

Thank you for your valuable comments on our manuscript. Here is our answer to your question.

Although MRI complements the lack of soft tissue resolution of CT images, both of them have limited sensitivity and specificity concerning the presence or extent of nodal involvement, because they mainly rely on the size criterion and thus MRI-CT fusion images cannot reveal nodal disease in normal-size lymph nodes. In addition, accuracy is lacking in defining the dimension of malignant bone infiltration versus concomitant infectious bone reactions. Our research also showed that MRI-CT fusion images failed to show the bone invasion site.

Since the distribution of ^{18}F -FDG is not limited to malignant tissues, PET-CT fusion images can also lead to false negative and false positive results in tumor diagnosis. False-positive results in PET-CT may occur due to inflammation, limited spatial resolution, and lack of a standard method for segmentation. On the other hand, false-negative results may occur in some slow-growing or low-malignant tumor cells or in necrotic tumor tissues, where glucose metabolism is reduced.

Figure 1 shows a scan of the patient's skull base and the site of tumor invasion (red circle). The red circle contains gross tumor volume(GTV), and the other color circles contains organs at risk. MRI-CT fusion image failed to show the bone invasion site compared to PET-CT (blue arrow). Due to the decreased glucose uptake of tumor necrotic tissues, PET-CT fusion image did not develop, causing false-negative results. Inadequate tumor volume coverage compared to MRI-CT (red arrow).

The above content has been added to the DISCUSSION of our manuscript. Thank you again for your comments and guidance.