REDUCED BONE DIMENSIONS IN OLIGODONTIA: A RETROSPECTIVE STUDY

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Oligodontia (OD) is a rare dental developmental abnormality characterized by the absence of at least six permanent teeth. Patients with this condition require complex functional and aesthetic rehabilitation, which can present a significant challenge. Implant-supported fixed prostheses have emerged as a preferred rehabilitation solution, however, placement of implants can be challenging due to the peculiar morphological characteristics of the alveolar bone. The purpose of this retrospective study is to evaluate the potential alteration of the maxillary and mandibular bone volume in OD patients in comparison to control subjects.

Material and Methods:

The CBCTs of 53 adult patients with OD (40 maxillary, 32 mandibular) were analyzed using SMOP software (Swissmedia, Switzerland) and compared to those of 82 matched control subjects (51 maxillary, 31 mandibular. The height and thickness of the alveolar bone were evaluated at each dental site at depths of 3, 6, 9, and 12 mm (excluding third molars). (Fig 1)

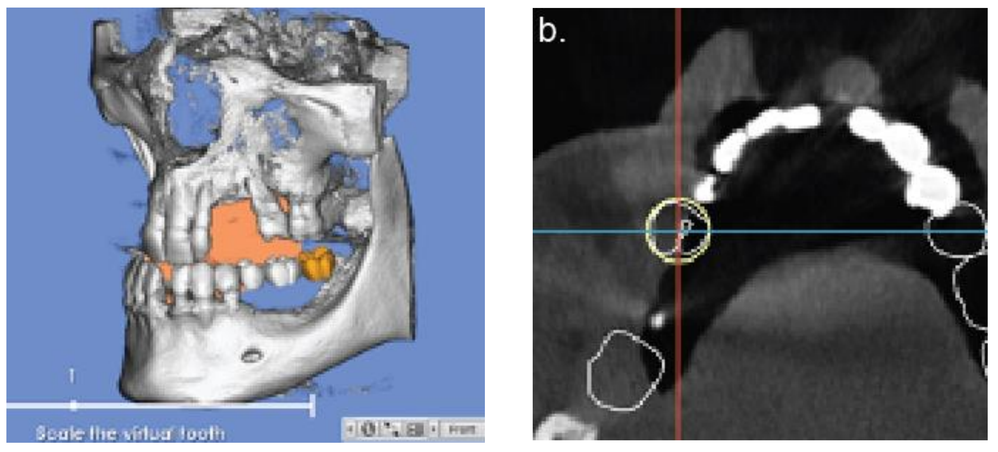

Figure 1: Measurements of alveolar bone height and thickness after reconstruction of edentulous sites using the SMOP software (Swissmedia, Switzerland)

Results:

In OD patients, the width of the maxillary bone is reduced in the anterior, premolar, and molar areas with permanent teeth, while the height of the bone is reduced only in the anterior area. In the mandible, a reduction boen height is observed in the anterior and premolar areas, and a reduced thickness of the bone is observed only in the anterior zone (Fig. 2A-F). The edentulous sites of OD patients show a reduced height of the bone in the anterior maxillary region and a reduced thickness in the first few millimeters of the premolar and molar zones (Fig 2G-L).

Within the oligodontia group, bone thickness is significantly reduced when a tooth is absent compared to sites with a decidual or permanent tooth. Furthermore, when the tooth is absent, the bone height is decreased compared to the sites of anterior decidual teeth and the sites of maxillary permanent teeth only (Fig 3A-J). A reduced height between the bone crest and the alveolar nerve was also observed in cases of permanent molar agenesis.

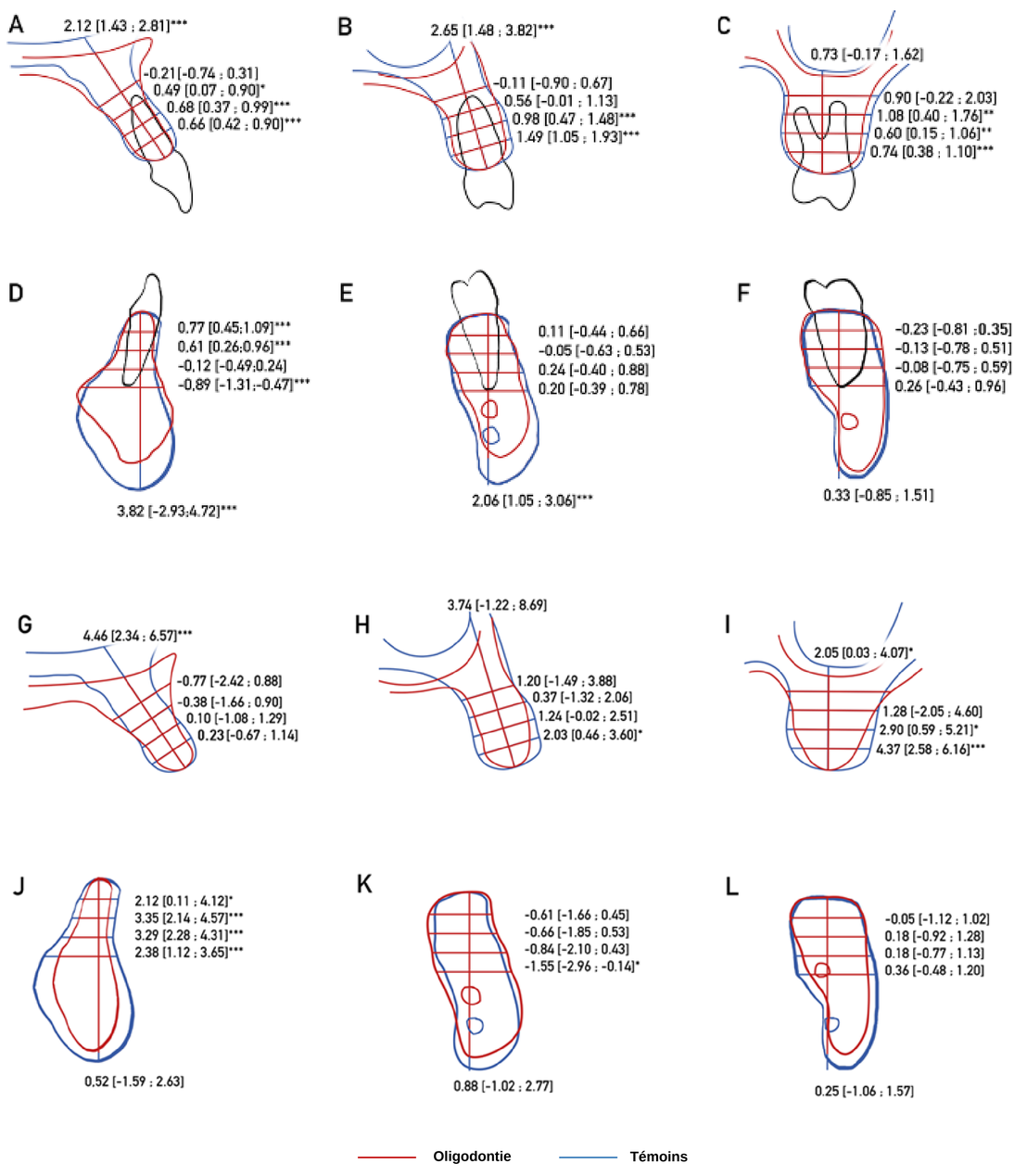

Figure 2: Comparison of bone height and thickniess between patients with oligodontia and the control group at the dentate sites (A-F) and edentulous sites (G-L).

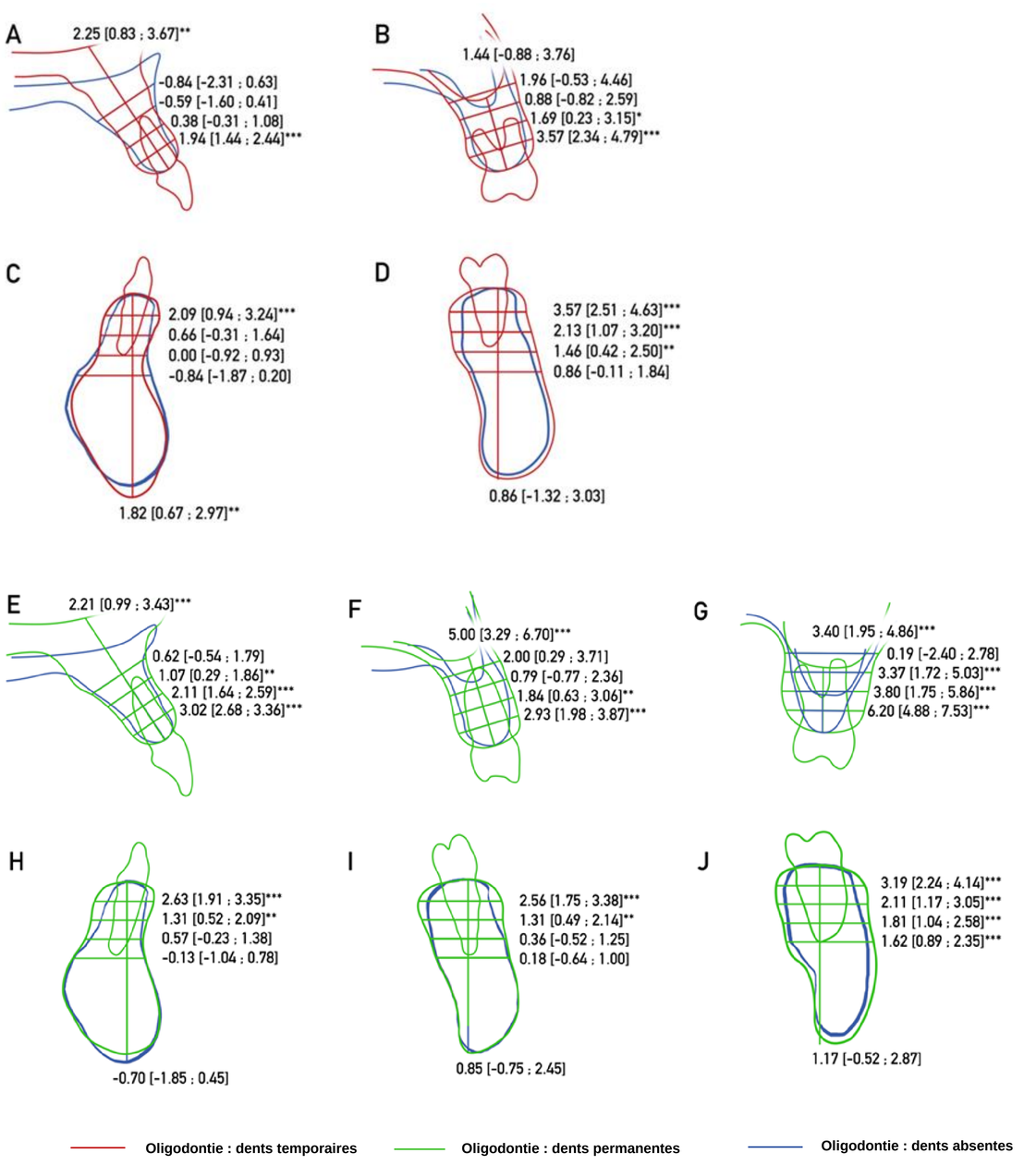

Figure 3 : Comparison of edentulous sites with sites with deciduous teeth (A-D) and permanent teeth (E-J) in the oligodontia group.

Conclusion :

Compared to the control group, individuals diagnosed with oligodontia exhibit a diminished alveolar bone volume. The absence of teeth in individuals with oligodontia has been found to result in reductions in both the height and thickness of the maxillary and mandibular alveolar bones.

Therefore, it is recommended that individuals with oligodontia retain functional deciduous teeth to limit the resorption of the alveolar bone.

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