

**Evaluation of Interradicular Spaces and Cortical
Bone Thickness in Posterior Region of Mandible
for Orthodontic Miniscrew Implant Placement
(Cone Beam Computed Tomography)**

A thesis

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Abstract

Background:

Two factors that orthodontists should consider during miniscrew implant placement that are safety and stability. Safety is related to mesiodistal distance and stability is related to bone thickness. No Iraqi studies had been evaluated bone thickness and mesiodistal distance related to mini-implant placement for orthodontic anchorage at age 18 -35 years.

The aim of study:

The purpose of this study is to evaluate the three dimensional interradicular areas and the cortical bone thickness in Iraqi patients with Class I skeletal pattern and to determine the safe and suitable sites for orthodontic miniscrew implant using Cone Beam Computed Tomography (CBCT).

Materials and Methods:

The sample of the present study include a total of 20 Iraqi Arabic patients aged 18-35 years of both sexes (10 males and 10 females) attending the Porceka Center at Al Hilla city for CBCT scan for different CBCT diagnostic purposes from the period between November 2014 to May 2015. Measurements were made from the distal aspect of the first premolar to the mesial aspect of the second molar of mandible, at 2, 4, 6, 8, and 10 mm heights from the alveolar bone crest in each interradicular area.

Results:

In males, the greatest buccal cortical thickness, buccolingual alveolar process width and mesiodistal distance were between the first and second molar at 10-mm height (3.8 ± 0.92 mm, 15.7 ± 1.33 mm and 4.7 ± 1.01 mm respectively). In females, the greatest buccal cortical thickness, buccolingual alveolar process width and mesiodistal distance were between the first and second molar at 10-mm height (2.7 ± 0.16 mm, 13.8 ± 1.59 mm and 6.1 ± 0.91 mm respectively). There was statistically

significant sex difference in buccal cortical thickness, buccolingual alveolar process width and mesiodistal distance which were larger with males.

Conclusion:

Cone Beam Computed Tomography is a precise tool for evaluation interradicular area and buccal cortical bone thickness to select the most suitable position of orthodontic miniscrew insertion.

Keywords

Interradicular Areas, Cortical Bone Thickness, Miniscrew Implant Placement, CBCT