Peer Review File

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Reviewer A

Comment 1: The authors provide a single center LLIF experience and summarize their previous publications. This paper was to report on step by step surgical technique, however the details are pretty slim. There is no detail on pre operative MRI evaluation, plexus location, AP xray to evaluate crest height pre and intraop op, goal location to dock, retractor times, managing osteophytes, plate application in standalone to name a few omissions.

Reply: Thank you for your comments. We have edited the manuscript to add the missing information about preoperative planning. Please find below the lines where changes were made.

Regarding plate application, we do not use it at our institution, but added a paragraph about the general indication for its use.

Changes in the text: Preoperative imaging considerations (Lines 111-123)

Retractor times: Lines 208-209

Osteophytes: Lines 220-224

Plate application: Lines 251-253

Comment 2: Indications: Include coronal or sagittal deformity

Reply: Thank you, both indications were included.

Changes in the text: Line 93.

Comment 3: Contraindications: I would eliminate contraindications to include tumor, infection or fracture. LLIF maybe used in these settings

Reply: Thank you for this interesting comment. We have removed infection as a contraindication.

Changes in the text: Line 94

Comment 4: Patient positioning. Please go into detail. Where would the compressive neuropraxia be, what has been encountered before, at what rate, and how to avoid it

Reply: Thank you for this comment, we have added a paragraph explaining the most common neurapraxias and how to prevent them.

Changes in the text: Lines 141-142

Discectomy: Please change sentence to: curettes/all tools are used carefully so as not to violate the endplates Please remove cautiously.

Reply: Thank you, the word was removed.

Changes in the text: Lines 205-206.

Comment 5: Implant size. Please mention what typical heights used are. i.e the

majority 90% of cases size 8s and 10s are used.

Reply: Thank you, the implant heights were added in the text.

Changes in the text: Lines 246-250

Comment 6: Please mention the importance of maintaining orthogonal to avoid contralateral foraminal issues or anterior vessel issue

Reply: Thank you for this comment. We have added this as a paragraph in the manuscript.

Changes in the text: Lines 171-183

Comment 7: Length of stay data: 3.3 days for standalone cases seems very high. In our experience single level standalones are outpatient vs 1 day procedure. single level with posterior fusion tend to stay 1 day, less commonly 2. Please confirm 3.3 days.

Reply: Thank you for this important comment. We agree with your observation and have edited the paragraph. Length of stay varies according to several factors such as number of levels, patient's comorbidities, etc. We have made that point clear.

Changes in the text: Lines 293-296.

Reviewer B

Comment 1: The authors reported a step-by-step technical description of LLIF, tips, and pearls from our institutional, single-center experience. This surgical technique is classified as minimally invasive surgery. While the conclusion of your medical paper highlights the importance of patient selection and surgical technique in achieving good outcomes and avoiding complications, it does not present any novel or groundbreaking findings. In order to be considered for publication, it is essential to contribute new knowledge or significant advancements to the field. Unfortunately, based on our evaluation, this manuscript does not meet that criteria.

Reply: Dear reviewer, thank you for your time evaluating this manuscript, as you mentioned, there are other publications about the technique, what is different in this description is the addition of the institutional experience from a large series and follow up. But we mostly agree with your comment.

Changes in the text: No changes made from this comment.

Reviewer C

Comment: The article provides a useful overview of the lateral lumbar interbody fusion (LLIF) procedure, including preoperative preparations, surgical technique, postoperative care, and clinical institutional experience. It presents a detailed step-by-step description of the surgical technique, highlighting key considerations and tips for successful outcomes. Though the LLIF procedure has already been extensively well-

described, the article has educational value.

Reply: Thank you for your positive feedback.

Comment: Relative to the step-by-step description of the surgical technique and postoperative considerations, the section on indications and contraindications is unusually short and lacks references to the mentioned considerations. As proper patient selection is imperative for optimal postoperative outcomes in LLIF, the reviewer would suggest expanding this section to include topics such as psoas anatomy (i.e., “rising psoas” as a relative contraindication) and/or moving the “decision-making pathway” mentioned later in the Discussion (Lines 293-294) to this earlier section.

Reply: Thank you for your comments. The section of patient selection was expanded. As per your suggestion, we also moved the decision-making pathway discussion to the indication section for standalone.

Changes in the text: Lines 96-123

Comment: The reviewer is also confused why the indications stop at “L4” (Line 43), as LLIF can be performed down to L5 in most patients given the position of the iliac crest – this warrants clarification or correction.

Reply: Thank you for your comment. This was a typographical error and is now corrected.

Changes in the text: Change made in line 94 along with a short paragraph.

Comment: The rest of the sections are strong and communicate the authors’ technique concisely and effectively. The "Tips and pearls" section offers practical value. The video is excellent and is a worthwhile addition to the literature for trainees. While most of the figures are adequate, the reviewer was confused why relevant anatomy is cut-off inferiorly in Figure 5 as well as what the intended difference is between the left and right panels.

Reply: Thank you for this comment. The figure was intended to provide an example of improvement in coronal and sagittal parameters in a patient with previous instrumentation, which is why it is focused proximally. We have edited the figure so that the left side shows the case pre-implant and post-implant on the right side along with edits in the legend.

Changes in the text: Lines 599-601