results for the 18G vs 20G guns. In the discussion, we added a sentence to line 189 as well as to line 228, commenting on our results compared to a prior meta-analysis which compared sensitivity of different needle gauges. Lastly, we added to line 238, page 12 of the conclusion to mention that the 18G gun was more sensitive than the 20G gun.

Reviewer B

This is a retrospective study that evaluated the risk factor on pneumothorax during CT-guided lung biopsy. The authors demonstrated the occurrence of pneumothorax was associated with the needle tract length of greater than 2cm but not the needle size. The predictive factor of pneumothorax during CT-guided lung biopsy is important and this study provides some useful information to readers. This is a well-written paper and I have a few comments.

Major
Comment 1: The authors concluded "Increasing length of lung parenchyma needle tract and smaller lung nodules appear to the risk factors for pneumothorax." Why did the authors exclude "age" from the risk factors? In addition, smaller lung nodules were not the risk factor in the multivariate analysis.

Reply 1: Thank you for this comment. The authors state that age was a risk factor as patients with pneumothorax were older (66.26 vs 62.66), however age was not predictive of post-procedural pneumothorax in the binary regression models. We appreciate the comment that small nodules were not a risk factor in the regression analysis, and have added to the discussion.

Changes in the Text: In the results section, age has been updated as a risk factor when comparing the pneumothorax vs no pneumothorax cohorts (line 157, line 198). In addition, we have added results from the binary regression model showing that age was not predictive of post-procedural pneumothorax (line 168, page 9). Lastly, we added a sentence to the discussion (line 202, page 11) as to why we believe smaller lung nodules were not a risk factor in the regression model.

Comment 2: Please describe the results of multivariate analyses on other factors analyzed (especially nodule sizes and age).

Reply 2: Thank you for this comment. As advised, we have included the results of the regression model on other factors analyzed (nodule size, age, biosentry plug, needle introducer gauge) in the results section, and none of them were predictive of post-procedural pneumothorax.

Changes in the Text: We have added to the last paragraph of the results section (page 9, line 166) with the requested results.

Comment 3: Line 130-133. Please add a figure of the ROC curve.

Reply 3: Thank you for this comment. The authors have added the requested ROC curve as Figure 4

Changes in the Text: Figure 4 has been added.

Comment 4: I could not find “What is the implication, and what should change now”, in the highlight box.

Reply 4: For some reason the answer to that question was hidden by the highlight box, it is visible now in the highlight box.

Changes in the text: The answer to “What is the implication, and what should change now” is now visible before line 65 in the highlight box, page 4.