

Reviewer #1:

**Specific Comments to Authors:**

- 1) You state that your minimum followup is 3 months, but you then list the average follow up as 38.8 +/- 54.9 mos (range 0.2 - 208.4 mos). Shouldn't the patient who you only followed for 0.2 mos have been excluded from the study?
  - a) Thank you for this comment. Given the complex patient demographics we decided to not have a minimum follow-up in order to capture all patients who underwent this reconstruction. No follow-up was chosen over the conventional two-year minimum to capture early postoperative complications in this high-risk cohort of patients undergoing limb-salvage procedures, especially those with metastatic disease or prior failed reconstruction.
- 2) 10% resulted in soft tissue failure. What were these failures? Were they all dislocated?
  - a) Thank you for your thoughtful question. We reported 6 patients (10.9%) with a Henderson 1 soft tissue complication. The breakdown for this group included Arthrofibrosis (3), wound dehiscence (1), and extensor mech rupture (2).
  - b) In the manuscript we added the following sentence to our results: "Of the 6 patients with a soft tissue failure, 3 were due to arthrofibrosis, 2 were due to extensor mechanism failures, and one was due to wound dehiscence."
- 3) Anytime you're reporting post op infection in tumor patients, you must consider chemotherapy status. Please include data on whether chemo was given to those who developed postop infection at a higher incidence than those who did not sustain infection
  - a) Thank you for this comment. Upon further clarification we found that none of the patients who subsequently had an infection had undergone chemotherapy and this is now reflected in the manuscript as seen below.
  - b) In the manuscript we added the following sentence to our results: Regarding the patients who failed due to infection, none of the individuals were on chemotherapy when infection was identified.

Reviewer #2:

**Specific Comments to Authors:** Thank you for having allowed me to review this manuscript. “Outcomes of Cemented Distal Femur Replacements with All-Polyethylene Tibial Components for Oncologic Indications” I cannot deny the fact that it is an interesting topic and the authors have conducted an accurate study. Nevertheless, I have serious concerns about the methodology of this work. The methodology and statistical analysis related to the title is not proper. General Principle;

- 1) Consider this; 1-According to the title, I guess you wanted to make a comparison, between; A- with or without All-Polyethylene Tibial Components Cemented Distal Femur Replacements in comparison for Oncologic Indications Or B- Cemented versus non-cemented Distal Femur Replacements with All-Polyethylene Tibial Components for Oncologic Indications you should consider one of the above and compare the odd ratio of different variables (1-implant failure 2- survivorship, rate of all-cause reoperation, and rate of revision 3- implant survivorship or patient demographics between, ...) between these two groups.
  - a) Thank you for your clarification regarding the methodology of the paper. In this manuscript we are not comparing groups instead we are assessing outcome differences in those who either had a primary DFR with APT or a revision surgery. Also we indicate that cemented fixation was used in all cases and we specifically excluded all non-APT patients.
  - b) Our aim was to answer the following questions (1) What are the most common modes of implant failure for patients undergoing cemented DFR with APT for oncologic indications? (2) What is the survivorship, rate of all-cause reoperation, and rate of revision for aseptic loosening of these implants? (3) Is there a difference in implant survivorship or patient demographics between cemented DFRs with APT performed as a primary reconstruction versus those performed as a revision procedure?
  - c) This study is not intended to be a case control but instead a retrospective cohort study assessing outcomes with a specific reconstruction type.
- 2) 2- Consider the following articles. A- Tayara B, Nooh A, Chalopin A, Goulding K, Turcotte RE. Outcomes of Cemented Distal Femoral Replacement Using "Line to Line" Technique With All-Polyethylene Tibial Implant for Tumors. J Arthroplasty.

2021;36(8):2913-2920. doi:10.1016/j.arth.2021.03.033 B- Graulich T, Kranz C, Korallus C, Oergel M, Pacha OT, Omar M, Liodakis E, Krettek C, Panzica M. Clinical Outcome After Replacement of Distal Femur/Proximal Tibia in a Heterogeneous Patient Cohort: Function Following Tumour, Trauma, and Loosening. *In Vivo*. 2021 Jul-Aug;35(4):2275-2281. doi: 10.21873/invivo.12500. PMID: 34182506; PMCID: PMC8286499.

- a) Thank you for providing us with these resources. These studies have since been added to the manuscript as supporting evidence where applicable.
  - b) The citations were added to the following sentences in the manuscript: “However, there is a paucity of literature examining the survivorship of distal femoral replacements (DFRs) with respect to the type of tibial component or fixation used<sup>8,9</sup>. Furthermore, the majority of available studies fail to describe the type of tibial component or fixation used<sup>10,11</sup>.”
- 3) It was reported in the title of the outcome. outcome with KSS questionnaires: Knee Society score; MSTs: Musculoskeletal Tumor Society score; TESS: Toronto Extremity Salvage Score; WOMAC: Western Ontario MacMaster questionnaire reviewed. -With what questionnaire do you report the outcome?
- a) Thank you for bringing this point to our attention. In this paper we did not use any patient reported outcome measures. The clinical outcomes we assessed were failure mechanism and reoperation rate.
- 4) MATERIALS AND METHODS 3- Patients were then stratified into two groups based on whether the index procedure was a primary reconstruction or a revision of a previous DFR. -why you stratified according to primary reconstruction or a revision surgery? I think “need for revision procedure” is one of your variables.
- a) Thank you for this comment. The focus of this paper was to indicate whether outcomes and complications of DFR with APT are different in individuals undergoing primary versus revision surgery.
- 5) 4-Given the primary purpose of the present study was to characterize early complications and implant longevity in the setting of limb-salvage, functional and patient-reported outcome measures were not collected. If the above sentence is the main finding of your work, then you should change “title”, please.

- a) Thank you for your feedback. We have subsequently changed the title of our manuscript to “*Clinical Outcomes of Cemented Distal Femur Replacements with All-Polyethylene Tibial*”
- 6) Clinical Follow-up 5-please consider these two sentences; A- Patients were then stratified into two groups based on whether the index procedure was a primary reconstruction or a revision of a previous DFR. B-Each patient’s clinical course was followed in detail to characterize postoperative complications and the need for reoperations or revision surgery. - Please explain how "need for reoperations or revision" was both stratified and examined as a variable, unless it has been subjected to regression analysis at a statistically significant level.
  - a) Thank you for allowing us to clarify this point. The DFR was performed either as the primary treatment for the disease in question, or as a revision of a previous failed surgery (indications included recurrence, fracture, etc.). We then defined reoperation as any subsequent procedure, including manipulation under anesthesia, that was performed after placement of the DFR. Revision of the DFR was defined as a subsequent procedure which specifically required exchange or removal of femoral or tibial components.
  - b) Regarding statistical analyses we performed a competing risks analysis depicting differences in all cause revision and reoperation between DFR+APT performed in the primary versus revision setting. We did not perform regression analysis, but did perform descriptive statistics and classified failure using the Henderson. Please see figures 2 and 3.
- 7) 6- Patient Demographics and Operative Variables A- Inclusion criteria were patients aged >18 years old. B- The mean age of the cohort was 50.9±20.7 years (range, 16-88 years). - please explain this bias.
  - a) Thank you for bringing this to our attention. Due to the various indications for a DFR, for example osteosarcoma in teenagers, we felt it was best to simply remove the age criteria.
  - b) The following sentence depicts the change in our manuscript: Inclusion criteria consisted of all patients who underwent DFR with a GMRS® (Global Modular Replacement System, Stryker, Kalamazoo, MI, USA)

cemented distal femoral endoprosthesis and APT component for an oncologic indication.

- 8) Bias 7- I think there are several biases in present work that need revision; A) Measurement bias (How did you check the outcome?) B) Procedure bias (Is stratification based on statistical methods?) C) Observer-expectancy bias (interpretation of outcome) D) Selection bias (group comparison between “with or without All-Polyethylene Tibial Components”).

Thank you for bringing to our attention the various biases you have concerns about. We have provided individual explanations below for each bias that was presented and hope this provides you with reassurance regarding this manuscript.

- a) Measurement bias: The outcomes were assessed via retrospective chart review. While possible confounders are unlikely to affect the outcome of this study.
- b) Procedure bias: stratification was based on the hypothesis that primary vs revision would have differences in complications.
- c) Observer-expectancy bias: No direct interactions with study participants occurred. This was a retrospective based chart review. As such this bias is not applicable.
- d) Selection Bias: We do not have a comparison group, as patients without APT were excluded. With that being said, the retrospective nature of this study still does leave the possibility for selection bias to occur, and is a known limitation of retrospective studies.

Sincerely Yours,

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