Reviewer's report
Title: Mild (not severe) disc degeneration is implicated in the progression of bilateral L5 spondylolysis to spondylolisthesis

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Reviewer: Svante Berg

Reviewer's report:
A well performed and ambitious study that I think is well worth getting published.
I think what is shown in this study is how disc degeneration, especially mild, can add mechanical weakening of a segment, thus no longer resisting the forces that are directed into slipping.
I do have some concerns on the conclusions, especially as written in the abstract. This study clarifies the possible mechanism of how a segment with lysis develop to a slipped stage. However, it does not answer the question on whether lysis in itself induce the disc degeneration. The findings in ref 11 does just report a higher frequency of disc degeneration in patients with lysis. Maybe the same defects, genetically or of other origins induce both? Probable, but not shown. More than half of adult patients searching care with symptomatic spondylolisthesis also have some disc degeneration in adjacent segment.
In section 2 of the discussion part, it is written that bony defect caused the disc degeneration. My mind this is not proven in this study or referred articles.
I would propose some alterations in the conclusions and discussion parts, this study give valuable results in its own, why speculations is not necessary.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes
Are the conclusions drawn adequately supported by the data shown?
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Yes

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
Not relevant to this manuscript

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