8 - Anthropology

OC-094 - (23815) - ANALYSIS OF THE INTERNAL ARCHITECTURE OF MASTICATORY MUSCLE ATTACHMENT SITES ON THE IMMATURE HUMAN MANDIBLE

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None to declare

Biomechanical forces exerted on bone significantly influence the internal structural arrangement of the bone. The muscles of mastication serve as an important source of biomechanical force generation on the morphology of the mandible with growth and as such it is important to understand how changes in the forces from these muscles manifest through the internal architecture of bone. This study aimed to analyse and quantify the changes in the internal architecture of the attachment sites of the muscles of mastication on the immature mandible across the prenatal and postnatal period of growth.

The study included a total of 45 immature mandibles divided into 3 groups: prenatal (30 gestational weeks to birth, n = 15); early postnatal (birth to 12 months, n = 17); and late postnatal (1–5 years, n = 13) and analysed using micro-CT analysis. The regions of interest assessed included the control region, and the attachment sites of all muscles of mastication.

Trabecular thickness, number and spacing as well as bone spacing to volume were measured. A decrease in trabecular thickness in the temporalis muscle region was observed across all age groups. The bone surface to volume ratio decreased with age from prenatal to early postnatal periods in both the temporalis muscle and the masseter muscle regions and increased postnatally in the masseter, temporalis and medial pterygoid muscle regions. Trabecular spacing increased with age across all regions.

Thus, changes observed in the internal architectural arrangement at each site reflected the transition in the functional environment with growth.

Palavras-chave : Internal architecture,, Mandible, Muscles of mastication