Author's response to reviews

Title: Surgical Management of A Giant Sternal Chondromyxoid Fibroma: A Case Report

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Author's response to reviews: see over
I would like to thank you and the reviewers for the favorable evaluation and constructive criticism of our manuscript. The text has been revised according to the reviewers’ suggestions, and we believe that the manuscript is significantly improved. A detailed description of the changes made is provided below and highlighted in yellow in the revised manuscript.

**Reviewer: Giuseppe Marulli**

1 - the authors have used a single plat titanium bar: does this prosthesis is provided for that use (i.e. the manufacture is approved by FDA or CE) or is a "custom-made" prosthesis with an off-label use. This point is of paramount importance because at the moment to my knowledge no specific plates or prosthesis have been commercialized for the purpose of the reconstruction of the anterior chest wall with clavicular involvement.

We appreciate the reviewer’s valuable suggestion. To our knowledge, there is one article from Turkey reporting reconstruction of the anterior chest wall with clavicular junction by using a patient-specific titanium plate. The titanium plate they used was produced by a German company[1]. In our study, it was the first time we tried to reconstruct the anterior chest wall with an individual-specific plate, which was a "custom-made" prosthesis with an off-label use. It was approved by the Human Ethics Committee of the Second Xiangya Hospital, Central South University. Written informed consents were obtained from patient.
2 - the authors should better clarify in the text that the probable reason for their failure was the attempt to reconstruct the sternoclavicular joints. In fact this articulation is continuously in movement and under "stress".

We have included more discussion in manuscript, which clarified the probable reason for the failure of the reconstruct the sternoclavicular joints (page 6).

3 - the authors should explain better in the report some technical details (e.g. in which manner they have fixed the bar to both claviculae) of surgical technique and also if the patient was informed about the risks related to the movements in particular at the level of the sternoclavicular joints.

As suggested, more details about the surgery have been added in the manuscript (page 4).

4 - Did the patient use particular care or some corset or Desault?

For the first surgery, the immediate postoperative result was favorable. The patient only used body belt for about one month after surgery.

5 - Have the authors an explanation why the two ruptures of the bars were delayed?

We explained the reason for the delayed ruptures of the bars in Discussion (page 6).

Reviewer: Abdel Mohsen Hamad

1. The authors should concentrate on the first operation (repair with the metal plate) as the use of the mesh is not something new. Some points to be considered in this regard:

   A- the body belt of the patient, the occupation and if she used to practice any sports.
   B- any special points during fashioning the plate.
   C- the technique of fixation of the plate with the ribs and the clavicle.

Thanks for the valuable suggestion. As suggested, more details about the first surgery have been added in the manuscript (page 4).
2. I think that the design of the plate transform the whole stress forces to the plate clavicular junction, and this the cause of the fracture. Did you discuss with your medical engineer any modification of the plate instead of saying it is not suitable for repair.

We had a lot of discussions with medical engineers, orthopedists and professors from sports medicine. Unfortunately, it was very hard to make a satisfactory design which would be perfectly optimal for the movement of the clavicular junction.

3. I have a concern about the feasibility of subsequent median sternotomy, this issue should be addressed.

Thanks for the carefully evaluation. More surgical details and discussions were added in manuscript (page 5 and page 6).

4. The authors used the term (manubriectomy) actually subtotal sternectomy was done. Also they used (sternoclavicular joint) I think the joint is no longer present and it is better to use plate clavicular junction.

Thanks for the carefully evaluation. We have fixed these errors in the manuscript.

5. They mentioned in the discussion part (Hamad et al., reference No. 18). This is not the work of Hamad.

We have removed the reference No. 18.

Marulli G and Hamad AM et al’s work has been added in our paper as reference No.21.

Reviewer: Giovanni Leuzzi

1 - Sternal chondromyxoid fibroma is quite uncommon, however this histology has been reported by several authors in literature;
We appreciate the reviewer’s valuable suggestion. The chondromyxoid fibroma arising from sternum is a rare disease in thoracic surgery. We believe that our experience in this case would provide new information for the surgical management of this kind of tumor.

2 - The authors concluded that the plating system they used is not suitable for reconstruction of such chest wall defect. Why? Did the authors perform a statistical analysis comparing different reconstructive strategies in a cohort of patients? This manuscript analyzed one case only reporting the surgical management of a late complication.
Giant sternal tumors are quite uncommon disease in thoracic surgery. It was the first time the individual-specific plate was used to reconstruct the anterior chest wall in China. Thus we can’t perform statistical analysis in this case report. Our experience indicated the plating system may be not suitable for reconstruction of such chest wall defect. We hope in the future, as the increasing of our experience in surgical management of this kind of diseases, we could provide more robust data.

3 - The English language is poor. I suggest an extensive language revision by a native speaker.
The manuscript has been revised by Dr. Malcolm V. Brock (Professor from Department of Thoracic Surgery at Johns Hopkins Hospital, Baltimore, USA).
Again, please accept our sincere appreciation for these thoughtful and valuable comments and suggestions. We hope the revised manuscript is deemed fit for publication in *Journal of Cardiothoracic Surgery*.

Thank you very much.
I look forward to your response.

Sincerely,

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