



## ▼ POST GRADUATES ABSTRACTS

### **PG - 73 : ROOT CANAL MORPHOLOGICAL VARIATIONS OF PERMANENT MANDIBULAR SECOND MOLARS AMONG PATIENTS REPORTING TO PRIVATE CLINICS IN VELLORE DISTRICT, SOUTH INDIA – AN IN VITRO CONE BEAM COMPUTED TOMOGRAPHY STUDY.**

**Prabhu A.R,**

*Department of Conservative dentistry & Endodontics,*

*Indira Gandhi Institute of Dental Sciences, Puducherry*

**Introduction:** A sound knowledge of root canal anatomy and its variations is essential for treatment planning and executing root canal procedures so as to reduce the chances of missed root canals and procedural errors thus increasing the success rates. Mandibular II molar usually has two roots and three canals. Few common variations include - combinations of one or two roots with one, two, three or even four canals and the *C-shaped canals*. *In today's technological advancement Cone Beam Computed Tomography (CBCT) has become a successful tool to explore the root canal anatomy. Hence, the purpose of this study is to investigate the variations in root canal anatomy of south Indian population.*

**Materials & Methods:** *Total of 354 freshly extracted human mandibular 2<sup>nd</sup> molar was selected based on the inclusion & exclusion criteria .the 4 samples were mounted in a modeling wax & scanned using CBCT with Voxel size is 90µm x 90µm x 90µm. The image was analysed & anatomical features namely (Incidence of C-shaped canal, Root canals configuration based on Vertucci classification, Isthmus configuration, Number of roots and root canals, Level of bifurcation or convergence - Apical, middle or coronal.) C-shaped canals was categorised using Modified Melton's Classification. The data was recorded & the incidence of anatomical variations was noticed.*

**Results:** According to the present study, the Incidence of C-shaped canal was found to be 8.4% and 6.2% showed fused root . Incidence of two rooted second mandibular molar was found to be 98%. On further classification of root morphology based on Vertucci classification, mesial roots showed an incidence of 27% of type 3 canals, 25% of type 2 canals, 20 % for type 1 canals and for the distal roots showed the incidence of 75% for type 1 canals. Incidence for Isthmus configuration of mesial root found for type 3-26.5%, for type 5- 24%, for type 1-20.6% and for distal root found for type 1-33.8%, for type 3-27.9%. incidence in the level of bifurcation at the apical level was found to be 64.1%.

**Conclusion:** The most common morphology in Indian mandibular second molars was the two-rooted teeth with three canals (two mesial and one distal). C-shaped canals were found in 8.4% of the teeth, in that C2 canal were found to be the most at 3.3% the canal shape resembled a semicolon resulting from the discontinuation of the "C" .The observations made in this study show that mandibular second Molars among Patients Reported to Private Clinics in Vellore District, South India exhibited both Mongoloid and Caucasian traits.