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PO-027 - (23767) - MICRO-ARCHITECTURAL CHANGES IN CORTICAL MAXILLARY BONE DURING GROWTH AND PERMANENT TEETH ERUPTION: 3D HISTOMORPHOMETRIC ASSESSMENT

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The Authors have no conflict of interest to disclose.

Regional variations in the cortical bone micro-architecture of an adult maxilla were previously linked to local differences in occlusal stress. This study aimed to analyze patterns of cortical micro-architectural changes in subadult maxillary bone during growth and permanent teeth eruption.

This study encompassed 20 subadult right maxillary bones (from an archeological context). Bone samples harvested from the region of the first permanent molar were divided into four groups: immature maxillary bones with a partially erupted first permanent molar without occlusal contact (group I, n=5), maxillary bones with a fully erupted first permanent molar with occlusal contact with the opposing mandibular permanent molar and a partially erupted second permanent molar (group II, n=5), maxillary bones having fully erupted first and second permanent molars with occlusal contacts (group III, n=5), and maxillary bones with completed permanent molar eruption and developed occlusal contacts (group IV, n=5). Buccal and palatal cortical bone micro-architecture were analyzed by micro-computed tomography.

Our data revealed a declining trend in total cortical porosity and pore number, coupled with an increasing trend in cortical thickness of palatine and a buccal plate of the maxillary bone during growth and permanent teeth eruption (group $p<0.05$, ANOVA with Bonferroni post hoc correction).
The intensity and complexity of the occlusal forces may induce specific patterns of cortical maxillary bone micro-architecture during growth and permanent teeth eruption. Considering its potential clinical relevance, future studies, including more detailed microstructural bone assessments, are necessary to fully understand jaw bone alterations in subadults.

Palavras-chave : Maxilla, Micro-CT, Human