

Dear honorific editor,

We sincerely appreciate the thoughtful critiques you provided regarding our manuscript, "Study on gender differences and potential clinical value of three-dimensional computerized tomography pelvimetry in rectal cancer patients." My co-authors and I understand the concerns raised. We have carefully revised the manuscript to address all of the valuable feedback. Our detailed responses to each comment are provided in this letter (following this page). By incorporating the constructive criticism of experts in the field, we are confident the revised manuscript represents a significantly improved work that makes a meaningful contribution. We truly appreciate and welcome any final suggestions before publishing in your eminent journal. Please let us know if you require any additional information.

Best regards,

Xiao-cong Zhou and Qiang wang

## Reviewer' Comments:

The authors addressed an anatomical problem that is important in the surgical approach. I will make a few suggestions to make the article more interesting.

1. Introduction: The type of rectal cancer operations and the importance of pelvic measurements in these operations should be explained in more detail.

**Response: Thank you for your valuable comment. As suggested, the type of rectal cancer operations and the importance of pelvic measurements in these operations have been explained in more detail in the revised manuscript (with yellow color, page 5), which are as follows:**

### Introduction

Rectal cancer is currently one of the most common malignant tumors. Compared to Western countries, China has a higher incidence of rectal cancer compared to colon cancer, with 60% to 70% of cases located in the middle and lower rectum [1]. Due to its deep location in the pelvic cavity and close anatomical relationship with adjacent tissues and organs, surgical treatment of middle and lower rectal cancer is relatively more challenging ~~complex~~, particularly for some low rectal cancer patients with obese and narrow male pelvises. ~~Various factors, such as gender, obesity, narrow pelvis, and low-positioned tumors, influence the specific difficulty of rectal cancer radical surgery.~~ Since the initial report proposed by British scholar Heald in 1982, total mesorectal excision (TME) has been recognized as a fundamental principle in the curative resection of rectal cancer [2]. However, the specific difficulty of rectal cancer radical surgery is affected by many factors, such as the patient's own situation, including the patient's sex, body mass index (BMI), visceral fat area (VFA), mesorectal fat area (MFA) and the specific condition of the tumor (including the size, location, distance from the anal edge, stage, adhesion with surrounding tissues and organs, etc.), the spatial structure of the patient's pelvis, and the surgeon's experience. Among these factors, the spatial structure of the patient's pelvis has a significant impact on the surgical procedure. Some studies have found that the size and shape of the pelvis are also one of the most important factors affecting the surgery of rectal cancer [3,4].

There are also related studies show that VFA is closely related to the operative time and intraoperative blood loss of laparoscopic TME for rectal cancer. Compared with BMI, it can better reflect the impact of obesity on the difficulty of surgery [5,6]. Some scholars [7] believe that MFA can be used as a predictor of the technical difficulty of TME for rectal cancer, because the larger fat area of mesorectum causes the space between pelvic fascia and visceral fascia wrapping around the mesorectum to become narrower. In this case, it will take more time to obtain a suitable surgical field during the pelvic surgery of rectal cancer. Therefore, it is very necessary for colorectal surgeons to understand thoroughly the overall structure of the pelvis before operation, and predict the difficulty of surgery in advance through the measurement of the pelvic anatomical diameters, angles, ratios, and soft tissue parameters such as VFA and MFA, and formulate appropriate and accurate surgical treatment plans.

2. Introduction: The shortcomings of the studies summarized as 1-5 should be given in more detail.

**Response:** Thank you for your valuable comment. As suggested, the shortcomings of the studies summarized as 1-5 have been given in more detail (with yellow color, page 6), which are as follows:

Currently, the pelvic skeletal and soft tissue parameters measured in most literature [18-512] are relatively limited, Shimada T et al evaluated pelvic shape only using the anteroposterior and transverse diameters of the pelvic inlet and outlet and pelvic depth (sacral promontory to tip of coccyx) on three-dimensional (3D) volume-rendered images, and the anteroposterior diameter/transverse diameter ratio. Zur Hausen and Kaufmann D et al used the transverse diameter of the pelvic inlet, interspinous distance, intertuberos distance, the diameters of obstetric conjugate, pelvic height (promontory to intertuberos connecting line), pelvic depth (superior aspect of the symphysis to intertuberos connecting line), sagittal outlet, and sagittal midpelvic. Bertani E et al only used the anteroposterior and transverse diameters of the pelvic inlet and outlet and pelvic depth (sacral promontory to tip of coccyx). Curtis NJ et al only used the anteroposterior diameter of the pelvic inlet and outlet, pelvic depth (sacral promontory to tip of coccyx), interspinous distance, and mesorectal area. And the measurement indicators are not completely unified, thus preventing the

3. Introduction: Data regarding the number of patients and methodology of the findings should be extracted

**Response:** Thank you for your valuable comment. As suggested, data regarding the number of patients and methodology of the findings have been extracted in the revised manuscript (with yellow color, page 6), which are as follows:

derivation of consistent conclusions. Based on the aforementioned controversial issues, ~~this study~~ included 16 pelvic and 7 soft tissue parameters to comprehensively evaluate the pelvic spatial anatomical structures and surrounding soft tissue structures that may affect laparoscopic rectal cancer radical surgery. the present study retrospectively analyzed clinical, radiological, and pathological data from 218 patients who underwent laparoscopic radical surgery for rectal cancer. CT scan data was collected for each patient and used to perform 3D reconstruction and measurement of 16 defined pelvic bone parameters and 7 soft tissue parameters. These parameters were statistically compared between male and female patients. This study aims to provide a theoretical basis for addressing the abovementioned problems by measuring these parameters and drawing conclusions.

#### MATERIAL AND METHODS

4. Discussion: In the first paragraphs, only gynecological operations were mentioned, but the study actually deals with rectal operations. The discussion should be expanded in this direction.

**Response:** Thank you for your valuable comment. As suggested, the discussion have been expanded in this direction in the revised manuscript (with yellow color, page 13), which are as follows:

#### DISCUSSION

Traditional X-ray pelvic measurements have been widely used in obstetrics to predict cephalopelvic disproportion and assess the need for cesarean section surgery [413]. However, X-ray measurements have lower sensitivity and specificity, which limits their clinical application. CT and magnetic resonance imaging(MRI) examinations are commonly used imaging methods for preoperative staging of rectal cancer in clinical practice, and they also provide a reliable technique for pelvic measurement in terms of diameter. However, most domestic and international literature focuses on two-dimensional measurements using CT and MRI, with limited reports on three-dimensional measurements: some scholars evaluated pelvic shape using several pelvic diameters, the ratio of diameters and angles on CT three-dimensional volume-rendered images in rectal cancer patients, and rare scholars determined pelvic dimensions at term pregnancy with three-dimensional

13

MRI pelvimetry [48-411, 414, 415]. Compared to CT three-dimensional reconstruction imaging,

5. Discussion: Study limitations should be presented. In particular, it appears that intraobserver and interobserver variability were not studied during the measurements. This should be explained or added to the limitations.

**Response:** Thank you for your valuable comment. In fact, we have presented the intraobserver variability during the measurements in results section (page 12, 13), which are as follows:

#### *Pelvic Parameters and soft tissue parameter data*

A single experienced senior radiologist performed pelvic measurements. In order to evaluate differences within the measurement group, the pelvic skeletal and soft tissue parameters of 20

12

patients were measured twice by the same observer at a 4-week interval, and the initial results were not visible during the repeat measurements. The data were analyzed using paired sample t-tests or Wilcoxon signed-rank tests, and inter-observer differences were calculated using Pearson's product-moment correlation coefficient or Spearman's rank correlation coefficient. The two measurements were highly correlated ( $P < 0.05$ ), indicating reliable and accurate measurements.

**As suggested, some study limitations have been added with yellow color in the last paragraph of the discussion section of the revised manuscript (page 16, 17), which are as follows:**

improving surgical safety, quality, and patient prognosis. However, there are also several limitations in

16

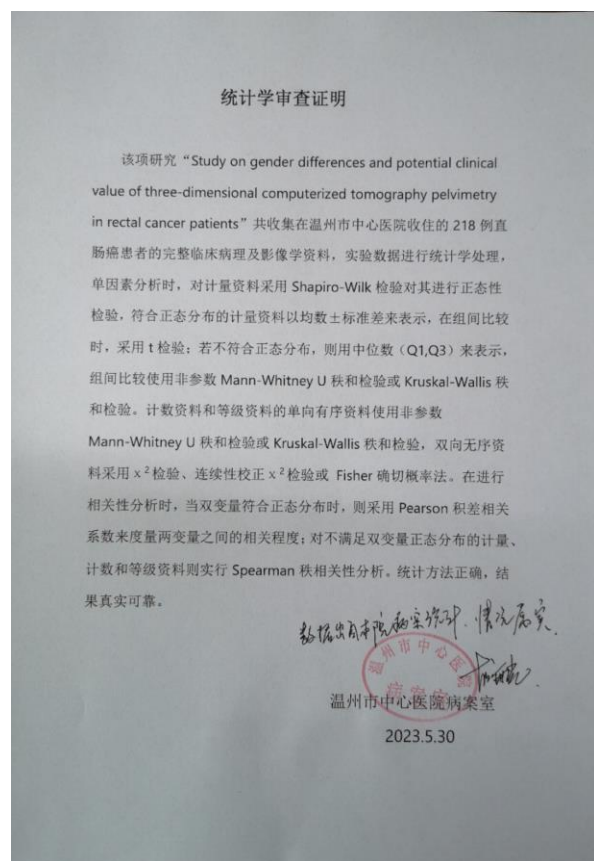
our study. First, the present study was a retrospective single-center analysis. Second, it is important to note that the participants in this study were solely from the eastern region of China. As a result, the findings of this study can only be generalized to the Asian population and may not accurately represent the variations in pelvic structure between males and females across different ethnicities. Third, the interobserver variability was not studied during the measurements. To ensure the validity of our conclusions, further research must be conducted with diverse cohorts from multiple centers worldwide.

#### **CONCLUSION**

## Editor Comments:

I have reviewed the Peer-Review Report, full text of the manuscript, and the relevant ethics documents, all of which have met the basic publishing requirements of the World Journal of Gastrointestinal Oncology, and the manuscript is conditionally accepted. I have sent the manuscript to the author(s) for its revision according to the Peer-Review Report, Editorial Office's comments and the Criteria for Manuscript Revision by Authors. Before its final acceptance, please provide and upload the following important documents: Biostatistics Review Certificate, a statement affirming that the statistical review of the study was performed by a biomedical statistician; Signed Informed Consent Form(s) or Document(s), the primary version (PDF) of the Informed Consent Form that has been signed by all subjects and investigators of the study, prepared in the official language of the authors' country.

**Response:** Thank you for your valuable comment. We have submitted the Biostatistics Review Certificate. Due to the nature of retrospective research, the informed consent of the subjects have been exempted by our ethics committee, which is as follows:



医学伦理审查证明	
项目名称：	基于CT三维重建骨盆测量预测腹腔镜直肠癌根治手术难度的模型构建
项目负责人：	周晓聪
项目承担单位：	温州市中心医院
伦理委员会审查资料：	伦理审查申请、研究方案
审查方式：	快速伦理审查
伦理委员会审查意见：	根据国家卫生健康委医学伦理专家委员会办公室颁布实施的《涉及人的临床研究伦理审查委员会建设指南》，经本伦理委员会审查，审查意见：同意；本研究属于回顾性研究，免除签署知情同意书。批件号：K2018-01-003。

温州市中心医院伦理委员会  
2018-03-01

Before final acceptance, uniform presentation should be used for figures showing the same or similar contents; for example, “Figure 1 Pathological changes of atrophic gastritis after treatment. A: ...; B: ...; C: ...; D: ...; E: ...; F: ...; G: ...”. Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor. In order to respect and protect the author’s intellectual property rights and prevent others from misappropriating figures without the author's authorization or abusing figures without indicating the source, we will indicate the author's copyright for figures originally generated by the author, and if the author has used a figure published elsewhere or that is copyrighted, the author needs to be authorized by the previous publisher or the copyright holder and/or indicate the reference source and copyrights. Please check and confirm whether the figures are original (i.e. generated de novo by the author(s) for this paper). If the picture is ‘original’, the author needs to add the following copyright information to the bottom right-hand side of the picture in PowerPoint (PPT): Copyright ©The Author(s) 2023. Authors are required to provide standard three-line tables, that is, only the top line, bottom line, and column line are displayed, while other table lines are hidden. The contents of each cell in the table should conform to the editing specifications, and the lines of each row or column of the table should be aligned. Do not use carriage returns or spaces to replace lines or vertical lines and do not segment cell content. Please upload the approved grant application form(s) or funding agency copy of any approval document(s).

**Response:** All copyright and formatting requirements from the editor regarding figures, tables, and supplementary documents have been addressed. The previously generated figures now have the required author copyright statement included. Additionally, the figures, tables, and submitted documents follow the specified guidelines on style and presentation format. All editor requests involving copyright provisions, formatting guidelines, and document submission have been appropriately completed per journal requirements in the revised manuscript. Please advise if the revised files need any further formatting changes or meet established submission standards.