Answering Reviewers

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Column: Prospective Study

Title: Dynamic perfusion MRI imaging in patients with local advanced rectal cancer in assessment of chemo-radiation treatment: relation to tumour regression grade at histology

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We wish to thank you all for your comments. Your comments provided valuable insights to refine its contents and analysis. In this document, we try to address the issues underlined.

The five things to be revised are reported highlighted in the original manuscript, as follow:

1) It would be better to mention who and how analyze the MRI images. Were the images examined by surgeons and/or radiologists? How many persons? Was this study investigated with blinded to the histopathology results?

According to the Reviewer's suggestion, we provided information about who and how analyse the MRI images "A single radiologist, with more than 10 years of experience in pelvis and rectal MRI, blinded to the histopathology results, manually drawn 3 different freehand regions of interest (ROI) on the rectal tumor on three consecutive slides, avoiding including the lumen and the mesorectal fat in the delineation." (see underlines MRI analysis paragraph).

2) This study examined "maximum enhancement" from the dynamic-contrast enhanced MRI images. Could you indicate where and how actually examined? It would be better to show more details in the material and method section or example images.

We thank the Reviewer for the comments. As suggested, the method used to create the perfusion analysis from dynamic enhanced sequences was added in the last section of MRI analysis (please see underlines): "For each ROI, located both in the tumor tissue and in the heathy rectal wall, […]. ME represents the highest absolute values ……..of signal intensity, and TTP corresponds to the time need to reach the maximum value of contrast material concentration."

3) Dynamic-contrast enhanced MRI images were examined in the different phase such as relative arterial enhancement, relative venous enhancement and relative late enhancement. Could you show the more details of the timing to examine the each phase.

As suggested, the method used for the timing of each phase was added. See underlines in MRI protocol paragraph: "The arterial phase was initiated immediately after the visual detection of contrast material at descending aorta by using a real-time bolus displayed method; the venous phase was acquired at the fixed delay of 80 s and the delayed phase at 4 min after contrast agent injection."

4) The final goal of this study is discriminate the complete response for expecting the successful of " watch and wait strategy". Is there any interesting result from the sub-analysis with investigating complete response and non-complete response group? If the author has some data it would be interesting to show in the discussion section.

Unfortunately, due to the hospital-related clinical and surgical strategies adopted for the patient with rectal cancer, all of them underwent surgical experience after treatment and therefore we were not able to determine if *watch and wait strategy* finally could confirm the results of our responders group in a possible long period follow-up .

5) In the table 1, abbreviation of the RLE (relative late enhancement) may be wrong.

Abbreviation is now correct. RLE = Relative Late Enhancement

Finally we wish to thank the Editor and the Reviewers for their comments that helped us to increase

the value of our paper.

Best regards