Dear Editor and reviewers

Thank you for your careful and constructive comments to improve our manuscript entitled "Detection of imperceptible intervertebral disc fissures in conventional MRI – An AI strategy for improved diagnostics" (jcm-2021864). We have done our best to respond to your requests and questions. Following the recommendations, we have revised the included references and made some adjustments to increase their relevance to the conducted research. Enclosed below, you find your comments in black and our subsequent answers/clarifications highlighted in grey. In the manuscript, alterations/clarifications are highlighted in grey. Grammar corrections and sentence rephrases are not highlighted.

Reviewers' comments:

Reviewer #1:

Point 1. The trained cohort was 104 IVDs in 42 patients, how about the tested cohort?

Thank you for your question. As cross-validation was performed to estimate classifier model performance, the model was validated using about 10% of the included IVDs. This has been clarified and highlighted in the Methods section. Page 3, lines 118, 121-126 and page 4, lines 135-136.

Point 2. Please comment on the comparison with automatic quantitation and manual measurement in the study.

In this study, we have used semi-automatic segmentation of the IVDs to extract image information used for the texture analysis. Fully automatic segmentation is preferable as it might reduce the segmentation variance. Nevertheless, the high intra- and inter-rater agreement scores indicate good segmentation agreement. This is now discussed in the revised manuscript on pages 10-11, lines 311-313.

Point 3. How's the model performance in patient subgroups by IVD segments?

We agree that model performance in patient subgroups by IVD segments is of interest. This is indirectly presented in Table 3, which displays the patient demographics, including IVD levels, and Table 4, which displays failed fissure localization attempts. However, we have not explicitly stratified on IVD level. The findings suggest that the IVD segment is not critical for the fissure localization capability. Instead, severely degenerated discs and discs with several simultaneous fissures of different severity are challenging for the model. This is now more clearly discussed in the discussion section on page 10, lines 285-286.