Dear Editors and Reviewers:

Thank you for your letter and for the reviewers' comments concerning our manuscript entitled "Advances in the application of novel MRI technologies in liver disease diagnosis" (ID: 86131). Those comments are all valuable and very helpful for revising and improving our manuscript, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval.

Responds to the reviewer's comments:

**To Reviewer #1**

Thank you for your valuable review and feedback. We sincerely appreciate the time and effort you have invested in thoroughly analyzing our manuscript. Your comments have been of great assistance to us in improving the quality and clarity of our work. As a result, we have diligently addressed each of your suggestions and made extensive revisions to the manuscript.

**Q1.** In the field of general practice, the assessment of liver fibrosis commonly utilizes vibration-controlled transient elastography (VCTE) alongside MRE. Therefore, a comprehensive analysis comparing VCTE and MRE would significantly improve the overall quality of the paper.

**Q2.** While this report highlights the superiority of MRI radiomics in detecting microinvasion of hepatocellular carcinoma, it is worth noting that other reports have also found MRI radiomics to be valuable in predicting liver fibrosis and inflammation. Consequently, you may consider including this point as well.

**Q3.** I think that it is not accurate to assert that the applications of MREs listed in Table 1 are intended for the detection of HCC.

**Reply：**

**Q1.**

We have further explored and added a paragraph comparing Vibrational Controlled Transient Elastography (VCTE) with Magnetic Resonance Elastography (MRE) in terms of vibration control and transient elastic imaging, based on your suggestion.

In the part of MRE, we added "For example, vibration-controlled transient elastography (VCTE) is one of the most widely used ultrasound-based methods for diagnosing liver fibrosis. Its rapid, safe, and reproducible nature has made it widely used for bedside diagnosis. However, its reliability is lower than that of MRE as 15% of its conclusions are inaccurate, which is mainly due to the impact of obesity and insufficient experience of doctors[25,26]. According to a large sample meta-analysis, the summary area under the curves (AUCs) for diagnosing significant fibrosis, advanced fibrosis, and cirrhosis with VCTE were lower than those with MRE, with values of only 0.83, 0.85, and 0.89,

respectively, while MRE had AUCs values as high as 0.91, 0.92, and 0.90, respectively[27]."

**Q2.**

We further analyzed the advantages of MRI-based radiomics in the diagnosis and prediction of hepatitis and liver fibrosis compared to traditional methods. Building upon this foundation, we introduced a novel dynamic imaging radiomics model that utilizes deep learning techniques, offering a higher degree of automation compared to traditional radiomics. This approach holds significant value.

Therefore, in the second paragraph of the MRI Radiomics section, we have included the following: "MRI-based radiomics has shown promise in diagnosing and predicting hepatitis and liver fibrosis. While conventional MRI images can detect severe cases by observing changes in water content and distribution caused by inflammation, subtle tissue changes can prove challenging to diagnose. Radiomics technology can capture these tiny changes, allowing for more accurate diagnosis. Wei et al proposed a grading system that simultaneously stages fibrosis and inflammation activity, with an AUC of 0.932 and 0.910 for diagnosing early-stage hepatitis and fibrosis, respectively[92]. This study demonstrates the potential for radiomics to improve diagnosis and prediction of liver diseases. A novel technique, known as the dynamic image radiomics model, has been developed using deep learning technology to evaluate liver fibrosis. This method combines imaging features from multi-phase dynamic contrast-enhanced images with temporal features. It utilizes time-varying curves of contrast enhancement and imaging features during enhancement and eliminates manual selection bias by using an automated ROI extraction method. Overall, compared with traditional radiomics methods and clinical serum parameters, the dynamic radiomics model has stronger predictive performance for various stages of liver fibrosis. The proposed liver fibrosis classification model is highly automated, saving time and effort. This model is significant in predicting new cases and training additional datasets[93]."

**Q3.**

Based on your suggestion, we carefully considered and found that stating "MRE is used for detecting HCC" is not appropriate, as MRE only provides some supporting information about HCC. However, as we introduced in the article, "Reports suggest that the risk of developing HCC increases with LS as measured by MRE[37]. Late-stage HCC recurrence is predicted by LS ($P < 0.001$), which has high specificity (90.0%)[38]." Therefore, we believe it is appropriate to modify the content in the table to "Prediction of the recurrence of HCC."

**To Reviewer #2**

We are truly grateful for your dedication and commitment to providing detailed feedback. Your thorough evaluation has contributed significantly to the refinement of our ideas and the strengthening of our findings. We are fully committed to addressing each of your comments and ensuring that our revised manuscript reflects the highest standards of excellence.

**Q1.** Could you include in the table the values of sensitivity, specificity, NPV and PPV for each technique.
**Q2.** The language might be revised.

**Reply：**
**Q1.**
Thank you for your valuable suggestions. We have taken them into account and made revisions accordingly. As per your recommendation, we have added an additional table titled "Comparison of performance indicators of new MR techniques in the diagnosis of liver disease" at the end of the article. The table provides information on the sensitivity, specificity, NPV, and PPV of various magnetic resonance techniques. However, we regret to inform you that certain MRI techniques are primarily utilized to provide auxiliary information regarding liver diseases rather than for their direct diagnosis. For instance, CEST MRI is mainly employed for assessing tumor metabolism, tumor microenvironment, and monitoring tumor treatment response. Hence, we have refrained from including their respective information in the table. We apologize for any inconvenience caused and appreciate your understanding in this matter.

**Q2.**
Thank you for your valuable feedback on my paper. We have taken your suggestion seriously and have gone the extra mile to ensure the language and formatting of my paper are improved. Following your recommendation, We engaged the services of a professional language editing company, which has provided us with an A-level certification for the edits done on my paper.
Through this rigorous editing process, We are pleased to inform you that all language and formatting issues in my paper have been effectively addressed. The certification We have obtained from the editing company reflects their acknowledgment of the improvements made to the language quality and formatting of our work.
We appreciate your thorough evaluation of my paper and your guidance in enhancing its overall clarity and coherence. With the assistance of the language editing company, We believe that the revised version of my paper now meets the expected standards in terms of language proficiency and proper formatting.

We appreciate for Editors/Reviewers' warm work earnestly, and hope that the correction will meet with approval.

Once again, thank you very much for your comments and suggestions.