

Peer Review File

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Reviewer A:

Comment 1: Introduction: The authors summarized the brief history of lumbar interbody fusion and Endo-T/PLIF. However, there was no enough related literature on the topic of this study. Why the purpose of this study is important? Were there any previous similar studies that produced undetermined questions on this issue?

Reply 1: We are sorry that this part was not clear in the original manuscript. I have revised the contents of this part. In the Introduction, “Why the purpose of this study is important?” was discussed in detail.

Changes in the text: We have modified our text as advised (see Page 3, line 6- Page 4, line 2).

Comment 2: Methods and Results: (1) It will be better to use the images from GE AW4.4 workstation rather than the schematic diagrams to illustrate the screw path. (2) Further, as a study to feasibility for oblique fixation from the posterior angle of the lumbar spine, the anatomic measurements were not so robust as to provide the clinical related advice and conclusion. A finite analysis study should be performed to present the differences between the several selected screw path and demonstrate the superiority of the best one. Anatomy and imaging-related journal might be more suitable for an anatomic measurement study.

Reply 2: (1) Considering the Reviewer’s suggestion, we have added four images (Figure 2, Figure 4, Figure 7, Figure 9) from GE AW4.4 workstation to illustrate the screw path. (2) We are planning to do this but it is a topic of a future study. We intended the current manuscript to report some key observations on radiographic anatomy of percutaneous endoscopic transforaminal oblique fixation from posterior corner in lumbar spine while setting a framework for more detailed studies.

Changes in the text: We have added four pictures (Figure 2, Figure 4, Figure 7, Figure 9) to illustrate the screw path and modified our text as advised (see Page 16, line 3,5, 10,13).

Comment 3: Discussion: The authors summarized the references which were not directly related to the purpose of the study. Without comparing with similar studies, how can be the advantages and disadvantages of the present study shown?

Reply 3: We have reedited and rewritten this part according to the Reviewer’s suggestion. We have added a large amount of literatures and images in the

Discussion section to confirm the deficiencies of previous studies and the necessity of this study.

Changes in the test: We have added some figures (Figure 1, Figure 17, Figure 18, Figure 19) and lots of literatures in the Discussion section and modified our test as advised (see Page 8, line 22- Page 12, line 6).

Reviewer B:

Comment 0: The purpose of this paper was to investigate the anatomical feasibility for a novel lumbar posterior angle oblique fixation by measuring the image anatomical parameters of the lumbar vertebrae, to provide the anatomic basis for the design and manufacture of the new microscopic fusion-fixation device. However, the purpose of the study was not clear. And there were problems in Methods and Discussion. The language, grammar, and sentence structure should be improved.

Reply 0: As Reviewer suggested that we have invited the medical editor to modify and embellish this article. Moreover, we have carefully answered the following twelve suggestions from you, which I believe will make our article more reasonable and rigorous.

Changes in the test: All the changes are marked in red in revised paper.

Comment 1: Title “Imaging anatomy and clinical significance of oblique fixation from the posterior angle of the lumbar spine” did not accurately reflect the purpose of the study. It was a radiological study, not an anatomic study, and there was nothing to do with clinical use, let alone clinical significance. Please modify it.

Reply 1: We have rewritten the title according to the Reviewer’s suggestion. The previous title did not accurately reflect the purpose of the study. This article has obvious clinical significance, for example, verifying the anatomical feasibility for PETOFPC and providing anatomic dates for new lumbar interbody fusion cage.

Changes in the test: We have rewritten the title as “Radiographic anatomy and clinical significance of percutaneous endoscopic transforaminal oblique fixation from posterior corner in lumbar spine” (see Page 2, line 1-3).

Comment 2: The introduction was too long.

Reply 2: We have made correction according to the Reviewer’s comments. We rewritten the Introduction.

Changes in the test: We have reedited and rewritten the Introduction (see Page 3, line 5- Page 4, line 5).

Comment 3: CT scan slice thickness should be mentioned.

Reply 3: We are very sorry for our negligence of CT scan slice thickness. In this study, sixty normal adult volunteers underwent CT scan of lumbar spine (slice thickness 1.0mm) with GE Light Speed 64 CT in our hospital.

Changes in the test: We have modified our test as advised (see Page 4, line 10).

Comment 4: *Who measured the image? How to reduce bias?*

Reply 4: We are sorry that this part was not mentioned in the original manuscript. As Reviewer suggested that we have added this part.

Changes in the test: We have modified our text as advised (see Page 7, line 14-16).

Comment 5: *Where does P point locate?*

Reply 5: Considering the Reviewer's suggestion, we have added two images to interpret the location of P point. In addition, we defined the general position of P point.

Changes in the test: We have added two images (Figure 1, Figure 2) and rewritten this part (see Page 4, line 21- Page 5, line 2).

Comment 6: *Grouping information should not be mentioned in Results but in Methods.*

Reply 6: As Reviewer suggested that we have moved Grouping information from the Results section to the Methods section.

Changes in the test: We have modified our text as advised (see Page 5, line 7-10).

Comment 7: *There was not suitable to discuss which path/angle is optimal in Methods.*

Reply 7: We have made correction according to the Reviewer's comments. The discussion about which path is optimal should not be in Results section but in Discussion section.

Changes in the test: We have modified our text as advised (see Page 10, line 21- Page 11, line 16).

Comment 8: *In the discussion part, the author reviewed the pros and cons of the present techniques of internal fixation, which are widely studied by numerous researchers. However, there was too much discussion about them, while the novel technique reported by the author was not discussed enough.*

Reply 8: We have rewritten this part according to the Reviewer's suggestion. We removed most of the contents from the Discussion section in the original article, including "The advantages of imaging measurement", "the pros and cons of the present techniques of internal fixation", and so on. We reedited this section to focus on the novel technique, adding several images and lots of literatures.

Changes in the test: We have modified our text as advised (see Page 10, line 21-

Page 11, line 16).

Comment 9: The author should make it clear that they aimed to find the optimal and achievable path and angle in the process of percutaneous transforaminal endoscopic discectomy and fusion. Why they chose those paths/angles to measure should be thoroughly discussed.

Reply 9: It is really true as Reviewer suggested that we should thoroughly discuss why chose those paths to be measured. In Discussion section, we demonstrated the question from several aspects.

Changes in the test: We have modified our text as advised (see Page 10, line 21- Page 11, line 3).

Comment 10: “Intervertebral fixation and fusion are often independent and not one-stop completion.” This is a Chinglish expression. Please clarify or rephrase it.

Reply 10: As Reviewer suggested that “Intervertebral fixation and fusion are often independent and not one-stop completion.” is a Chinglish expression. It is not very good at presenting our views. We corrected it as “In ETDIF/PT-Endo-LIF technique, percutaneous pedicle screw implantation uses different approach from interbody decompression and fusion. Moreover, decompression and fusion are often accomplished by setting a 14-mm channel additionally. Decompression, interbody fusion and percutaneous pedicle screw implantation are not completed in a single 7.5-mm channel.”.

Changes in the test: We have modified our text as advised (see Page 9, line 20- Page 10, line 1).

Comment 11: “Further research” should be “limitation”.

Reply 11: As Reviewer suggested that we have corrected “Further research” as “limitation”. This part was named “limitation” to be more exact.

Changes in the test: We have modified our text as advised (see Page 12, line 7).

Comment 12: The manuscript needs careful editing and rewriting.

Reply 12: Frist, special thanks to your good comments. Second, we have reedited and rewritten our manuscript as carefully as possible from beginning to end. Revised portion are marked in red in the paper.

Changes in the test: We have modified our text as advised (marked in red in revised paper).