Author’s response to reviews

Title: Correlating Pre-Operative MRI Measurements of Metatarsal Osteomyelitis with Surgical Clean Margins Reveals the Need for a One Centimeter Resection Margin

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Reviewer #1: 1. Is the question posed by the authors well defined?

Background: This needs to be restructured rethought. It is not posing the question clearly enough - I have to wade through the whole section to get a feel for what the question is. The last paragraph needs to be the second paragraph, and improved on to explain why the authors chose to investigate this.

--The end of the first paragraph in the back ground section was slightly modified in order to better transition into the second paragraph.

At line # 66 an extra paragraph was added(closer to the beginning of the background section) in order to better define the objective of this study.

The last paragraph of the background section (lines 102-105) was also revised.

2. Are the methods appropriate and well described?

Overall I think the authors could improve explaining whether the clean sample was based on histopathology or microbiology results...it could be made clearer - its a little too ambiguous.

--In several areas I changed it from just pathology to histopathology(this includes lines 39, 157, and 160).
Line 112-113 - consider removing ‘...and being agreeable and capable of receiving an MRI.’ The inclusion criteria clearly states that there needs to be 'confirmed metatarsal OM on MRI' therefore if they can't/don't want to have an MRI, this automatically excludes them from the study therefore you don't need to state this.

---This was deleted from the paper.

Line 125 'CBC, BMP and A1c' should really read 'Complete Blood Count (CBC), Basic Metabolic Panel (BMP) and HbA1c' given this is going to be published internationally - ESR is standard nomenclature internationally so shouldn't need clarifying/expanding

--CBC and BMP were changed as suggested.

Authors don't seem to mention whether irrigation and new instrumentation is used between the first debridement and prior to 'clean margins' are taken. If the same instruments are being used, and there is no irrigation between the first debridement and taking 'clean margins', the results of the 'clean margin' risk being contaminated.

--This was modified and commented on (line 155).

I can understand why margins were changed from 0.5 to 1 cm - this was an appropriate decision, but did they complete a full data set of the 0.5cm margin for all 21 patients? ie taking 2 x 0.5cm margins. This could be useful information to report if they have.

---All the data from the 0.5cm margins for all 21 patients was recorded. The 0.5cm margin is otherwise known as the initial clean margin; subsequently the 1cm margin is the 2nd clean margin(because the protocol needed to be modified we though it would make sense to call the 0.5cm margin the initial clean margin and the 1cm the 2nd clean margin). So in table 3c it includes the initial clean margin data, aka the 0.5cm margin. Also in figure 7 it lists the data for the 0.5cm margin which includes the number of specimens that were positive or negative for OM according to histopathology.

Paragraph starting Line 183 - If this study is to be repeated with greater numbers, post-operative outcomes would be very valuable to report on and provide more meaning clinically.
Yes I agree post-operative outcomes would be clinically meaningful. However, our overall objective going into this research was to decrease the positive proximal margin rate. The literature already shows that patients who have a positive proximal margin tend to have worse post-operative outcomes. So our goal was simply decrease the margin rate.

Line 192 - I'm not sure the reference to 'Microsoft' has been referenced correctly

--This was modified (line 196).

Line 270 following '...to the level of OM' consider adding 'found on MRI investigations' or something to that effect.

--This was modified (lines 273-274)

3. Are the data sound?
   As this is a descriptive case series study, I think the data, figures and reporting are appropriate.

4. Do the figures appear to be genuine, i.e. without evidence of manipulation?
   They appear genuine

5. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Yes

6. Are the discussion and conclusions well balanced and adequately supported by the data?
   Yes - this is well supported and backed up with literature.

7. Are limitations of the work clearly stated?
Limitations were appropriately discussed but should be in the discussion section, not conclusion. I, and many others working in this field, would contend that a washout and clean instrumentation should be undertaken after first resection and before clean margins are taken.

---The limitations section was moved to the discussion (to lines 379-389). Washout and clean instrumentation is our standard protocol and is what we did for this study (this was modified in the methods section as discussed above).

8. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?

Yes

9. Do the title and abstract accurately convey what has been found?

The title needs to be articulated better: eg 'Correlation of Osteomyelitis MRI findings with surgical 'Clean' bone margins - the need for a 1cm resection margin' or something to that effect

--The title was changed to better articulate the overall purpose of the study

10. Is the writing acceptable?

Yes