Title: Long-Term Functional Outcome and Quality of Life following Rotationplasty for Treatment of Malignant Bone Tumors

Version: 2
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Reviewer: Dimosthenis Andreou

Reviewer's report:

The authors present the functional outcome of a small series of patients treated with rotationplasty for malignant tumors of the bone and soft tissue. While the aim of the study is interesting, several issues need to be addressed, before the study can be published:

Major Compulsory Revisions:

1) The authors compare their results regarding the SF-36 score with the results of a representative german population and come to the conclusion, that patients following rotationplasty have significantly higher scores with regards to vitality, social functioning and mental health. In their discussion (lines 206-208), they state that they do not believe that differences in patients' characteristics (as in age and gender) are a possible reason, but rather that tumor patients are highly satisfied with a rotationplasty. This conclusion is unfounded. The study the authors themselves cite under [1] demonstrates, that both age and gender have a significant influence on the SF-36 scores.

2) I am not sure, whether the Ankle-Hindfoot Scale and the Lysholm-Bruns score are appropriate for patients following rotationplasty. Have these scores been validated in these patients?

3) The Lysholm-Bruns score assesses among others the ability of the patient to walk on their toes or heels. Patients following rotationplasty per definition cannot achieve this. It appears odd, that the authors state in their results, that some patients had no restrictions in these activities.

4) The authors state that the patients had an average score of 4.1 in the Tegner-activity scale. Ideally, this scale should be used to assess the differences in activity level prior to an injury (or in this case an operation) and afterwards, in order to evaluate possible differences in the activity levels. The discussion of these results (lines 231-233) will not help the readers, in my opinion, to understand what these results actually mean, if they are not familiar with the Tegner scale.

5) Methods, lines 110-113: The authors state that the Ankle-Hindfoot Scale and the Lysholm-Bruns Score range between zero and ten. That is the case for the Tegner activity scale (which is not further presented in the methods section of the paper), but not for the other two scores. All 3 scores/scales should be briefly described in the methods section of the paper.
6) Lines 91-92: The authors state, that all patients treated with rotationplasty were in their institution were enrolled. The statement is rather misleading, as only 12 of 23 possible patients could be enrolled (lines 124-125).

7) Lines 255-256: The authors conclude that "few postoperative complications make rotationplasty attractive for treatment of bone tumors in young patients". This is more a hypothesis and not a conclusion, as this is not supported by the results of the present study. In order to draw such a conclusion, the authors would have to compare the results of all possible surgical treatments for bone tumors in young patients in their institution.

Minor Essential Revisions:
1) The title of the paper states that the rotationplasty was performed for treatment of primary malignant bone tumors. However one patient (line 91-92, table 1) apparently had a soft tissue sarcoma.
2) Lines 58-60: Primary malignant bone tumors have different peak ages, I would rephrase this sentence.
3) Line 101, line 142: Please check the phrasing.
4) Line 132: The Cooperative Osteosarcoma Study Group is abreviated as COSS, not COS.
5) Line 136: Did the 11 patients who could not be evaluated with regards to functional outcome have other/further complications?
6) Results, (e.g. line 150): standard deviation is usually abbreviated as SD.
7) It is not reasonable to state percentages (e.g. results lines 159, 160 etc), when the study included well under 100 patients - 12 in this case.
8) Line 194: The authors state that the objective of the study was to evaluate outcomes in patients who underwent rotationplasty for tumors around the knee. 4 patients hat a B1,2 or 3 rotationplasty, which is used for tumors of the proximal and not the distal femur.
9) Table 1: Was the B3 a BIIla or a BIIib rotationplasty?

Discretionary Revisions:
1) Lines 69-72: I would propose classifying the complications according to Henderson et al.

Level of interest: An article of limited interest

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

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests: 
I declare that I have no competing interests