Reviewer's report

Title: Do Skeletal Characteristics of Occlusion Correlate with Condylar Volume?

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Reviewer: Tadashi Fujita

Reviewer's report:

The aim of this study was to determine the condylar volume in subjects with different mandibular divergence and skeletal class using cone-beam computed tomography (CBCT) and analysis software. The authors found that higher condylar volume was a common characteristic of low angle subjects with respect to normal and high mandibular plane angle subjects and skeletal class also appears to be associated to condylar volume and surface. This is an interesting and well-planned study. However some comments to consider are listed below.

1. Introduction: The authors describe in the beginning of the text “The shape and volume of the condyle in young adults is considered to play an important role in the stability of long-term orthodontic and orthognathic therapies” with some references. However, the reason is unclear. The authors should explain the reason of the sentence, if necessary, with some references.

2. Material and Methods: The subjects were classified by ANB angle and GoGn-SN angle in this study. Please describe whether these items were measured on CBCT or cephalograms.

3. Material and Methods: The authors should show the average and SD of ANB angle and GoGn-SN angle in the all groups respectively in the text or Table.

4. Material and Methods: “Subjects were considered in skeletal class I if ANB angle ranged between 80° and 84°…” Please check the ANB angle, it ’s too big.

5. Material and Methods: “The 3D reconstruction” “The voxel size was set at 0.25.” Please add the unit of the voxel size.

6. Discussion: The authors should discuss the mechanism of the results that the condylar volume and surface area are different between the groups.

7. Some corrections are necessary for the References. Please check the instructions for authors of this journal carefully.

8. Figures: The resolution of the figures is very low. Please improve it.

9. The legend and the quotation in the text of Figure 3 are missing.

10. Tables: It is unclear what the P values and asterisks mean and what they are compared with. Please describe, ex, *p<0.05 vs. …..group. If possible, the bar graphs might be better to understand the results for readers.
11. I suppose Table 1 is not necessary. The P value might be added in “Method error analysis” of the text.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Declaration of competing interests:**

I declare that I have no competing interests