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# "CORRELATION BETWEEN MAXILLARY SINUS FLOOR TOPOGRAPHY AND RELATED ROOT POSITION OF POSTERIOR TEETH USING PANORAMIC RADIOGRAPHY AND DIGITAL VOLUMETRIC TOMOGRAPHY (DVT)."


By

**DR. CHAITHRA**


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**DR. ATUL P SATTUR**

**PROFESSOR**

**DEPARTMENT OF ORAL MEDICINE & RADIOLOGY**

**S.D.M. COLLEGE OF DENTAL SCIENCES & HOSPITAL,**

**DHARWAD**

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**RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES, BANGALORE**

**KARNATAKA**


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## ABSTRACT

**Objective**: The objective of the present study was to correlate the topographic relationship of the maxillary sinus floor to the maxillary posterior teeth roots as imaged by pairs of Panoramic Radiographs and Digital Volumetric Tomography images.

**Methods:** A total of 510 maxillary teeth from 85 patients were classified according to their topographic relationship to the maxillary sinus and measured according to their projection lengths on the sinus cavity using conventional (OPG) and Digital Volumetric Tomography (DVT) modalities.Inter examiner variation was determined by 2 observers at an interval of 1 week. Correlations between the 2 radiographic techniques were statistically examined.

**Results:** The maxillary height of right and left second premolar and first and second molars on right side were higher in males than in females. In females, left maxillary first molar and second molars on right and left sides were higher in maxillary height. In cases of roots not contacting the sinus floor(classification 0),or contacting but not projecting on the sinus cavity(classification 1) 85% and 55.3% cases shows similar classification in both OPG and DVT. 28.5% of cases in both imaging modalities show classification 2. Only 15.9% of teeth roots projecting on the sinus cavity in the panoramic radiograph were protruding vertically into the sinus in the DVT images. 11.1% of cases showed similar classification in case of superiorly curving sinus floor and teeth relation.

Root projection length in the panoramic radiograph was **0.09** times larger than the actual root protrusion length in the DVT for maxillary second premolar, **0.31** for first molar and **0.55** times in case of second molar.

The panoramic radiograph showed a statistically significant **2.24** times longer root projection on the sinus cavity in comparison to the root protrusion length into the sinus measured by using DVT images.($p<0.05$).

**Conclusion:** Majority of teeth roots projecting on the sinus cavity in panoramic radiographs, no vertical protrusion in to the sinus was observed in DVT images. Teeth roots that did not protrude into the sinus in the DVT showed a protrusion length that was much shorter than the projection length appearance using OPG. Hence, DVT was better than panoramic radiograph with measurements that were more exact and closer to anatomical reality.

**Keywords**:

Maxillary sinus floor, maxillary posterior teeth, protrusion length, projection length, Panoramic Radiographs (OPG), Digital Volumetric Tomography (DVT).