Reviewer's report

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

Version: 1 Date: 11 November 2008

Reviewer: George H. H Thompson

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Comments to Authors:

I enjoyed reading your 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.

ABSTRACT

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

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.

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.

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

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.

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.

BACKGROUND

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”.

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

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

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

12. Page 3, paragraph 2. What are the “unusual complications”?

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.

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

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

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

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.

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.

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.

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.

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.

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

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.

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?

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.

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.

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

28. Page 7, paragraph 1. Is a urinary tract infection truly a complication?

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.
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.

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.

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.

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.

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.

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.

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 then more references are necessary.

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.

38. Page 10, paragraph 2. What do you mean “Had the lowest long-term survival”? This requires more explanation.
39. Page 10, paragraph 2. Again, list the number of patients rather than just the percentage who had complications.

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..

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.

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

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.

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.

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

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.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have not competing interests.