Author's response to reviews

Title: Cauda Equina Compression in Achondroplastic Dwarf. Is complex anterior and posterior surgical intervention necessary?

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Author's response to reviews: see over
Dear Dr. Grivas,

Thank you very much for your e-mail regarding our manuscript entitled “Cauda equina compression in an achondroplastic dwarf. Is complex anterior and posterior surgical intervention necessary?”

The manuscript has been revised according to the reviewers' suggestions. More specifically:

Reviewer: Panagiotis Korovessis

Reviewer's report:

1. The authors report on a case with spinal stenosis and cauda equina compression in an achondroplastic or chondrodysplastic dwarf which was operatively treated by means of combined, stages anterior plus posterior decompression and stabilization. I congratulate these authors for performing such a demanding surgery. However, it seems that the authors had not planned from the beginning the combined approach but they decided it first 6 months following anterior decompression and stabilization with plate and screws. The authors should make clear why they did so.

We thank Dr Korovessis for his kind words. The observation is correct and hopefully the revised manuscript is clear on this subject.

2. Furthermore, with respect to the authors' description and definition of the pathology, I believe that this is a classical case of congenital hemivertebra, since hemivertebra is not a feature of achondroplasia, as these authors also mentioned it.

We respectfully disagree on this being a case of congenital hemivertebra. The L2 vertebra was significantly wedged and thus can be mistaken for hemivertebra.
3. The authors should add preoperative and postoperative myelograms or CTs or MRIs showing the compression preoperatively and postoperatively since they argued that there was a rest compression shown in the postoperative myelogram. There is no postoperative and follow up lateral roentgenograms. This is very important since these authors underlined the significance of sagittal alignment.

Unfortunately, the patient cannot be reached any more. All our attempts to contact him have failed, and post-operative (meaning the first operation) imaging studies are no longer available to us.

4. The paragraph in the case presentation describing the operative technique is not clear and confusion in some instances. So, it is not clear if the first performed operation was anterior (?) or posterior? Please rewrite this paragraph.

The paragraph has been rewritten, clarifying the confusion.

5. Case presentation, Paragraph 2: Add myelogram to show compression. In same paragraph, image 1? Should be Figure 2 (CT). Please correct.

Correction has been made, as requested.

6. In the same paragraph. The authors say: «a partial posterior L1 and L2 vertebrectomy…» I think this should be re-written to make sense.

It was in fact a corpectomy. A mistake in terminogy, which has been corrected.

7. Paragraph 4: Images 2 and 3 is only one: the Figure 3.

An omission on our part, which has been corrected.

8. Paragraph 5: Add a mylograph to show the residual compression.

This is unfortunately impossible as previously mentioned.

9. Figures 3 and 4: It is the same intraoperatively taken photo.

An omission on our part, which has been corrected.

10. Did the authors stabilize the spine after the wide laminectomy and decompression? Please add lateral roentgenograms to show it. Page 5. The authors mentioned plain radiographs and myelogram. They should add some of them.

This is unfortunately impossible as previously mentioned.
11. In the discussion section the authors should make clear why they decided the anterior approach first despite the relative literature speaks for posterior only.

There are reports of anterior –only decompression in this kind of patients with good results, which are cited in the revised text. Hopefully the revised manuscript clarifies our pre-operative planning.

**Reviewer: Anastasios Christodoulou**

Reviewer's report:

1. From the x-rays and CT scans provided it’s clear that that is a complex case of achondroplasia which combines a multilevel congenital spinal stenosis with a severe form of kyphosis. These are two distinct problems that have to be addressed separately even in a combined procedure and a single level decompression only from the front has many chances not to achieve optimal results.

Dr Christodoulou is correct in his assessment. In these cases, despite reports of successful anterior – only procedures, a second operation was necessary.

2. From that point of view is not clear from the pictures provided the actual levels of compression and the reasons for which the single anterior decompression was primarily preferred.

The anterior approach was performed because it was thought to be the best in correcting the severe, angular kyphosis. Moreover, it would relieve some of the stenosis. However, as you have pointed out, it was not enough. The revised manuscript explains this choice.

3. We don’t also have photos after the 2nd operation which will better document the final outcome radiologically.

Unfortunately, the patient cannot be reached any more. All our attempts to contact him have failed, and post-operative (meaning the first operation) imaging studies are no longer available to us.

4. I’d also like to mention that the number of authors is more than 4 and their contribution although mentioned is not clear.

The author contributions section of the manuscript hopefully clarifies this matter.

5. At the present I believe that the article needs better documentation so I would recommend a major compulsory revision.

The said revision has been undertaken, as suggested.
The authors thank you and the reviewers for the important recommendations for improving this manuscript.

Sincerely yours,

Stamatios A. Papadakis, MD, DSc
Orthopaedic Surgeon