Author's response to reviews

Title: Is vertebral rotation correction maintained after thoracoscopic anterior scoliosis surgery? A low dose computed tomography study

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Author’s response to reviews:

We thank the reviewer again for the comments and suggestions. We have responded to each comment in detail (reviewer comments are in italics and our responses are in plain text) and any changes made to the Revised Manuscript are highlighted in yellow.

Reviewer #3. This revised paper provides a technically thorough report of radiographic findings at two post-operative intervals (6 and 24 months) after anterior spinal fusions for idiopathic scoliosis. There is no statement of hypotheses or expected findings, but the body of the manuscript, especially the Discussion, alludes to two important questions: (1) is there reduced correction of vertebral rotation over time (2) is there a relationship between changes in Cobb angle changes and vertebral rotations and rib cage rotation in the axial plane. In this context, although the Introduction is revised and shortened, the motivation and objectives of the present study remain unclear relative to existing knowledge. The term 'rib hump' is mentioned 23 times, and they report scoliometer measurements, though the title and abstract do not mention this aspect. Therefore it is recommended that the abstract, purpose, results and discussion be rewritten to clarify the authors’ intentions for the study, and the findings relative to the questions and prior knowledge they are addressing.

Authors Response: The rib hump measurement is the only easily available clinical measure of trunk/vertebral torsion and as such is most often the only measure available to clinicians and reported in prior papers. Rib hump outcomes before and after surgery have been reported in the
literature for all the different surgical approaches many times previously and as such was not the focus of this paper. We wished to use a unique dataset of CT scans (at two time points after surgery) in this surgical group to analyse vertebral rotation in and around the fused spinal segments during the postoperative period. It would have been remiss not to report the rib hump measures of the cohort in the current study. As requested, the abstract, purpose, results and discussion sections have been modified to clarify that any relationship to the clinical measures of rib hump and Cobb angle was examined. The purposes of the study in relation to prior knowledge are listed in the final sentence of the Introduction. Other alterations from the original manuscript are highlighted in yellow in the abstract, introduction page 4, Results page 12 and Discussion page 14.

Reviewer #3. Page 4, line 15: The authors should state briefly why only 40 of the 230 patients were recruited, presumably related to availability of CT scans?

Authors Response: The methods, page 4 lines 16-25 and page 5 lines 1-2 state that all patients who had TASF surgery during the 3 year period of ethics committee approvals (to undergo low dose CT scans instead of radiographs during the two year post-surgical follow-up period) were invited to participate. Our centre performs TASF approximately once per month which resulted in 49 possible recruits, of which 40 met the inclusion criteria and agreed to participate. The text in Methods on page 4 has been rewritten to clarify this.

Reviewer #3. The following articles appear pertinent to the present article:


"The results of this longitudinal study suggest that the structural changes of the apical vertebra regress 2 years or more after CD instrumentation."


"Any, usually minor, deterioration occurred in the first six months postoperatively, and there was no significant further deterioration in 19 patients assessed over two years after surgery. Cotrel Dubousset instrumentation can produce a significant correction of vertebral rotation and of the associated rib hump deformity."

Author Response: This earlier work as well as an additional reference from these early CT studies have been included in the Discussion (page 12, lines 23-25, page 13, line 1).