Reviewer's report

Title: Three lateral osteotomy designs for bilateral sagittal split osteotomy: biomechanical evaluation with three-dimensional finite element analysis

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Reviewer: Edela Puricelli

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This study aimed at comparing three lateral osteotomy methods for bilateral sagittal split osteotomy (BSSO) by using three-dimensional (3-D) finite element analysis (FEA). Methods compared included the Trauner–Obwegeser (TO), Obwegeser (Ob), and Obwegeser–Dal Pont (OD) designs. The results showed greater mechanical stability of the mandible with the OD method than with the other two techniques.

Methods: FEA simulations were performed on an anatomically matched synthetic mandible model, under two different compressive loads.

The subject is adequately introduced, and methods are appropriate and clearly described. The results are well presented through tables and figures, and adequately discussed in the light of similar studies.

The only observation relates to comments on our previous work on the subject. On page 11, second paragraph, the text "By using FEA simulation, Puricelli et al.(7) suggested that their osteotomy......nearer to the mental foramen," refers adequately the publication in which the information is provided. The next sentence however, states that "They speculated that the size of the lever arm decreases as a result of the increased surface area of medullary bone contact..." This suggestion, actually, was made in another publication (Puricelli, A new technique for mandibular osteotomy. Head & Face Medicine 2007, 3:15). Therefore, as a Minor Essential Revision, I suggest that either the sentence is changed, or the correct reference is mentioned.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.