

## Abstract

*Comparison of the accuracy of panoramic radiography with CBCT in measuring the distance between the apex tip of the mesial and distal roots of second mandibular molars to the inferior alveolar canal in Ardebil, 2021-2022*

**Introduction:** Panoramic radiography is one of the usual techniques in implant imaging, and despite some other of these techniques, radiography is the choice for initial investigation in implant treatment. This study aims to compare the accuracy of panoramic radiography in measuring the distance from the apex of the second molar to the lower alveolar canal by comparing the results with CBCT.

**Materials & Methods:** In this study, panoramic images of patients were first examined in Romexis Viewer software, and the distance between the tip apex of the mesial and distal roots of the second molar of the mandible to the upper border of the inferior alveolar canal was measured on both sides. Then, in the same Romexis software, the DICOM file of the same patient prepared from the lower jaw is examined, and in the sagittal and cross-sectional sections, the distances between the tips of the mesial and distal roots of the second molars on both the right and left sides are taken. After entering the information, the degree of agreement between the panoramic method and CBCT was measured based on the Pearson correlation coefficient.

**Conclusion:** The results of this study indicate a strong correlation between the sizes obtained in the two methods of panoramic radiography and CBCT in measuring the mesial apex tip distance ( $r=0.988$  and  $P<0.001$ ) and distal ( $r=0.987$ ) and  $P<0.001$ ) was the second molar tooth with lower alveolar canal.

**Keywords:** Panoramic, CBCT, Lower alveolar canal, Second molar, Root apex