November 26, 2020.

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: Manuscript NO: 58496-Revised manuscript.doc).

Title: Magnetic resonance imaging findings of redundant nerve roots of the cauda equina

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The manuscript has been improved according to the suggestions of editor and reviewers

Sincerely.

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Reviewer #1 (02281177): *On the whole, this is a well-written article with readability. I suggest that the authors make the following changes: In clinical practice, the term for a herniated disc is usually "disc herniation" rather than "disc indentation". Disc herniation can be divided into soft herniation or hard herniation. The former is a herniated disc tissue, and the latter is a hyperplastic osteophyte. The author's classification method in the article is of little significance because it cannot guide clinical treatment.*

Answer 1: We would like to thank the reviewer for her/his valuable comments. In line with reviewer's recommendations, the term "disc indentation" was changed to "disc herniation" in the article. In the materials and methods section, it was stated that disc herniation typing was based on the study of Poureisa et al[11].

Reviewer #2 (03699990): *The redundant nerve root syndrome（RNRs）of the cauda equina has been discussed sporadically in both the neurological and radiological literature of English. Although it is well observed in the cauda equina as a thick, elongated and tortuous nerve root on T2-weighted MR images, this condition has been relatively underrecognized in radiological practice. The paper helps to improve radiologists' understanding of RNRs and remind radiologists to pay attention to RNRs. The paper seems to have room for improvement as following. Paper `S AIM is to evaluate lumbar MRI findings of RNRs of cauda equina were in spinal stenosis patients. So in my opinions, the content of the" materials and methods "and the content of the" results" need to be adjusted appropriately. In materials and methods, it is best to state including the following at least. Patients ：Patient selection（How to screen）, the age and gender distribution of patients, and a brief description of clinical symptoms. MR imaging: equipment, sequence and parameters. MR evaluation：Who assessed？ Evaluation standards of RL, CSA and indentation types. Results：It's best to descript in paragraphs. MR findings of RNRs, Location, RL, CSA of RNRs Table 2. The entries in red font are improper. What can Table 3 indicate? Please explain. The syntax and expression of the paper need to be improved.*

Answer 2: We would like to thank the reviewer for her/his valuable comments. In line with the reviewer's suggestions, the materials and methods section and the results section were rearranged.

In the material and methods section, how patients are selected, gender and age of the patients, complaints, sequences and parameters used in MRI were added with " One hundred and sixty-seven patients who were found to have the term "spinal stenosis" in lumbar MRI reports in PACS were examined for the presence of RNRs. One hundred and thirteen (67.7%) of the patients were female and 54 (32.3%) were male. The mean age was 60.7 ± 11.3 (range 28-90). Sixty (35.9%) patients had low back pain, 54 (32.3%) had back and leg pain, 21 (12.6%) had leg pain, 13 (7.8%) had both low back

and leg pain and claudication, nine (5.4%) had low back pain and claudication, eight (4.8%) had claudication and two (1.2%) had leg pain and claudication. Until 2017, MRI examinations were carried out using an 8-channel 1.5 T MRI machine (GE Signa Excite HD; GE Healthcare, Milwaukee, United States). A 16-channel 1.5 T MRI machine (GE Signa Explorer SV 25; GE Healthcare, Milwaukee, United States,) was used after 2017. A phased array spine coil was used on the lumbar MRI. Sequences and parameters obtained on lumbar MRI examinations were, respectively: sagittal plane T2-weighted (T2W) fast spin echo (FSE) sequences (TR: 3008 ms, TE: 91.9 ms, NEX: 2, slice thickness: 4 mm, gap distance: 1 mm, FOV: 29 cm, matrix: 320 x 224); sagittal plane T1W FSE sequences (TR: 602 ms, TE: 8.7 ms, NEX: 1.5, slice thickness: 4 mm, gap distance: 1 mm, FOV: 29 cm, matrix: 320 x 224); axial plane T2W (TR: 4647 ms, TE: 91.8 ms, NEX: 2, slice thickness: 4 mm, gap distance: 1 mm, FOV: 18 cm, matrix: 320 x 192)." sentences. "

Who evaluated the radiological images "In those patients with spinal stenosis on lumbar MRI, the presence of RNRs was evaluated with consensus by two radiologists with 14 (E.G.) and eight (M.B.) years of work experience." was added after the examination parameters in the form of statement.

Under the title of "*Radiological evaluation*", how the radiological evaluation is performed is presented in a separate paragraph.

Standart of cross sectional area (CSA) is specified with the sentence of "Patients with CSAs under 100 mm² at any of these spinal levels were considered to have spinal stenosis." in the radiological evaluation section.

Standart of relative length (RL) is specified with the sentence of "On the T2W mid-sagittal MR image, relative length (RL) of RNRs was calculated by dividing the distance from the maximum stenosis level to the farthest level where redundant roots could be observed by the height of the vertebrae body superior to the stenosis level (Figure 3B). " in the radiological evaluation section.

Standart of indentation is specified with the sentence of "On sagittal plane MR images of the patients with RNRs of the cauda equina, the disc herniation type was classified based on Poureisa et al[11] study's as soft margin when the disc causing stenosis in

intervertebral disc space on the midsagittal image was indented into the dural sac with a wide angle, while it was classified as sharp margin when it was indented with an acute angle (Figure 4)." in the radiological evaluation section.

The Results section is divided into paragraphs in line with the reviewer's suggestion.

What can Table 3 indicate? Table 3, sentence of "Table 3 shows the statistical relationship of localization level (superior, inferior, and both superior and inferior) of redundant nerve roots with RL and CSA measurements of dural sac at extension levels of redundant nerve roots." is explained.

The syntax and expression of the paper is improved.

(1) Science editor: *1 Scientific quality: The manuscript describes a retrospective study of the magnetic resonance imaging findings of redundant nerve roots of cauda equina. The topic is within the scope of the WJCC. (1) Classification: Grade B and Grade D; (2) Summary of the Peer-Review Report: This is a well-written article with readability. This paper helps to improve radiologists' understanding of RNRs and remind radiologists to pay attention to RNRs. However, some questions raised by the reviewers should be answered; and (3) Format: There are 4 tables and 5 figures. A total of 14 references are cited, including 1 reference published in the last 3 years. There are no self-citations. 2 Language evaluation: Classification: Grade C and Grade B. 3 Academic norms and rules: The authors provided the Biostatistics Review Certificate, the signed Conflict-of-Interest Disclosure Form and Copyright License Agreement, and the Institutional Review Board Approval Form. Written informed consent was waived. No academic misconduct was found in the CrossCheck detection and Bing search. 4 Supplementary comments: This is an invited manuscript. The topic has not previously been published in the WJCC. 5 Issues raised: (1) The language classification is Grade C. Please visit the following website for the professional English language editing companies we recommend: https://www.wjgnet.com/bpg/gerinfo/240; (2) The "Author Contributions" section is missing. Please provide the author contributions; and (3) The authors did not provide original pictures. 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. 6 Re-Review: Required. 7 Recommendation: Conditional acceptance.*

Answer for Science Editor:

1) In line with the recommendation of the scientific editor, the article was sent to professional English language editing companies and its certificate is attached.

2) Author Contributions "section has been added to the article.

3) Original figures in the PowerPoint are attached.