Author’s response to reviews

Title: Novel “double-strut” fibula ankle arthrodesis for large tumor-related bone defect of distal tibia

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Dear Editors and Reviewers: Thanks a lot for your letter and for the reviewers’ comments regarding our manuscript entitled “Novel “double-strut” fibula ankle arthrodesis for large tumor-related bone defect of distal tibia”. Those comments are all valuable and very helpful for revising and improving our manuscript, as well as the important guiding significance to our research. We have studied the comments carefully and have made correction which we hope meet with approval. The main corrections in the paper and the responses to reviewers’ comments are as follows:

Reviewer 1 Diego Ariel de Lima’s comments: Comment 1: "Methods: 9 patients ...." replace with "Methods: nine patients ..."Response: Thank you for your suggestion. We have changed “9” into “Nine”. (Page 2)

Comment 2: Use mean with standard deviation.Response: Thank you. We have made modification in the text according your suggestion.

Comment 3: Conclusion of the abstract should be equal to the conclusion session. Response: Thank you for providing these insights. “For large bone defect of distal tibia, this novel double-strut fibula reconstruction can be a viable alternative, which is capable of achieving durable ankle fusion and functional salvaged limb with low rate of complications.” (Page 2)

Comment 4: Make clear the clinical relevanceResponse: “Various reconstruction options have been reported in literature, including massive allograft, recycled tumor-bearing bone, vascularized or non-vascularized autografts, prosthetic replacement or bone transport [7, 8, 12, 14-21]. However, to our knowledge, no consensus has been reached concerning the gold standard treatment since each technique can be accompanied with certain disadvantages.” (Page 3)

“In this study, we described a novel “double-strut” fibula reconstruction—the non-vascularized fibula transfer was inserted to remaining tibia canal and talus, which parallel to the ipsilateral fibula—to restore limb continuity (Fig. 1). Nine patients underwent this new technique and achieved satisfactory results. Our study aimed to provide a viable alternative for reconstruction of large bone defect of distal tibia.” (Page
Comment 5: In the sentence: "And the functional result assessed by Musculoskeletal Tumor Society (MSTS) score ranged from 20% to 100% ...." What's the reference? Response: Thanks for your comments. We have made the corrections in the revised manuscript. The references about the MSTS score were added: “And the functional result assessed by Musculoskeletal Tumor Society (MSTS) score ranged from 20% to 100% [5, 9-12, 14, 20, 24, 26, 27].” (Page 3)

Comment 6: Put at the end the purpose of the study (equal to the Abstract). Response: Thanks for your comments. We have put the purpose at the end of the study: “In this study, we described a novel “double-strut” fibula reconstruction—the non—vascularized fibula transfer was inserted to remaining tibia canal and talus, which parallel to the ipsilateral fibula—to restore limb continuity (Fig. 1). Nine patients received this new technique after tumor resection of distal tibia and achieved satisfactory results. Our study aimed to provide a viable alternative for reconstruction of large bone defect of distal tibia.” (Page 3, 4)

Comment 7: Use mean with standard deviation. Example: There were five males and 4 females with a mean age of 26 (range, 25 ± 20 years) ... Response: Thanks for your kindly comments. In the revised paper we have used the style of Mean with standard deviation.

Comment 8: As this is a retrospective study, it would be interesting to include a control group in the study. Response: Thanks for your comments. As you said, it would be interesting to include a control group in the study. In this retrospective study, we did not include a control group (other treatment option) due to the following reasons: 1. The study was a case series including 9 patients, aiming to serve as an alternative of surgical treatment rather than a comparative study; 2. Five cases underwent B-K amputation were discussed in another previous article (Zhao ZQ. Surgical treatment of primary malignant tumours of the distal tibia. Bone Joint J 2018, 100-B (12):1633-1639), we found similarity in functional MSTS score between patients received limb salvage and patients underwent amputation (81% vs 82%; p = 0.82). And we did not follow up these patients any more. Comment 9: Make clear the approval number of the institution's research ethics committee. Response: Thanks for your kindly suggestion. We added this information in revised manuscript. “The retrospective study was approved by the Ethics Committee of Peking University People’s Hospital (Grant Number 2017PHB181-01) and informed consent was waived due to the retrospective nature of this study.” (Page 12)

Comment 10: How was the statistical analysis performed? Response: We added statistical analysis in the revision: “The statistical analysis was carried out by using SPSS software version 22.0 (IBM Corp., Armonk, New York, USA). Distributions of quantitative variables were expressed as means ± standard deviation (SD). The comparison of bone healing time between proximal junctions and distal ones was performed using independent t-test. A P-value ≤ 0.05 were considered to be statistical significance.” (Page 7)

Comment 11: Start with the main findings of the manuscript. Response: Thank you very much for your comments and suggestions. We added the main findings in the first paragraph in the section of Discussion: “In this study, nine patients underwent a novel “double-strut” fibula reconstruction after tumor resection of distal tibia, and achieved satisfactory result. We presented the novel technique of bone grafting for distal tibial defects, aiming to serve as an alternative option for orthopaedic doctors.” (Page 8)

Comment 12: Conclusion of the abstract should be equal to the conclusion session. Response: Once again thanks for your suggestion. Sentence changed as your suggestion. We have modified this part in revised manuscript: “For large bone defect of distal tibia, this novel double-strut fibula reconstruction can be a viable alternative, which is capable of achieving durable ankle fusion and functional salvaged limb with low rate of complications.” (Page 12)

Reviewer 2 John P Albright’s comments: Comment 1: would be appropriate to discuss just inhibitors results and description of whether or not vascularity was achieved with his technique. Response: Thanks for your comment. We had added the radionuclide scan image to