Reviewer's report

Title: Comparison of intraoral radiography and cone-beam computed tomography for the detection of periodontal defects: An in vitro study

Version: 3 Date: 19 March 2015

Reviewer: Oseas Santos Junior

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Major Compulsory Revisions

In relation to the Methods:
1- How the defects were created? Was used mechanical method (drills) or was used chemical method (acid)? (lines: 93-94)
2- Is there any previous study that made the simulation of soft tissue for CBCT scans with wax?

The acquired images of the present study are very similar to the dry skulls scanning, which facilitates the detection of bone defects. An alternative would immerse the maxilla and mandible in a recipient with water, as many previous studies made to simulate soft tissue for CBCT scans. (lines: 95-96)

In relation to the Discussion:
3 - In line 197, the authors report that in this study was used 0,100µm isotropic voxels. Is this information correct? If so, it must also be reported in the Methods section

In relation to the Discussion and Conclusion:
4 - In lines 228-234. the authors related that CBCT images can be affected by artifacts caused by high-density structures such radio-opaque materials, restorations and root fillings materials. The authors also related that to prevent artifacts formation on the CBCT scans in the present study, no posts or metal materials were used in the root canals. But, in Conclusion section the authors considered that CBCT is a reliable modality of choice for the diagnosis of periodontal defects. (lines: 249-251) Therefore, this conclusion was based on an in vitro study in which elements that generate artifacts in the images were removed and avoided. Since most oral rehabilitation found in the general population uses many elements that can generate artifacts in CBCT images, the conclusion should be more specific.

Minor Essential Revisions

5 - What is the meaning of "higher image accuracy", in line 67?
6 - Why was chosen this acquisition protocol? (Voxel and FOV - line 101)

Discretionary Revisions

It would be interesting to explain in more detail the classification used for the
diagnosis of defects. (lines 133-138)

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

**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.