Author’s response to reviews

Title: 11-Year Experience with Chest Wall Resection and Reconstruction for Primary Chest Wall Sarcomas

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Author’s response to reviews:

Dear Editor of the Journal of Cardiothoracic Surgery

We are pleased to submit the revised version of our manuscript titled “11-Year Experience with Chest Wall Resection and Reconstruction for Primary Chest Wall Sarcomas” for consideration of publication in the Journal of Cardiothoracic Surgery.

Primary chest wall sarcomas are rare and therapeutically challenging tumors and consequently, only little research describing the outcomes of a multimodality surgery-based therapy for these pathologies has been published. To contribute to the investigation of this field, we herein report the short and long-term outcomes of chest wall resection and reconstruction for chest wall sarcomas over an eleven year period. In particular, using the Society of Thoracic Surgeons general thoracic surgery database, we have prospectively collected data on 25 primary chest wall sarcoma patients that were treated in our institute between June 2008 and October 2019. We provide a comprehensive summary of the patients and disease characteristics and in addition, we describe the surgical procedures that were done and the complementary therapeutics that were administered in each case. We had a 100% follow up rate on our study population and we report, on favourable short-term outcomes as well as on a five year overall survival rate of 80%.
We would like to personally thank the Editor and the reviewers for their comments that helped us significantly improve the manuscript. In particular, the two major changes that we introduce in the revised version are: 1) the addition of two new patients to the study population and 2) the re-evaluation of longterm outcomes as of December 2019. These modifications allowed us to increase the study population to 25 patients and to add additional 7 months to the follow up time. In addition we aimed to address all the reviewers comments and hope the reviewers find merit in the changes that we made. Below we provide a point by point response to each of the reviewers comments.

By submitting this revised manuscript version the authors declare that: (a) there has been no duplicate publication or submission elsewhere; (b) all authors have read and approved the manuscript; (c) subject to acceptance, authors will transfer copyright to the Publisher; and (d) there is no ethical problem or conflict of interest.

We believe that in its revised form the manuscript will be of high interest to the readers of the Journal of Cardiothoracic Surgery.

Sincerely,

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Reviewer #1: Dear Author,

the issue is enough interesting.

The authors would like to thank the reviewer for his helpful and insightful comments and for finding interest in the topic of this manuscript.

Which is your antibiotics policy?

We thank the reviewer for this important question. We address this topic by describing our antibiotic policy in the operative procedure section of the manuscript.
“Antibiotics to cover skin microbiota were given for 24 hours in the preoperative period regardless of the extent of resection and regardless of the intra-operative use of synthetic patches.”

Do you use Echo Doppler to evaluate the status of flaps?

We thank the reviewer for this important question. We dress this topic by describing our flap management protocol in the operative procedure section of the manuscript. “We routinely inspected the skin incision edge and the biological flaps to confirm their viability (we performed physical examination rather than ultrasound doppler), and when we identified flap engorgement or venous bleeding from the tissue edge we used to irrigate and insufflate the tissue with heparin to permit further oozing and release of tension from the tissue.

The brief case history cannot be a figure legend.

We thank the reviewer for this important remark, accordingly we moved the brief case history section to be after the results and before the discussion section. The figure legends are as they should be only descriptive of the figures.

Following your study limitations perhaps the survival graph has no sense.

We acknowledge that our study has limitations related to sample size and diversity of pathologies that we cover in it, and indeed, this is mentioned in the text. Nevertheless we argue that when grossly evaluated the survival graph is important in illustrating that encouraging long term outcomes can be achieved in patients with primary chest wall tumors. We therefore would prefer maintaining the figure as it is now. However, if the reviewer and editor recommend that we remove the figure we would accept their recommendation.

Reviewer #2: I would like to thank the authors for this valuable research work. However, I have some comments to them.

The authors would like to thank the reviewer for his helpful and insightful comments and for finding interest in the topic of this manuscript.

1) This is a small series study that included a small number of patients (23 patients). It is well known that the primary chest wall tumors are rare and when one focuses on a certain type of malignancy, the number of the cases included will be small. This can be overcome by extension, of the time frame of the study or through the involvement of other centers in the same study.

We thank the reviewer for this important remark and indeed agree that the number of patients that we cover is relatively small. Unfortunately we were not able to team with another center to dramatically increase our sample size. We have however, added two additional cases from our recent experience to the manuscript and have re-evaluated the long term outcomes as of December 2019 thus adding additional 7 months of long term outcome measurement. We
mention the limitation of the study in the last paragraph of the discussion and hope the reviewer finds merit in the changes that we did introduce.

2) There is wide age variation regarding the age of the included patients that ranged between 5-91 years. This could influence the results, especially the number of patients is too small.

We thank the reviewer for this important remark and indeed agree that the number of patients is small and their age range is wide. We added to the limitation section in the discussion a comment recognizing the wide age range in our study population. In addition we added two cases to our series thus slightly increasing it in size.

3) The objectives of the study was not clear.

We thank the reviewer for this important remark. Our primary aim in this manuscript is to report the short and long term outcomes of surgery for primary chest wall sarcomas and to highlight the surgical considerations that arise when operating on these pathologies. To clarify our aim, we highlight in the revised manuscript in the abstract section: “Herein we report the outcomes of a surgery-based multimodality therapy for these pathologies over an 11-year period. In addition, we present a case that illustrates the surgical challenges that extensive chest wall resection may pose”.

4) The authors mentioned that there was a group of 7 patients who had neoadjuvant treatment and the R0 was 85% in that group. However, there was another group of patients who did not get neoadjuvant treated where the R0 was lesser (57%). Those patients in the second group with R1 resection margins were not classified by the authors (low grade or small tumors).

We thank the reviewer for this important question. We would like to highlight that in the first paragraph of the discussion we mention that “In eighteen patients neo-adjuvant chemotherapy was not administered, either because they had low grade tumors (13 cases) or because their general health status did not permit (2 high grade cases) or because their tumors were considered small enough for upfront complete resection (1 high grade and 2 intermediate grade cases)” we also provide table 1 that describes the treatment that each patient got, the resection margins that were achieved and the tumor size according to the final pathological report. According to the table 6 R1 resection cases were low grade tumors and two R1 resection cases were high-grade tumors (patient did not fit for neo-adjuvant chemotherapy) the tumor size ranged between 5 to 21 cm.

5) The site of the tumor could affect the need and type of chest wall reconstruction so the authors may mention the site of the chest wall sarcome (anterior upper/anterior lower/posterior upper/posterior lower/ or lateral).
We thank the reviewer for this important remark. Following this remark we have tested whether there is an association between the location of the tumor (anterior superior (8 cases), anterior inferior (9 cases), posterior superior (2 cases) and posterior inferior (6 cases)) and the type of repair that we performed (Primary closure vs Patch or Flap) however, we did find such an association - probably because of the small sample size in our series. Nevertheless, when re-evaluating for these parameters, we did notice that in all the cases of diaphragmatic resection, we were able to repair the gap in the diaphragm by primary suturing of the diaphragmatic edge to the costal margin. We therefore mention the later in the text in the section on surgical procedure “With respects to gaps in the diaphragm, we were able to primarily repair these gaps by circumferentially suturing of the free diaphragmatic edge to the inferior costal margin.” We do not however mention the tumor location data since it in our opinion might be confusing. If the reviewer recommend that we mention this in the text we would certainly do so

6) The manuscript is in need for language revision.

We thank the reviewer for this important remark. We have throughly revised the language along the manuscript.