ABSTRACT

Aim:

To evaluate the cortical bone thickness in the infra-zygomatic region for ideal placement of temporary anchorage devices (TADs) cone beam computed tomography.

Materials and Methods:

CBCT images of forty subjects were randomly selected for this in-vitro study from the database available in our department. None of the subjects had noticeable periodontal disease or ectopically erupted teeth. All the reconstructed images were aligned in axial, sagittal and coronal planes.

On the 3D reconstructed CBCT images, the cortical bone thickness was measured from the cemento enamel junction towards the maxillary sinus floor at various heights of 8 mm, 10 mm, 12 mm and 14 mm along the mesial of upper first molar, middle of the crown through the furcation area of the maxillary first molar (6Middle), interradicular bone/interdental region between the maxillary first and second molars (6-7IR), middle of the crown through the furcation area of the maxillary second molar (7Middle), distal of the maxillary second molar (7D).

Results:
The cortical bone thickness between all the 5 slices, at all 4 heights are highly statistically significant (p =0.01). The cortical bone thickness gradually increased from mesial of maxillary first molar (6M) towards the interradicular region between the maxillary first and second molar (6-7 IR). This gradually decreased from middle of second molar (7 Middle) towards the distal of second molar (7D).

The cortical bone thickness tended to get thicker from cemento enamel junction towards the maxillary sinus floor along the heights of 8mm, 10mm, 12mm and 14mm.

**Conclusion:**

Based on the outcome of this study, it is reasonable to conclude that the infrazygomatic region is an optimal site of choice for extra-alveolar placement of Temporary Anchorage Devices (TADs). The ideal site for insertion of TADs are, the interdental region between the maxillary first and second molars (6-7 IR) & the middle of maxillary first molar (6 Middle) region at the heights of 10mm and 12 mm. This benefits us in achieving good primary stability. It is better to avoid placing TADs distal to maxillary second molar region as the cortical bone in that region is thinner comparatively.

**Key words:** Cortical Bone, Intra-Zygomatic Crest, TADs, CBCT