Author’s response to reviews

Title: Accuracy and clinical safety of guided root end resection with a trephine: a case series

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Professor Thomas Stamm
Head & Face Medicine

November 8, 2019

Dear Professor Stamm:

I am pleased to submit the revised manuscript HAFM-D-19-00085. We were happy to read that that the reviewers gave a generally positive evaluation of our work, even if they articulated criticism as well.

We have done our best to address all issues, hopefully to a satisfactory extent.

We are grateful for the time and effort you put in our manuscript.

Below we provide our responses to each question.
Thank you for your consideration!

Sincerely,

Dr. Márk Ádám Antal
 corresponding author

Reviewer #1: Language review - excellent

A nicely presented and worthwhile study

Thanks for the comments.

Reviewer #2: This is an interesting study that aims into providing with some preliminary data regarding the accuracy and clinical safety of guided root end resection with a trephine. Although a small sample size is used in this study, the paper should offer some guidelines on this technique as well as some drawbacks. These findings should be a good reference point for a future clinical study which may assess this technique and compare it with different root end resection techniques in association with clinical outcomes. Before its publication this paper merits significant revision to improve its content.

Title: exploratory should be changed into ' case series study'

Changed as requested.

Abstract:
Add in background an introductory sentence about root end surgery

'to find out' change into justify

In Methods
details of age and gender not needed please delete
Methodology lacks consistency please add 1 or 2 more sentences
Root end resections were succesfully performed
Guided implant surgery - the reader cannot understand the comparison

All requested changes have been made. The comparison to guided implant surgery is needed as its methodology and surgical performance is quite similar to the current technique (relying on the CBCT planning and performing surgery under the guidance of a printed model, instead of visual control and experience-based methods.
In Conclusion
The sentence needs re-writing. It does not reflect the results
Re-written as requested.

BACKGROUND
page 2
1. line 6-7: write: However the results of a meta-analysis...
2. line 25-26: do not use capitals on cone beam computed tomography
3. line 28: a must cannot be used - instead use is essential or mandatory
4. line 37: re write: In 2007, author et al. ..... 

All Changes have been made as requested.

page 3
1. line 1-2 and 11-15: re write to improve syntax
2. line 18: Ahn et al.
3. last paragraph: Add reference for your personal unpublished data
4. line 33-43: This text does not belong to back ground. please re write and give clear aims and objectives of study, it is necessary to add description of the study parameters and whether they are used before.
To item #4: we have deleted this part, as it was misleading and did not belong here indeed. By this, we also addressed Item #3. Items #1 and #2 corrected as requested.

Materials and methods
page 4
criteria by Kim line 14 -- you need to mention those
inclusion criteria: type of teeth, periodontal status, quality of root filling, restorability of teeth please be more precise
exclusion criteria: please write them
All changes made as requested.

page 6
line 16: 5months - why not 6 months as recommended by guidelines? please explain
This was indeed a silly typo, probably due to the closeness of the two keys on the keyboard. It seems that we hit the wrong key while writing the main text, and then just copied the already wrong duration to the abstract without noticing that something was wrong. Of course, 6 months is correct. Corrected and thanks for the meticulous reading of our manuscript. Much appreciated.

line 54-55: why were results expressed as median and not mean (SD)? please discuss
This is because of the small number of observations. In small samples, even a single value that markedly differs from the rest can distort the mean. Median is robust to that. A comment has been added.

page 7
statistical analysis (most possible need of non parametric tests) is missing - please discuss
The reviewer most probably misses hypothesis tests. However, this is a descriptive study with no group
to compare against, thus hypothesis testing (in the statistical sense) is not possible.

Results
Please rephrase-- You cannot use terms 'in most' and 'in the rest'
line 42-44: why do you use mean values in this section?
It was a mistake. Means have been replaced with medians, thanks for calling our attention to this.

overall there is a lack of statistic comparisons between the predicted values from the cbct software and
the actual clinical values obtained after the performance of the surgeries
The comparison is given in Table 2. In this study, the “predicted value” was the position of the plan in
the three-dimensional space (coordinates), thus the planned position was considered to be 0. Table 2.
shows the differences as compared to the plan as zero. The differences are given in median (95%CI) as
discussed in an earlier response. As also mentioned previously, there was only one group, so there is no
grouping variable, and in lack of grouping variable, it is not possible to perform a hypothesis test of any
kind, as hypothesis tests presuppose comparison. All in all, these data can only be characterized in a
descriptive manner, which is what Table 2 is for.

Discussion
page 8
lines 9-11: but you have not made any comparison with 'free hand' surgical procedures
We have added a comment to indicate that the basis of that claim was the literature and our own clinical
experience.

line 15: this is speculation.
Safety does not correlate to postoperative symptoms, which is a biological process which may or may
not occur after surgery.
In fact, this was an unnecessary sentence, so we deleted it.

page 9
lines 1-5: however angular deviation for guided implant placement is not relevant with root end
resection. Please discuss
lines 17-18: you have not provided success rates for the surgical treatments.
Therefore you cannot correlate and speculate that this method of angular deviation should be clinically
acceptable
This is true, this conclusion was too early and not satisfactorily supported by the fact. We deleted it.

Conclusions
page 9
lines 51-55: the entire section needs re-writting
in this section it seems as the authors re phrase discussion
in the conclusion section you summarise only briefly your findings. The rest text goes into discussion
section
The Reviewer is right, we rearranged the text along the recommended lines.

References
page 12
Your references are not formatted according to the journals guidelines.
The guidelines (https://head-face-med.biomedcentral.com/submission-guidelines/preparing-your-
manuscript/case-report) require the Vancouver style, so we re-formatted the references in Vancouver.
Reviewer #3: Dear authors,

it very positive that you have put so much effort and diligence into the evaluation of the new technology of guided endodontic surgery. I have read through the manuscript several times thoroughly and have to congratulate you that all the necessary information to understand, comprehend and reproduce your study is available.
You provide us with new information and it is the first time that this technique has been evaluated with this level of scientific accuracy.

For the sake of completeness i suggest you include the reports listed below:

The Cortical Window: Part Two Computer Guided Endodontic Surgery (CGES)  
N Mohamed, Y Nahmias, K Serota - Oral Health, 2018 - oralhealthgroup.com  
… Piezo surgery enables micrometric saw cuts which preserve cortical bone loss and facilitates preservation of root length by … Apical pathology appears to be present … 6). The guided microsurgical approach would facilitate an osteotomy design to minimize the potential for sinus

… out the cortical plate of 3-mm diameter along with the apical portion of … preparation and root canal location in mandibular incisors using a novel computer-guided technique … Weiger, et al.

Microguided endodontics: accuracy of a miniaturized technique for apically extended access …

3D-printed guide for endodontic surgery  
A Garcia-Sanchez, A Mainkar, E Ordonez… - Clinical Dentistry …, 2019 - Springer  
… G (2017) Microguided endodontics: accuracy of a miniaturized technique for apically extended access … and limited cone-beam tomography in posterior maxillary teeth referred for apical surgery …  

Thank you very much for these recommendations, these have been added as requested, except for Mohamed et al. (while we found the article, no bibliographic information could be identified) and Garcia-Sanchez et al. (we could not identify this article from the information given)