Author's response to reviews

Title: Surgical complications in neuromuscular scoliosis operated with posterior-only approach using pedicle screw fixation.

Authors:

Hitesh N Modi (hnm7678@yahoo.co.in)
Seung-Woo Suh (spine@korea.ac.kr)
Jae-Hyuk Yanf (gyrospine@naver.com)
Jae-Woo Cho (modispine@yahoo.co.in)
Hae-Ryong Song (songhae@korea.ac.kr)

Version: 2 Date: 28 December 2008

Author's response to reviews: see over
Authors’ Response to the Reviewer's reports

Dear editors and reviewers here we are submitting our revised paper for the consideration of publication. Thanks for guiding us to improve the quality of paper to make it more meaningful for the readers. We have revised manuscript with an honest effort by our team. We feel that this manuscript would be very informative for the surgeons and physicians related with neuromuscular patients. We have highlighted all changes in the revised manuscript with yellow color.

Title: Surgical complications in neuromuscular scoliosis operated with posterior-only approach using pedicle screw fixation.

Reviewer 1: Alvin Crawford

Reviewer's report:

Need major editorial (editing) assistance to organize the data collected for this manuscript to allow for adequate critique.

Answer: We have improvised whole manuscript with proper organization of data as well as language edition.

Reviewer 2: George H. H Thompson

Reviewer's report:

Comments to Authors:

I enjoyed reading you manuscript. However, there are two major variables within the study groups that need to be addressed to make the comparisons more accurate. Some patients had a thoracoplasty and others had instrumentation to the pelvis. These should either be eliminated or placed into separate groups for comparison purposes. Obviously, these two variables contributed to complications as well as to the perioperative blood loss.

Answer: Thanks for giving important suggestions. We believe that our article would provide important information regarding complications. We have followed your advice carefully to make paper more meaningful.

ABSTRACT

1. Page 1, paragraph 1. Please condense the information in the Background. It is too long as currently written.

Answer: We have shortened background part in abstract.

2. Page 1, paragraph 1. The listing of the individual patients does not add up to 65, as stated in the Abstract as well as in the body of the manuscript. This must be corrected.

Answer: We have corrected our mistake in revised manuscript and abstract.

3. Page 1, paragraph 1. You will need to change the Methods, if you elect to eliminate or place in separate groups those patients that had thoracoplasty and were fused to the pelvis. I feel that it would be more appropriate to state that it was a posterior spinal fusion with
segmental spinal instrumentation using only a pedicle screw construct. This is a clearer, more accurate way of describing what you actually did.

**Answer:** We have added number of thoracoplasty patients in the abstract. We also corrected our statement accordingly.

4. Page 1, paragraph 2. Please list the minor or major complications.

**Answer:** we have enlisted minor and major complications in results section.

5. Page 1, paragraph 3. You should add the number of patients rather than listing them as percentages. Percentages should also be rounded off to the nearest whole number when the numerator is less than 200.

**Answer:** We followed this advice in manuscript.

6. Page 2, paragraph 1. What is coccygodynia? I was unaware that this was a complication. Are you referring to sacrococcygeal pain because of a change in sitting posture? This needs to be clarified.

**Answer:** Yes, we mean to say sacrococcygeal pain. Interestingly it is slight different as we could observe mild coccyx subluxation in patients who had this symptoms postoperatively. We have added one figure displaying this condition.

**BACKGROUND**


**Answer:** We have added few references for this statement.

8. Page 3, paragraph 1. The first sentence of this paragraph “Surgical treatment typically involves instrumented fusion to the pelvis with or without anterior fusion” is unclear. I would describe this in greater detail. At this point I would also consider the statement that “posterior spinal fusion and segmental instrumentation with Galveston fixation or some other form of iliac fixation is the most common procedure”.

**Answer:** It was mistake by us. It is like this: “Surgical treatment typically involves an instrumented fusion to pelvis with or without anterior release procedures”.

9. Page 3, paragraph 1. The last sentence of the first paragraph requires references since you state “Some surgeons prefer only pedicle screw fixation”.

**Answer:** We have modified statement and mentioned references.

10. Page 3, paragraph 2. Your statement “All these complications are described by various authors” requires more than one reference.

**Answer:** we have mentioned other references.

11. Page 3, paragraph 2. When you state “Authors have also noted a few unusual complications” requires references.

**Answer:** Here the word “authors” was referred for us. We replaced that word with “we”.
12. Page 3, paragraph 2. What are the “unusual complications”?

**Answer:** coccygodynia and covex side back sore were unusual complications. We have mentioned in the background.

**METHODS**

13. Page 4, paragraph 1. This is where you must introduce thoracoplasty and the fixation to the ilium. I would strongly suggest that these be placed into a separate groups. Analyzing their complications separately will be very important to your overall results.

**Answer:** we have included both suggestions in methods with their numbers.

14. Page 4, paragraph 1. Please present the diagnostic groups in numerical order of frequency. This makes it more clear.

**Answer:** We presented the numbers of diagnostic groups as per your suggestion.

15. Page 4, paragraph 1. Again, the number of cases only adds up to 62 rather than 65 as you have stated.

**Answer:** We have corrected our mistake.

16. Page 4, paragraph 2. What are the accepted criteria and who classified them as major or minor?

**Answer:** We have described these criteria in the following statement. We have listed major and minor complications.

17. Page 4, paragraph 2. When you state “Required ICU care more than 3 hours”, did you actually mean 3 days? This is not clear and appears to be inaccurate.

**Answer:** No we mean to say 24 hours. It is corrected in the revision.

18. Page 5, paragraph 1. Why did you choose < 90 degrees and > 90 degrees for your two groups? A 90 degree curve is relatively severe. I would suggest curves < 60 degrees and > 60 degrees as a more accurate way of classifying your curves as moderate and severe.

**Answer:** We feel that <90 degrees and >90 degrees grouping were better in our manuscript. There were only 18 patients with curve <60 degree and analyzing complications in only 18 patients with 47 patients is difficult.

**RESULTS**

19. Page 5, paragraph 2. You do not need to carry out degrees to two decimal points. Either a whole number or one decimal point would be sufficient. You should also give the standard deviation and ranges for each mean or average.

**Answer:** We have restricted it to one decimal point with their SD.

20. Page 5, paragraph 2. In the postoperative Cobb angle and follow-up please present the means, standard deviations and range. Again, round off the percentages to either a whole number or no more than one decimal point.

**Answer:** We have corrected accordingly.
21. Page 5, paragraph 2. Present the data in total and then by group. I would also strongly suggest that there be a comparison between those patients who had thoracoplasty and those who did not as well as those who were fused to the ilium and those who were not.

**Answer:** We have evaluated and compared correction rate in Cobb angle and pelvic obliquity between patients who had pelvic fixation and who did not have pelvic fixation. Both comparisons did not show any difference. We included this in manuscript and in table 2. In risk factors paragraph, we have already compared the rate of complication between patients who had thoracoplasty and who did not have. It shows significant difference.

22. Page 5, paragraph 2. Describe your surgical technique, including your technique for thoracoplasty and fixation to the ilium.

**Answer:** We have mentioned our technique for thoracoplasty and pelvic fixation.

23. Page 5, paragraph 2. You should also include your sagittal plane data as well. This is important in neuromuscular patients as it affects their sitting balance.

**Answer:** We have included these parameters in revised manuscript. We have evaluated thoracic kyphosis and lumbar lordosis in table 3 according to group 1 and 2.

**PERIOPERATIVE COMPLICATIONS**

24. Page 6, paragraph 2. Please give more information on the two patients who died. Was this during surgery or the immediate perioperative?

**Answer:** One patient with cardiac arrest died intraoperatively, while other one died immediate perioperatively in ICU.

25. Page 6, paragraph 3. I assume the patients that required chest tubes were those who had thoracoplasties? This is not clear until the discussion of complications. This is why it is important to compare complications of those who had a thoracoplasty with those who did not.

**Answer:** We have compared the complications rate between patients who had thoracoplasties and who did not have. It was found out to be significant suggesting that thoracoplasty has higher risk for developing pulmonary complications. We have included this part in perioperative complications.

26. Page 6, paragraph 3. Again, hemothorax probably occurred in those patients who had a thoracoplasty versus those who did not. This needs to be clarified. What do you mean by bronchitis? Did you mean atelacasis, pneumonia or some other common postoperative pulmonary problem? This needs to be clarified.

**Answer:** Yes, patients who underwent thoracoplasty had hemothorax as a complication. We have mentioned it now. And bronchitis means it is pneumonia but not full stage of consolidation. It is mild pneumonia which were diagnosed as lower respiratory tract infection. We have replaced the word with pneumonia in revised manuscript.

27. Page 7, paragraph 1. Did the cardiac complications occur intraoperatively or postoperatively?

**Answer:** It happened intraopratively.

28. Page 7, paragraph 1. Is a urinary tract infection truly a complication?
**Answer:** Urinary tract infection was considered as a minor complication, mostly due to catheterization. It is included as a minor complication in the previous literature also.

29. Page 7, paragraph 1. Your patients with abdominal pain and vomiting may have been fed too early. You need to describe your postoperative management. In our institution, we do not feed our patients until they have good bowel sounds and then we begin very slowly. This minimizes the risk for postoperative ileus and other gastrointestinal problems.

**Answer:** Management is the same in our patients also. We have included it in revised manuscript.

**POSTOPERATIVE COMPLICATIONS**

30. Page 8, paragraph 1. What do you mean by coccygodynia? This is not a common term. I feel that you are referring to sacrococcygeal pain with prolonged sitting. This needs to be explained in greater detail so the reader will understand exactly what you are describing as a complication.

**Answer:** Yes, we mean to say sacrococcygeal pain. Interestingly it is slight different as we could observe mild coccyx subluxation in patients who had this symptoms postoperatively. We have added one figure displaying this condition.

31. Page 8, paragraph 1. What do you mean by subluxation of the coccyx? This is very unclear. It is a complication I have never encountered. This must be clarified.

**Answer:** We think this is the problem in paralytic scoliosis patients which is not reported yet. We have illustrated this problem with fig 1. We think this is a different complication related with more upright posture of the spine after the operation. Additionally it may be due to increased sitting time and ability that increase more stress in coccyx.

**RISK FACTORS**

32. Page 8, paragraph 2. Give the standard deviation for the mean operative times. Throughout the manuscript you should give the means, standard deviations and ranges. This gives the reader a more clear picture of exactly what your results were.

**Answer:** We have revised whole manuscript with mean and standard deviations.

33. Page 9, paragraph 1. Were any antifibrinolytic medications utilized during surgery to decrease your intraoperative and perioperative blood loss? If it was, this should be stated. If possible, a comparison between those patients who received a medication versus those who did not should be made.

**Answer:** It was not used.

34. Page 9, paragraph 1. This is the first time you have mentioned thoracoplasty. This affects all of your previous methods and results. This should be included in your operative technique.

**Answer:** We have shifted this topic to complications and relevant places in operative technique.

**DISCUSSION**
35. Page 9, paragraph 2. You should also include nutrition as a factor that can affect the surgical care of these patients. It has a direct association with complications. If you have data on the preoperative heights, weight, body mass index or nutritional status preoperatively, it would be very helpful in your discussions.

**Answer:** We agree to your suggestion; however we did not have all data and therefore we did not include this part in our manuscript.

36. Page 10, paragraph 1. You state “There are a few reports of treatment with posterior only approach” but list only one reference. This needs to be clarified. It is either one previous report or, if there are more than more references are necessary.

**Answer:** We have corrected our statement.

37. Page 10, paragraph 2. Please list the number of patients rather than the percentage who had major and minor complications. Again, percentages should be rounded off to whole numbers.

**Answer:** We have followed the advice thorough the manuscript in revision.

38. Page 10, paragraph 2. What do you mean “Had the lowest long-term survival”? This requires more explanation.

**Answer:** It is related with neuromuscular scoliosis. We have added it in revision.

39. Page 10, paragraph 2. Again, list the number of patients rather than just the percentage who had complications.

**Answer:** We followed the advice.

40. Page 10, paragraph 2. In the article by Hod-Feins et al. please provide more information, such as, the number of patients, diagnosis, etc..

**Answer:** We followed the advice.

41. Page 11, paragraph 2. Please provide more information on the article by Edler et al. as well as by Shapiro and Sethna. You should briefly include the number of patients and the results pertinent to your comments in this paragraph.

**Answer:** We followed the advice.

42. Page 12, paragraph 2. Again, list the number of patients and other pertinent data from the article by Mohamad et al.

**Answer:** We followed the advice.

43. Page 12, paragraph 2. Include information regarding the use of allograph and your description of your operative technique. It belongs early in the manuscript rather than at this point.

**Answer:** We have included this part in the methods section immediately after operative technique.
44. Page 12, paragraph 3. When you state “Literature to describe many abdominal complications” you need to include the appropriate references. You have only one reference listed for this complication.

**Answer:** We have restructured our paragraph and included other references.

45. Page 13, paragraph 3. Again, describe what you mean by coccygodynia.

**Answer:** We have explained this terminology in detail.

46. Page 14, paragraph 1. How many patients had an iliac screw? Did any have Galveston technique or other forms of iliac fixation? If so, these must be clearly stated.

**Answer:** None of the patients had Galveston technique. There were 26 patients with iliac screw fixation. We have included this in methods section.

**Reviewer 3: Toru Maruyama**

Reviewer's report:

There are a lot of mistakes and contradictions in this manuscript. The authors had better revise the manuscript totally.

English should be improved with the help of native English speaker or wrighter.

Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1 Please add page number.

**Answer:** Page numbers added.

2 Abstract section: There were total forty-five complications in the study. However, there seems to be 43 perioperative and 16 postoperative complications in the study. So there were 59 complications in total? 3 46.1%, 5.1%, 41%, 5.1%, and 12.8% of what? Maybe a number of patients and complications are confusing in this sentence.

**Answer:** We have followed these suggestions in revising the manuscript.

4 In Abstract section, twenty-one (51.3%) and twenty (48.7%) had at least one major and one minor complication respectively. However, in Perioperative complication section, twenty (51.3%) and nineteen (48.7%) had.

**Answer:** We have corrected our mistake.

5 Is urinary tract infection included in the abdominal complications or not?

6 In Discussion section: In addition there were 15 patients who had associated thoracoplasty - - Describe also in Results section.

**Answer:** Yes, we have described it into the results section.
7 Table 1: All patients Cerebral palsy 23 – 24?

**Answer:** 24 patients had cerebral palsy, and table was corrected.

8 Table 2: Final f-u All patients: 33.95 – 34.12?

**Answer:** We corrected all tables.

9 Table 3: Complications major and minor are incorrect.

**Answer:** Table was corrected.

10 Table 3: Group I Minor Total: 18 – 17?

**Answer:** 17. This table is corrected accordingly.

11 Table 4: Bed sore Percentage: 4.9 – 4.6?

**Answer:** It is 4.6%. Corrected.