Peer Review File
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Reviewer A

The authors retrospectively investigate the feasibility of a novel localization needle (a 4-hook anchor and a tri-colored suture with scale) in wedge resection for SPNs with adequate margins. They found that the modified preoperative CT-guided 4-hook needle with scaled suture localization is a safe, efficient strategy for wedge resecting SPNs by VATS
Overall, this paper is well written.
It is unfortunate that the number of cases is so small, but I hope that more studies will be done to accumulate more cases and include long-term results.
I have the following concerns.

Please add detailed instructions for the following comment regarding the technique during hook marking.
Comment 1
Clinicians anticipate that lesions on the mediastinal side will be more difficult to mark than elsewhere. How do you devise your marking in such cases?
Reply 1：Thank you for your comment. We performed percutaneous CT-guided lung puncture and released the device after arriving at the expected location point. This process still requires following the principles of CT-guided lung puncture. Therefore, the mediastinal side pulmonary nodule is not the best indication for our device. In our institution, intraoperative anatomical location, finger contact or pulmonary segmentectomy were most commonly used for mediastinal side pulmonary nodule. Only the mediastinal side pumlmary nodules in special locations, such as the nodule in the anterior superior mediastinal side that was not far from the pulmonary inversion, were performed this method in our study.

Comment 2
Air embolization due to hook marking is a serious complication.
Any procedural innovations to prevent air embolization should be mentioned.
For example, instructing the patient not to take deep breaths while marking?
Reply 2：Thank you for your comment. Our method still follows the general principles of CT-guided lung puncture, and obtains the patient's cooperation during the procedure, so that the patient should maintain normal breath as possible, avoiding coughing or deep breath. No air embolism has been reported in previous studies using this device. (Reference 9, 10)

Statistical analysis
Comment 3
The authors have used median comparability of resection margins between groups (A+B) and groups (C+D). Please add to the Analysis section how to analyze continuous variables.
Reply 3：Thank you for your comment. We add analysis method to the Analysis section. See line 155-156.

Minor
Line 137 M IA → MIA
Line 164 Clinical → clinical
Line 188 procedure . → procedure.
Line 234 Fan etal → Fan et al
Carefully review the entire text once again.
Reply: Thank you. We have reviewed the text carefully already and corrected some mistakes of spelling and grammar.

Reviewer B

Pre- or intraoperative localization technique for small pulmonary nodule is now gathering attention because we have more opportunities to encounter it due to the advancement of CT. In addition, positive results of sublobar resection for such a small nodule support it.
On the contrary, there have been many previous reports describing pre- or intraoperative localization technique. Therefore, the author should have demonstrated the superiority of this described procedure to the previous ones. The most important lack of the study is, as the author mentioned in the limitation section, that the retrospective study did not have control arm.
Moreover, I cannot understand the efficacy of this technique compared to the traditional hook wire technique. I speculated that the author insisted that the tri-colored suture indicated the depth of the tumor, which would enable the surgeons to understand the depth of the tumor intraoperatively. However, I considered that the surgeon cannot have the vision of the tip of the hook because it was embedded in the lung parenchyma. Additionally, we can estimate the depth by using preoperative CT finding.
Reply: Thank you for your comment. The localization device we used has been reported in several previous clinical studies, and the advantages over other localization devices (hookwire, microcoil, et al) have been discussed (Ref. 9-11), such as less pain, no need for the patient to hold a special position while waiting for surgery and no left in the chest wall, etc. But these are not the purposes of our study. As you said, we focused on how to determine the depth of the nodules during surgery to ensure adequate resection margin distance. Although we cannot have the vision of the tip of the hook, but we can judge the depth of the localization needle by the scale suture, and evaluate the position and depth of the nodule by the three-dimensional relationship between the nodule and the needle. We can judge the depth of nodules by preoperative CT preliminarily, but different degree of pulmonary collapse and the pulling of lung tissue during the operation may lead to the depth of nodules changes. We have mentioned these factors in the paper, so it is not reliable to judge the depth of nodules and resection margin distance by preoperative CT preliminarily.

Minor questions:
1. Why did the author decided the tumor diameter as a candidate ranged from 8mm to 20mm? Please demonstrate the references.
2. The author described “The median depth of the anchor claw – 6 cases more than 10mm.” in lines 178-180. Did the author evaluate these distances radiographically or pathologically? If pathologically evaluated, please describe how the resected lung was inflated.
3. The author classified all nodules into four groups including A, B, C, and D based on the depth

of the tumor. I totally recommend the comparison of the outcomes among the groups is described using a table. Moreover, please describe it in the discussion section.

Reply: Thank you for your comment.

1. In our institution, our criteria for small pulmonary nodule for operation are based on the following references: 1) Chinese Medical A, Oncology Society of Chinese Medical A, Chinese Medical Association Publishing H. [Chinese Medical Association guidelines for clinical diagnosis and treatment of lung cancer (Edition 2018)]. Zhonghua Zhong Liu Za Zhi. 2018;40:935-64. 2) Gening Jiang, Chang Chen, Yuming Zhu, et al. Shanghai Pulmonary Hospital Experts Consensus on the Management of GroundGlass Nodules Suspected as Lung Adenocarcinoma (Version 1). Chin J Lung Cancer. 2018;21:147-159.
2. We evaluated these distances radiographically. We added the measuring method in line 144.
3. This is a good recommendation. We add the table 3 and discussion in line 265-275.

Reviewer C

Thank you for submitting a manuscript concerning a new localizing device for SPN. I enjoyed it.
This device seems available mainly in China these several years, and honestly, is never seen in my country, Japan.
I have several questions.
A 4-hook anker opens within the lung parenchyma when excluded from coaxial needle.
Is this true?
How is the safety of anker secured from injuring surrounding vessels when opens?
In this study, what do you think of the reason about even less complications than in the previous references 9 and10?

Reply: Thank you for your comment.

1. Yes, when excluded from coaxial needle, the 4-hook will opens in the lung parenchyma. It can be confirmed during operation. Details of the operation process can be found in reference 9.
2. Our method still follows the general principles of CT-guided lung puncture. When we select the puncture route and target position, we will avoid the large blood vessel in lung parenchyma.
3. The common complications included parenchymal hemorrhage (16.2%) and pneumothorax (10.3%) in our study, and those were higher than reference 9 (parenchymal hemorrhage (5.6%) and pneumothorax (8.9%)), but lower than reference 10 (pneumorrhagia (13%) and pneumothorax (20%)). We think the rate of complications were relevant to following factors, such as puncture skills, criteria or location of the nodule, not relevant to the device.

Reviewer D

Innovative work.
Statistics managed cautiously.
Needs English revision.

Reply: Thanks very much for your comments, which are very helpful for us to improve the manuscript, and our language should be improved. After carefully check, we found many grammar and sentence errors, and have modified the manuscript accordingly. We hope the revised

paper will be more clear and accurate on expressions.