

Dear editor and reviewers,

Thank you for your comments on our manuscript. We have revised the manuscript according to your suggestions. Below are our point-by-point responses (in red) to each comment.

For the first reviewer:

1. There is a lot of abbreviations: could they be reduced?.

According to your suggestion, we revised our manuscript, and the following abbreviations were reduced.

texture analysis, TA
picture Archiving and Communication System, PACS
repetition time/echo time, (TR/TE)
field of view, FOV
gray level co-occurrence matrix, GLCM
gray level run-length matrix, GLRM
intraclass correlation coefficient, ICC
dissimilarity, DISS
sum average, SA
information correlation, IC
run-length nonuniformity, RLN
gray level nonuniformity, GLN
run percentage, RP
long run low gray level emphasis, LRLGLE
difference variance, DV

2. In the discussion , you could underline the great utility of your method of staging , comparing with the more usual CT.

According to your suggestion, the following content was added to the discussion section in our manuscript as well as the corresponding references.

Huang et al reported the performance of texture analysis in determining N stage based on CT images^[35]. Their proposed method performed slightly lower efficiency (AUC = 0.736) than our evaluating method did (AUC = 0.802). As pointed by Lubner MG et al, CT acquisition parameters that influence attenuation or pixel relationships may affect texture measures^[36]. In addition to the absence of ionizing radiations, MRI is capable of multiparametric imaging, and can provide not only morphological but also functional images. MRI signal intensity is related to many factors, such as strength and uniformity of the main magnetic field, the sequence used, and the imaging parameters used (repetition time/echo time, trigger angle, and others). Thus, the application of MRI has been thought to be complicated by many issues, which brings high soft-tissue contrast and non-invasive assessment of the microcirculation of tumor. Previous studies demonstrated that in comparison with CT, MRI can provide more valuable data for radiomics through high-throughput extraction of quantitative

image features. Thus, relative to CT, MRI undoubtedly has greater advantages in reflecting tumor heterogeneity and primary tumor stage for rectal cancer diagnosis, and is strongly recommended by the American Society of Colon and Rectal Surgeons to be performed before treatment^[37].

35. **Huang YQ**, Liang CH, He L, Tian J, Liang CS, Chen X, Ma ZL, Liu ZY. Development and Validation of a Radiomics Nomogram for Preoperative Prediction of Lymph Node Metastasis in Colorectal Cancer. J Clin Oncol 2016; **34**:2157-64 [PMID: 27138577 DOI: 10.1200/JCO.2015.65.9128]

36. **Lubner MG**, Smith AD, Sandrasegaran K, Sahani DV, Pickhardt PJ. CT Texture Analysis: Definitions, Applications, Biologic Correlates, and Challenges. Radiographics 2017; **37**:1483-1503 [PMID: 28898189 DOI: 10.1148/rg.2017170056]

37. **Monson JR**, Weiser MR, Buie WD, Chang GJ, Rafferty JF, Buie WD, Rafferty J; Standards Practice Task Force of the American Society of Colon and Rectal Surgeons. Practice parameters for the management of rectal cancer (revised). Dis Colon Rectum 2013; **56**:535-50 [PMID: 23575392 DOI: 10.1097/DCR.0b013e31828cb66c]

For the second reviewer:

1. I would accept as a first step this initial well-written manuscript with an emphasis to the authors to conduct a future randomized multi-center prospective trial.

Thanks for your kind suggestion, and I will conduct a randomized multi-center prospective trial following your advice.