Peer Review File

Reviewer A:

Comment 1: Ensure that the limitations of the study are clearly stated, including the retrospective design and the potential for selection bias.

Reply 1: Thank you for your careful review of this manuscript. It is important to emphasize the retrospective design which may have inherent limitations compared to prospective studies. Additionally, we should acknowledge the potential for selection bias, as there may have been certain factors influencing the sample population that could have affected the study's results.

Changes in the text: We have modified our text as advised (see Page 10, line 307-308).

Comments 2: Consider expanding on the implications of the findings for clinical practice and future research directions.

Reply 2: Thank you for your careful review. We hope this study can contribute to reducing the incidence of complications in CT-guided lung tumor ablation techniques, improving local prognosis, and providing new insights for radiomics research in lung ablation CT.

Changes in the text: We have modified our text as advised (see Page 4, line 112-115).

Reviewer B

An excellent manuscript in its field, I have no corrections

Reviewer C:

Comments 1): First, the title needs to indicate the retrospective cohort study design of this study.

Reply 1): Thank you for your careful review and helpful comments. I have revised the title of the research article according to your suggestions. The new title is: "Retrospective cohort study on the correlation analysis among peri-procedural factors, complications, and local tumor progression of lung tumors treated with CT-guided microwave ablation. "

Changes in the text: We have modified our text as advised (see Page 1, line 3-5).

Comments 2): Second, the abstract needs some revisions. The background did not indicate the clinical significance of this research focus. The methods did not describe the inclusion criteria, assessment of clinical factors, follow up, and measurements of tumor progression and complications. The results need to briefly summarize the clinical characteristics of the study sample and report the accurate P values. The current conclusion needs to be tone down since the authors only did correlation analysis.

Reply 2): Thank you for your careful review and helpful suggestions. The clinical significance of this study had been added to the background part. The inclusion criteria were "patients who have had prior surgery or previous MWA were excluded. Ablation was the first treatment of choice, and all patients who have had other treatments were excluded." Clinical factors included

demographical factors, tumor features, ablation parameters, management of intra-procedural pneumothorax, CT features, and complications (included pneumothorax, post-procedural refractory infection, and pleural effusion). Follow up had been added to the methods part. Complications were evaluated through postoperative follow-up CT assessments. The measurement techniques for tumor progression had been extensively elucidated in lines 155-167 on page 5-6 of the article, rendering it challenging to concisely depict them in the abstract methodology. The clinical characteristics of the study sample and the accurate P values had been added to results part. The conclusion had been modified with a more moderate description.

Changes in the text: The clinical significance of this study had been added to the background part (Page 2, line 43-44). Follow up had been added to the methods part (Page 2, line 51). The clinical characteristics of the study sample and the accurate P values had been added to results part (Page 2, line 57-64; Page 7, line 216-217; Page 8, line 245, 247, 253; Page 16-17,Table 2;Page 18,Table 3, 4). The conclusion had been modified with a more moderate description (Page 2-3, line 66-68).

Comments 3): Third, in the introduction of the main text, the authors need to analyze the causes for the controversies in prior studies and their limitations, and clearly indicate why the current study could fill the knowledge gaps and address the limitations of prior studies.
Reply 3): Thank you for your careful review and kind comments.
Changes in the text: We have modified our text as advised (see Page 3, line 88-90; (see Page 4, line 112-115).

Comments 4): Fourth, in the methodology, please report the clinical research design and sample size estimation of this study. In statistics, please consider multiple regression analyses to exclude confounding effects and ensure P<0.05 is two-sided.
Reply 4): Thank you for your careful review and kind suggestions. We agree with your opinion. This study is a retrospective cohort study. We reviewed 164 consecutive patients who underwent CT-MWA at Fudan University Shanghai Cancer Center's Minimally Invasive Treatment Center for lung cancer from September 2019 to May 2020. Therefore, clinical study design and sample size were limited. In the future, we will improve the experimental design, increase the sample size and consider multiple regression analyses to exclude confounding effects.
Changes in the text: None

Comments 5): Finally, please cite several related papers: 1. Reisenauer JS, Eiken PW, Callstrom MR, Johnson GB, Pierson K, Lechtenberg B, Blackmon SH. A prospective trial of CT-guided percutaneous microwave ablation for lung tumors. J Thorac Dis 2022;14(4):939-951. doi: 10.21037/jtd-21-1636. 2. Blackmon SH, Sterner RM, Eiken PW, Vogl TJ, Pua BB, Port JL, Dupuy DE, Callstrom MR. Technical and safety performance of CT-guided percutaneous microwave ablation for lung tumors: an ablate and resect study. J Thorac Dis 2021;13(12):6827-6837. doi: 10.21037/jtd-21-594. 3. Shen X, Chen T, Yang B, Liu N, Qian X, Xia B, Feng D, Chen S. Magnetic resonance imaging-guided microwave ablation for lung tumor: a case report. Quant Imaging Med Surg 2021;11(6):2780-2784. doi: 10.21037/qims-20-

667. 4. Du K, Liu Y, Wu K, Sun Z, Han X, Jiao D. Percutaneous microwave ablation for lung tumors: a retrospective case-control study of conventional CT and C-arm CT guidance. Quant Imaging Med Surg 2023;13(9):5737-5747. doi: 10.21037/qims-22-985.

Reply 5): Thank you for your careful review and kind suggestions.

Changes in the text: We have modified our text as advised (see Page 11-13, line 359-431), and modify the corresponding label in the paper(Page 3, line 78, 80,81,88,93,99,100,101,103; Page 8, line 267; Page 9, line 269, 277,293,296,298)

<mark>**Reviewer C**</mark>

1. The information of Ref. 19-23 in the main text differed from the information in the reference list. Please revise.

Reply: Thank you for your assistance. The necessary adjustments have been made based on the content of the referenced article.

Changes in the text: We have modified our text as advised (see Page 10, line 309-310; Page 13, line 424-444).

2. The authors mentioned "studies...", while only one reference was cited. Change "Studies" to "A study" or add more citations. Please revise.

Several studies have suggested that radiomics analysis using image analysis tools had the potential to recognize recurrence early, but its reliance on particular computer software limited availability in the clinic (24).

Reply: Thank you for your assistance. The necessary adjustments have been made based on the content of the referenced article.

Changes in the text: We have modified our text as advised (see Page 10, line 313; Page 13, line 424-444).

3. Table 2

There seems to be no "***" in Table 2, while it was explained in the legend. Please check and revise.

Reply: Thank you for your assistance. The relevant content has been reviewed and revised.

Changes in the text: We have modified our text as advised (see Table 2).

4. ALL abbreviations used in each table/figure or table/figure description should be defined in a footnote below the corresponding table/figure. Please check all figures/tables and provide correspondingly.

CT, CR, ICR, PD in Fig 4

CT, CR, ICR, PD in Fig 5

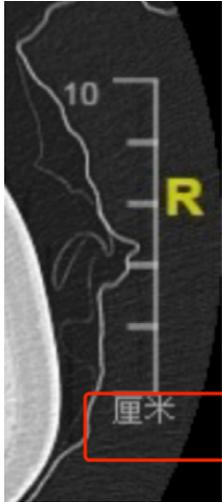CR, ICR, PD in Fig 6

CT, L, R in Fig 7

CT, HU in Fig 8

CT, HU in Fig 9

Reply: Thank you for your assistance.

Changes in the text: We have modified our text as advised.

5. Figure 7

Please re-provide an updated Figure 7 without any Chinese characters.

Reply: Thank you for your assistance.

Changes in the text: We have modified our text as advised. Figure 7 has been adjusted to Figure 4, and the Chinese characters have been removed from the figure.

6. Figure 8

Please add the meaning of the arrow in the legend.

Reply: Thank you for your assistance.

Changes in the text: As advised, we have made modifications to our text. Figure 8 has been adjusted to Figure 7-revised and the meaning of the arrow in the legend has been added.

7. Figure 9

Please add the meaning of the arrow in the legend.

Reply: Thank you for your assistance.

Changes in the text: As advised, we have made modifications to our text. Figure 9 has been adjusted to Figure 8 and the meaning of the arrow in the legend has been added.

8. Table 1

Please double-check the accuracy of data. Should "≤ 3" be "$>1, \leq 3$"?

Reply: Thank you for your careful review and kind suggestions. I apologize for not

understanding you earlier. We determined that the range is ">1, ≤3" instead of "<=3".