Evaluation of Anatomical Characteristics of Mandibular Incisive Canal in a Turkish Subpopulation Using Cone Beam CT

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ABSTRACT

Objective: The objective of the present study was to assess the anatomical characteristics of the mandibular incisive canal and to describe the occurrence of anatomical variations according to side, age and gender using cone beam computed tomography (CBCT).

Methods: A retrospective study using cone beam CT images was performed to evaluate mandibular incisive canal in the mandible of 100 patients. Both right and left sides were studied (n = 200). Axial, sagittal, cross-sectional and panoramic images were evaluated, and three dimensional (3D) images were also reconstructed and evaluated, as necessary. The morphology, course and length of mandibular incisive canals and the inner and outer diameters of the canals were measured ($p < 0.05$).

Results: The incisive canal was found in 87% of the scans. The mean endpoint was approximately 10.98 and 10.26 mm anterior to the mental foramen for left and right side, respectively, without a significant difference ($p > 0.05$). The mean distance from the lower border of the mandible was 10.7 mm and its course was closer to the buccal border at the starting point while it deviates lingually through the anterior of the mandible. Statistically significant differences were found between gender, side and age groups ($p < 0.05$).

Conclusion: Awareness of these anatomical variations is important to avoid neurovascular damage during surgical intervention and anesthetic applications. Cone beam computed tomography is an effective imaging modality in the detection of lingual foramina and canals. Further studies with larger data samples are necessary in comparison and estimation of anatomical results.

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