



Pulpectomy Of A Primary Maxillary Second Molar Showing Five Canals- A Case Report.

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I. INTRODUCTION

The rationale of doing pulpectomy in a primary tooth is to treat irreversible pulpitis or pulpal necrosis, and restoring the tooth in form and function until its natural exfoliation. Successful endodontic treatment of any tooth mandates a thorough knowledge of its root canal anatomy and morphology. Pulpectomy is considered successful when there is complete resolution of signs and symptoms within few weeks and evidence of radiographic healing in 6 to 12 months. Primary maxillary second molars generally have three separate roots (mesio-buccal, disto-buccal, palatal) that are flared to accommodate the successor tooth. Although anatomical variations differ in various populations, careful observation of root canal anatomy and correct diagnosis is indispensable for proper treatment.

The present case report throws light on the pulpectomy of one such rare case of a primary maxillary second molar that showed five canals.

II. CASE REPORT

A five-year-old boy reported to the clinic with history of swelling in left upper back tooth. Clinical examination revealed grossly carious 65 and draining sinus was seen buccally. Intra-oral peri-apical radiograph (IOPAR) showed caries involving the pulp with tooth 65. A diagnosis of pulpal necrosis was made and it was decided to initiate pulpectomy in the tooth. The tooth was isolated under rubber dam and access cavity prepared with a round bur (Mani Inc.). After deroofting the pulp chamber, the floor of the pulp chamber was explored for locating the orifices with a DG 16 explorer (Dentsply Maillefer). It was observed that there were five root canal orifices i.e., mesio-buccal 1,2 (MB1,2), disto-buccal 1,2 (DB 1,2), and palatal. Working lengths were confirmed with electronic apex locator (Dentaport, Root ZX, J.Morita) and IOPAR. The canals were prepared with k-files and H-files (Mani Inc.), apical enlargement till size #30. The canals were irrigated copiously with sodium hypochlorite (Septodont)

agitated with Pro-agitator tip system (PATS). The canals were then dried with paper points and obturated with Metapex with compaction technique. An intermediate temporary restoration was placed in the access cavity. The access cavity was restored with a glass ionomer restoration followed by a stainless-steel crown, a week later.



Fig 1: Access cavity showing mesio-buccal 1,2, disto-buccal 1,2, and palatal canals.



Fig 2: Working length radiograph showing five canals.



Fig 3: Post-obturation radiograph of tooth #65.

III. DISCUSSION

Primary teeth are the first teeth to erupt in the oral cavity, and their early loss may lead to a number of undesirable events such as loss or arch length, mesial tipping of permanent molars and malocclusion. ⁽¹⁾ The retention of a pulpally involved primary tooth in the arch is preferred over a space maintainer if it can be restored to adequate function and is free of pathology. The premature loss of a primary tooth may lead to delayed or accelerated eruption of the successor tooth depending on its stage of development.



Prior to the initiation of pulpectomy procedure, one must be aware of the morphologic changes that continuously occur in a primary tooth. The primary tooth will begin to resorb as soon as the root formation is complete, hence the position of the apical foramen changes continuously. Along with that, the deposition of secondary dentin causes changes in the number and size of the root canals, and also the connections and ramifications in them.

⁽²⁾ The prevalence of anatomical variations is more common in primary teeth than permanent teeth as reported by W. C. Baker. ⁽³⁾ It has also been reported that in addition to accessory canals, lateral canals and ramifications may be found in 10-20% of primary teeth. ^(4,5)

Various studies have shown a fusion of the palatal of the palatal and the disto-buccal roots of primary maxillary molars, with higher occurrence in the first than the second molar. ^(6,7,8,9) Often maxillary primary molars have been reported to show single canal in each root, however, two canal configurations in MB and Db roots have been reported by various authors. ^(7,10)

Identification of additional canals is crucial for the success of pulpectomy and various techniques can be advocated for the same. Multi-angulated IOPAR using SLOB rule or Clarke's rule is one of the oldest and trusted techniques that helps to visualise multiple canals. With advent of newer diagnostic tools such as Cone-beam Computed tomography (CBCT), it has become easier to study the internal anatomy of a tooth more precisely and can lead to fewer occurrence of a mishap. However due to additional radiation exposure, and cost factor it was decided to not obtain a CBCT in the present case.

Traditionally zinc oxide eugenol (ZOE) has been the material of choice for filling the root canals of primary teeth, ⁽¹¹⁾ and until 2008, it was the only material recommended in the clinical guidelines development by the American Academy of Pediatric Dentistry (AAPD). ⁽¹²⁾ In 2009, based on studies recently published, the AAPD Guidelines have shown a growing preference for using iodoform paste and Ca (OH)₂ (metapex and Vitapex) ^(13,14) instead of ZOE paste ⁽¹⁵⁾ probably because of its irritant to potential to periapical tissues and slow resorption. Although many studies have shown a high success rate with ZOE as an obturating material, its cytogenecity, mutagenicity, soft-tissue irritation and deflection of the succadanaous tooth must be kept in mind. In the current case the root canal was obturated wit Metapexwith compaction method.

IV. CONCLUSION

Root canal morphology variations and the presence of ramifications present a great challenge to the clinician. A thorough knowledge and correct diagnostic tools are indispensable for a successful endodontic treatment. An occurrence of additional canals must be meticulously diagnosed and treated as failure may lead to loss of the tooth.

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