

Endodontic management of rarest case with vertucci's type II root canal configuration in single-rooted mandibular second molar : Case report

ABSTRACT:

Human being has varieties of facial configuration as similar to that of human dentition. Teeth present in the oral cavity having different types of characteristics with in respect to their external and internal anatomical and morphological configurations. This variability of root canal morphology affects the diagnosis, root canal treatment success rate and prognosis that have been always a challenge for a clinician. Before starting an endodontic therapy, the dental professional should have a sound knowledge about root canal configuration. Vertucci's type II root canal configuration in single-rooted mandibular second molar is the rarest case. The aim of this case series is to present the management of case of mandibular second molars with the rarest combination of single root and Vertucci's type II canal configuration.

Key words: Endodontic Treatment, Mandibular second molar, Vertucci's Classification Type II.

Introduction:

Tooth anatomy and morphology possess highly variable in root canal configuration. Qualitative and quantitative knowledge of endodontology have marked dominating influence on successful endodontic therapy.[1] Root canal access opening, cleaning, and shaping, irrigation, obturation are milestones for treatment.[2] Variability in root canal configuration of the mandibular second molar have been well documented in several populations.[3-5] Vertucci studied root canal configuration in maxillary and mandibular teeth of human from type I- type VIII in 1984.[6] Weine clinical oriented study published on mandibular second molar root canal configuration. That shows single rooted second mandibular molar is about 4% and Vertucci's type II 2.7% but only in C shaped canals.[7] Case report shows Vertucci's type II without C- shaped canal is not well documented yet as per studies. This article represents the case series of two mandibular second molar teeth exhibiting rarest case of single root with type II two canal configuration.

Case Report :

A 20-year old male patient reported in the Department of Conservative Dentistry And Endodontics. The patient

complains of dental caries and pain in his right lower back region of jaw since 1 month. Diagnose deep carious lesion with chronic irreversible pulpitis with apical periodontitis. This case undergoes Vertucci's type II canal configuration, in which a Preoperative radiograph shows a single root with two canals which was a rarest combination found in mandibular second molar. Root canal treatment started under rubber dam isolation with foldable frame and access opening (# 47) was done under local anesthesia (Lignox *2% Adrenaline). Working length was measured as 19 mm with 15 size K-file (Sybron Endo, Korea) using an apex locator (Apex ID, Sybron Endo, Korea) and confirmed with a radiograph. Cleaning and shaping were done with the step back technique and the master apical file was #25 buccal, # 30 distal and. Disinfection Using 3% sodium hypochlorite (Parcan, septodont health LTD),


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followed by Ethylenediaminetetraacetic acid (EDTA) (Metabio) in between each file size. Final irrigation was done with 2% chlorhexidine (Parcan, septodont health LTD). Sterilized Paper points were used for drying the canal; obturation was done with 0.02 tapered gutta-percha and Seal Apex (Sybron Endo, Korea) by cold lateral condensation. Post obturation was done with XtraCem-S (Medicept USA). [Figure 1]

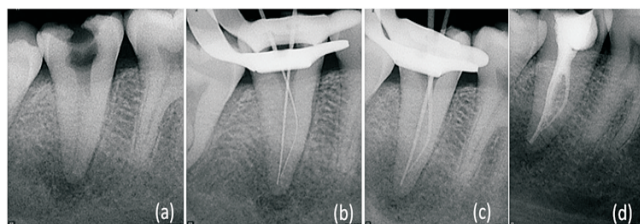


Figure 1 (a) Preoperative radiograph, (b) Working length, (c) Master Cone, (d) Obturation and Post obturation

Discussion :

On the basis of studies done in different population to check external and internal anatomical as well as morphological variability in maxillary and mandibular second permanent molars.[3-5,8] Least incidence of single-rooted mandibular second molar have been observed in the conducted studies.[9] Percentage rate of mandibular second molar with a single root and two canal undergoes Vertucci's type II canal classification with C shape is rare about 2%-5%. [7, 10-13]

Many studies evaluate Vertucci's type II configuration in mesial and distal root canal separately. But in this case report showing single rooted mandibular second molar with two canals Vertucci's type II configuration is one of the rarest combination documented until now. Mandibular second molar shows most anatomical variation when compare to other molar teeth.[14] Now a day's diagnostic aids like cone beam computed tomography (CBCT), radiovisiography (RVG) and to improve visualisation like endodontic microscopes, surgical loupes have plays an esteem role in modern endodontics.[2,7,9] Vertucci's type II canal configuration with Single root found in second mandibular molars like case report respectively kinds of the rarest case to manage endodontically. To enhance dental professionals knowledge and further uplift the pyrometer of daily clinical practices were kept as ultimate golal while reporting this case.

Conclusion :

Vertucci's type II canal configuration in my case report were rare configurations in single rooted mandibular second molar in patients. Improper diagnosis and lack of knowledge of

canal configuration make the treatment a tedious taste. Management of such exceptional cases inboxes preoperative radiograph for a correct diagnosis, accurate working length, master cone, and post obturation for better prognosis. So clinical knowledge of anatomy and morphology has a dominating influence on successful endodontic therapy.

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