Author's response to reviews

Title: Multidetector CT with 3-dimensional volume rendering in the evaluation of the spine in patients with Neurofibromatosis type 1; a retrospective review of 73 patients

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Author's response to reviews: see over
Dear Editors:

Thank you for the offer to publish our manuscript "Multidetector CT with 3-dimensional volume rendering in the evaluation of the spine in patients with Neurofibromatosis type 1: a retrospective review in 73 patients" in the journal Scoliosis, pending revisions. We also wish to thank the reviewers for their time and feel that their suggestions have improved our manuscript. Our response to the reviewer’s comments is provided below. We have also returned an edited version of our manuscript.

Please let me know if I can be of further assistance or if additional corrections/edits are required.

Sincerely,

J. Matthew Debnam, M.D.

Referee 2:
Abstract:
1. "Discretionary revision"
First paragraph line 5 and throughout the manuscript. Consider changing the word “series” to reformations or simply images.
We changed the word “series” to “images” throughout the manuscript

Background:
2. “Minor revision”
Fourth paragraph line 2. Add “of” after the word evaluation.
We added the word “of”, as requested.

Discussion:
3. “Minor revision”
Fourth paragraph line 7. Delete duplicated word “in”
Deleted the word “in”, as requested
Eight paragraph line 4. The word “the” is missing “t”
Added the letter “t” to complete the word “the”

Conclusion:
4. “Minor revision”
Line 1. Add “of” after the word evaluation.
Added the word “of”, as requested

Referee 1:
Minor Essential Revisions
In the results section: Seventy-three consecutive patients (53 female, 21 male) ---
The number of the patients was incorrect.
Change the number of female patients to “52”
Referee 3:
Major Compulsory revisions:
1. Cost and whether value in terms of surgical planning is amortized in terms of cost given the benefit.

*We added the following to page the Discussion on pages 10-11:* “The MDCT study has higher costs than plain radiographs; however, we have demonstrated the benefit of MDCT and VR images over plain radiographs for patients with NF-1 in the evaluation of bony abnormalities, scoliosis, and the assessment of surgical instrumentation. Further studies, including cost-benefit analysis, may be undertaken to help determine the exact role of this technique for this patient population.”


*We added the following to the Discussion on page 11, including 2 new references:* “There may be an increased risk of tumor transformation due to radiation from the MDCT studies. However, we feel that the risks are outweighed by the benefits to patients with NF-1, as MDCT provides additional information in the evaluation of the spine in assessment of the aforementioned abnormalities. Failure to obtain a complete evaluation of the spine in patients with complex abnormalities may prove detrimental in surgical planning and following spinal instrumentation. As previously stated, the VR images, which provide additional information over the MDCT study alone, are generated by computer manipulation of the axial raw without the need for additional radiation to the patient. Efforts are currently undergoing to further reduce the MDCT radiation dose [47,48].

Minor Essential Revisions:
1. We recommend to the authors to comment on their knowledge of further refinement, if any, of the technique that would allow for longitudinal assessment of spinal stability. Our experience with this disorder has shown that over time, dural ectasia and/or plexiform neurofibromas oftimes erode the bony structures resulting in eventual catastrophic failure with only the implants remaining. The ability to assess this phenomenon with imaging would be of tremendous benefit to the patient. Given the current standard of pedicle screw instrumentation, this would be of even greater benefit.

*We have no experience with this, so we cannot comment. We did add the following to the discussion on page 10:* “This is maybe helpful in the evaluation of instrumentation failure, including loosening and breakage.”