Abstract:

Title: Assessment of Root canal morphology in mandibular premolars using cone beam computed tomography (CBCT) in Ardebil.

Introduction: To achieve success in endodontic, cannot be ignored root canal anatomy, and lack of adequate information on root canal anatomy is one of the reasons for treatment failure. So this thesis is also aimed to Assessment of Root canal morphology in mandibular premolars using cone beam computed tomography (CBCT) in Ardebil.

Materials and Methods: In this experimental study, 298 radiographic archives of the first and second premolar teeth of human mandibles, which were entered into the study, were selected randomly. So, after the preparation of the stereotypes, the images were evaluated morphologically with the help of the NNT software (V 6.1) at each of the three sections: Axial, *Sagittal*, and coronal. Data were analyzed by SPSS software version 18 and analyzed using independent t-test and Chi-square test at 0.05.

Results: The results showed that in different formations of root canals Type I, the highest prevalence (77.2%) and C shape (1%) were lowest, The mean length of the canal for the first premolar was 15$\pm$2.10 mm and for the second premolar was 14.86$\pm$2.26 mm, and the mean gap between the channel iridescence (IOD) ranged from 0.8 to 1.42 mm. Also, the results showed that there was a significant difference between the mean and channel lengths and the location of the first and second premolar canal was not detected ($P \geq 0.05$). But there was a significant difference in the size of the distances between the channel orifices (IOD) based on the channel location and a significant difference in the type of canal in the First and Second Premolars ($P \leq 0.05$).

Conclusion: Overall, this study shows that CBCT radiography is helpful in discovering the anatomy of the teeth.

Keywords: Morphology, Root canal, premolar, CBCT**.**