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Anthropometric Evaluation of Labial Alveolar Bone Dimension of Maxillary Anterior Teeth in Kuantan Population: A Cone-Beam Computed Tomography Study

Boon, Chu Seng[a] ; Bahdun, Farah Elyna[b]; Ahmad, Aina Qasrina[b]

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[a] Department of Prosthodontics, Kulliyyah of Dentistry, International Islamic University Malaysia, Bandar Indera Mahkota, Pahang, Kuantan, 25200, Malaysia

[b] Kulliyyah of Dentistry, International Islamic University Malaysia, Bandar Indera Mahkota, Pahang, Kuantan, 25200, Malaysia

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Abstract

Introduction: Labial bone with adequate height and width is crucial for an implant to be successfully placed and ensure the stability of treatment outcome in the long term. The objective of this study was to employ cone-beam computed tomography (CBCT) assessment in evaluating the differences in labial alveolar bone morphology among the Kuantan population in Malaysia. Methods: A total of 60 images taken from Kulliyyah of Dentistry, International Islamic University Malaysia, between 2009 and 2019 were analysed. The root diameter, labial and palatal plate thickness, the labial bony curvature angle beneath the root apex, and the distance from the deepest point of labial bony curvature to the root apex were all measured on each of the maxillary anterior teeth. Results: At 3 mm below the cementoenamel junction, the mean (± standard deviation; SD) thickness of the labial plate for maxillary anterior teeth was 1.45 ± 0.62 mm, 1.38 ± 0.50 mm, and 1.61 ± 0.66 mm for the lateral incisor, central incisor, and canine, respectively. Below the root apex, the labial bony curvature angle was 233.63 ± 17.74 for the central incisor, 235.68 ± 17.74 for the lateral incisor and 233.81 ± 11.09 for the

canine. Discussion: The result revealed a favourable labial plate in the Kuantan population when implant in the aesthetic zone is planned. Conclusion: Labial alveolar bone thickness of the Kuantan population was thin within 1.5 mm while the palatal plate was thick. Overall, labial alveolar bone was present within 3 mm below the cementoenamel junction. The labial bony curvature was highest and most curved for the central incisor compared to the lateral incisor and canine.

Author keywords

Anterior teeth; Cone-beam computed tomography; Labial alveolar bone; Thickness

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Boon, C.S.; Department of Prosthodontics, Kulliyyah of Dentistry, International Islamic University Malaysia, Bandar Indera Mahkota, Pahang, Kuantan, Malaysia; email:chusengboon@iium.edu.my

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