

Peer Review File

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Reviewer A

Comment 1 Overall, the lack of references is the biggest issue. Entire chapters are written with barely any sources stated, which seriously undermines the credibility of this manuscript.

Reply 1 Thank you for this comment. We agree. The submission has been amended with relevant references added to support the text.

Changes in the text: all new references are highlighted in red in the manuscript and in the references section. Overall, the revised manuscript has over 75 references supporting the content with up to date systematic reviews cited increasing the credibility of the manuscript.

Comment 2 Furthermore, MARPE is an important topic and it should be elaborated on and rewritten with much more attention to structure and content. The authors need to read into MARPE much more to write a piece that is worth publication.

Reply 2 Thank you for the comment. We agree. The section on MARPE has been extensively re-written as outlined below.

Changes in the text: Please see rewritten section on MARPE with changes highlighted in red.

Comment 3 However, I recognize the potential of this manuscript if revised meticulously and according to my comments that I have provided in the attached file.

Reply 3 We thank the reviewer for the positive comment and have revised according to the comments provided as detailed in the response to reviewers section.

Comment 4 MARPE stands for Miniscrew-Assisted Rapid Palatal (not maxillary!) Expansion. Please amend throughout the manuscript.

Reply 4 Thank you. We agree.

Changes in the text: The manuscript has been amended in all sections to define MARPE as 'Miniscrew-assisted rapid palatal expansion (at line 55-56, 152 and 252 of the original submission).

Comment 5 it seems that the words limiting and increasing have been switched

Reply 5 – We thank the reviewer for the observation. The sentence is infact correct but we see how in the original submission this may be confusing as per the reviewers

comment. The sentence has therefore been changed as below (in red) to make it clearer and transparent for the reader.

Changes in the text: (line 62-64 of the original submission) Furthermore, **it can have a positive impact on** smile aesthetics by limiting the extent of buccal corridors and increasing display of buccal teeth which is a preferred aesthetic feature in both men and women

Comment 6 it is not necessary to correct a transverse dimension, but a transverse discrepancy. please amend

Reply 6 Thank you for the comment. We of course agree and amend sentence as below (in red).

Changes in the text: (line 66 of original submission) The key considerations in planning maxillary transverse **discrepancy** correction in orthognathic patients include;

Comment 7 Only two references are mentioned for this entire chapter, whereas at least each paragraph (or in some cases even sentence) requires a reference. Lack of referencing is a critical point throughout the manuscript that needs serious amendments

Reply 7 Thank you for the comment. The manuscript has been revised to reference this section of the manuscript more appropriately.

Changes in the text: all new references are highlighted in red in the manuscript and in the references section. Overall, the revised manuscript has over 75 references supporting the content with the early part of the review now more fully supported with cited references.

Comment 8 Again, barely any references in an entire chapter seriously discredits this manuscript.

Reply 8 Thank you for the comment. The manuscript has been revised to reference this section.

Changes in the text: all new references are highlighted in red in the manuscript and in the references section. Overall, the revised manuscript has over 75 references supporting the content with the early part of the review now more fully supported by cited references.

Comment 9 Up until the subtitle "Rapid maxillary expansion" referencing was by and large neglected

Reply 9 We agree – please see changes as per comment 7 and 8 and our changes that address the points raised by the reviewer.

Changes in the text: as per changes outlined in comment 7 and 8 above.

Comment 10 midpalatal is one word

Reply 10 Thank you for pointing this out. We agree and amend the sentence as outlined below

Changes in the text: (line 210 of original submission) Assessment of **midpalatal** suture maturation

Comment 11 Miniscrew-Assisted

Reply 11 Thank you. We agree.

Changes in the text: The manuscript has been amended in all sections to define MARPE as 'Miniscrew-assisted rapid palatal expansion (at line 55-56, 152 and 252 of the original submission).

Comment 12 Please revise this entire chapter on MARPE in order to ensure a more logical build-up without repetition

Reply 12 Thank for the comment. We agree the section on MARPE should be revised. This section has been re-written as per the changes outlined below.

Changes in the text: please see section on MARPE with changes / additions in red.

Comment 13 The most recent improved MARPE appliance to be thoroughly described and studied is the D-MED, by Kapetanovic et al. Please add this reference: Kapetanović et al. (2022) Efficacy of Miniscrew-Assisted Rapid Palatal Expansion (MARPE) in late adolescents and adults with the Dutch Maxillary Expansion Device. A prospective clinical cohort study. Clinical Oral Investigations

Reply 13 Thank for the comment. We agree this publication would be a relevant inclusion for this review and as per the reviewers suggestion has been included as a reference in our submission.

Changes in the text: The aforementioned publication has been cited at the relevant part in the section on MARPE.

Comment 14 By now, the body of research demonstrating the efficacy of MARPE is large enough to state that It has been shown, rather than it has been suggested, that additional skeletally anchored (not lateral) force provides (not could provide) expansion

Reply 14 We thank the reviewer for his detailed assessment in reading this sentence and agree on the rewording suggested. The sentence has been changed as outlined below.

Changes in the text: (line 269-271 of the original submission) It has been **shown** that additional **skeletally anchored** force **provides** expansion that separates the rigid mid-palatal suture in adults without the need for surgery.

Comment 15 There is far stronger evidence in support of MARPE than just some case reports, so please replace these case reports by stronger studies

Reply 15 Thank you for the comment. We agree and the stronger evidence base has been provided in the rewritten section on MARPE with appropriately cited referenaces. **Changes in the text::** please see section on MARPE with changes / additions in red as per the reviewers comment.

Comment 16 It would be interesting to add that MARPE is a relatively patient-friendly treatment option, see: Kapetanović et al. (2022) What is the Oral Health-related Quality of Life following Miniscrew-Assisted Rapid Palatal Expansion (MARPE)? A prospective clinical cohort study. BMC Oral Health

Reply 16 Thank you. We agree and this publication has been added to the section on MARPE

Changes in the text: please see section on MARPE with changes / additions in red to include citation of this punblication.

Comment 17 that provides, instead of “may provide”

Reply 17. We agree with the reviewers suggestion and the sentence has been amended as below.

Changes in the text: (line 293 of the original submission) It also discusses the emergence of newer techniques that provide a viable alternative to invasive surgical expansion in orthognathic patients through non-surgical means.

Comment 18 Please use the same colours for mandibular and maxillary arch as in figure 1 to avoid confusion

Reply 18 We thank the reviewer for the comment and agree.

Changes to Figure 2: For consistency Figure 2 has been amended to use the same colour scheme as represented in figure 1 for the mandibular and maxillary arches.

Comment 19 This photograph is not clear and of low quality

Reply 19 Thank you for the comment. We have amended the image as below to make it clearer and better quality. We do feel this image is a good example of a hanging palatal cusp so would like to retain in the submission.

Changes to Figure 5: The photo has been cropped to focus on the area of relevance and has been annotated with an arrow to clearly show the hanging cusp.

Comment 20 This is not a classical MARPE appliance, which usually includes molar bands, please change it for another one.

Reply 20 Thank you for the comment. We agree. Figure 6 has been replaced as per the reviewers suggestion.

Changes to Figure 6: Figure 6 has been changed.

Comment 21 Also, where does this image come from? Did you place this MARPE? If not, please include a reference or clarify the provenance of the image.

Reply 21 Thank you for the comment. The image has been supplied by a professional colleague who designed and placed the appliance. He has given us permission to use the photograph as part of this publication. We have acknowledged this in the figure caption and in the acknowledgments section.

Changes in the text: Figure 6 caption has been changed.

Reviewer B

Comment 1 Title. The title of a publication serves as a reference for interested readers. The current title may be misleading. The authors may consider: Non-surgical management of maxillary transverse discrepancies in the orthognathic patient: A review.

Reply 1 We thank the reviewer for the comment and suggested alternative title. We agree the title suggested would be appropriate.

Changes in the text: The title of the manuscript has been changed to - Non-surgical management of maxillary transverse discrepancies in the orthognathic patient: A review.

Comment 2 The paper will be strengthened with an explanation of how to distinguish between skeletal and dental transverse deficiency. It will further strengthen the paper with a study of their patients who had undergone presurgical orthodontic expansion. At the moment the paper represents a summary (also found in textbooks) of orthodontic expansion of the maxilla.

Reply 2 Thank you for the comment - we aim to provide a clinical review of the topic as per our remit the guidelines of the journal. We feel our review covers the most up-to-date evaluated literature (please see all recent cited publications in the reference section including systematic reviews) on this subject and would be of value over to readers over and above outdated textbooks.

Comment 3 The paper will also be strengthened by a discussion regarding the treatment sequence for orthognathic patients requiring orthodontic-, surgical assisted orthodontic- and/or surgical expansion.

Reply 3: We thank the reviewer for the comment. The remit of this submission is to focus on non-surgical expansion in orthognathic patients. We therefore feel the discussion on surgical assisted expansion and or surgical expansion is not within the scope of our manuscript and hence have not described surgical approaches in any detail. we are almost at the word limit of guidelines and have focused on the remit of our title in the content of the manuscript.

Comment 4 I presume that when we mention an "orthognathic patient" it is a patient that, apart from a maxillary transverse skeletal problem, will also require correction by means of other surgical procedure(s). Thoughts on the indications (contra indications) for segmental surgical expansion as part of the definitive surgery would strengthen the discussion.

Reply 4 We thank the reviewer for the comment. We agree that segmental surgery is an approach. However, the remit of this paper is to focus on non-surgical expansion

and as such we have avoided discussing surgical approaches as part of this manuscript.

Comment 5 Figure 5. is not clear and does not contribute. The authors may consider a better example or a line drawing explaining this concept.

Reply 5 We thank the reviewer for the comment and agree. Figure 5 has been modified to make it clearer. We do feel this image is a good example of a hanging palatal cusp so would like to retain in the submission.

Changes to Figure 5: The photo has been cropped to focus on the area of relevance and has been annotated with an arrow to clearly show the hanging cusp.

Comment 6 There are a few small grammatical errors i.e line 112 Skeletal Class II.

Reply 6 Thank you for the comment. Line 112 of the manuscript starts Skeletal II - the authors understand this to be correct terminology as skeletal base is not described as 'class'. We have therefore not made any changes with reference to comment 6.

Changes in the text: None.

Comment 7 May I suggest the authors also read: Clinics review Articles, Eds. Markiewicz MR, Allareddy V, Miloro M. Orthodontics for the maxillofacial surgery patient, February 2020.

Reply 7 We thank the reviewer for this comment. This is indeed a valuable suggestion and has been referenced in our manuscript at the appropriate times.

Changes in the text: This reference has been added to our manuscript submission - Clinics review Articles, Eds. Markiewicz MR, Allareddy V, Miloro M. Orthodontics for the maxillofacial surgery patient, February 2020.

Comment 8 In my opinion the paper could be a valuable contribution, once the above is addressed.

Reply 8 We thank the reviewer for the positive comments.

Reviewer C

Comment 1 It is a well written review.

Reply 1 We thank the reviewer for the positive comment.

Comment 2 I believe it will benefits from a clinical application paragraph, stating specifically, based upon the performed review: In which cases are indicates, RPE, MARPE or SARPE, and what are the risks and benefits of each treatment option.

Reply 2 We thank the reviewer for this suggestion and agree covering the indications and risks / benefits is important. We have covered this for RPE, MARPE and indeed SARPE in the relevant sections. However, we have not discussed surgical approaches in great details as this is not within the remit of our proposed title – aimed at discussing non-surgical approaches. Having said this, the conclusion section does incorporate aspects of the reviewers comment re surgical approaches and the indications.

Changes in the text: The sections on RPE and MARPE cover indications, risks and benefits.