

Conservative Endodontic Access Opening In Maxillary Right First Molar: A Case Report

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Citation this Article Dr. Anil. K. Tomer , Dr. Megna Bhatt , Dr. Lungdin Leima Cecilia , Dr. Supriya Singh, Dr. Hysum Mushtaq, Dr. Afnan Ajaz Raina, “Conservative Endodontic Access Opening In Maxillary Right First Molar: A Case Report”, IJMSIR- September - 2020, Vol – 5, Issue - 5, P. No. 148 – 150.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Enamel conservation is the best method to provide strength to the endodontically treated molar. Lost tooth structures in the areas of Peri-cervical dentin cannot be compensated by any man-made material. Hence preservation is the key. This is a case report showing conservative endodontic access cavity preparation in maxillary right first molar of 30 years old female.

Introduction

Recently new revolution aims at preserving the natural tooth structure as far as possible and being the most conservative [1]. In a root canal treatment, the first step that is done is endodontic access, the access cavity plays an important role in good instrumentation and delivery of irrigants during the endodontic process. If a good endodontic access cavity is lacking, then the entire procedure is compromised at some level since an effective cleaning and shaping is the most essential for the success of a root canal procedure [2]. An inadequate

endodontic access cavity makes everything difficult in the treatment starting from locating the canals to negotiation, debridement, disinfection, and later, the obturation of the root canals. A good endodontic access cavity also helps in prevention of any iatrogenic error during root canals like perforation, ledge formation and instrument separation [3].

The conservative access cavity preparation aims at minimizing the tooth structure to be removed hence increasing the amount of original tooth structure remaining [4] because the tooth loss that happens during endodontic preparation cannot be replaced completely [5]

Case Report

A 30-years old female patient presented with the history of pain in maxillary right posterior tooth region. Pre-operative radiograph demonstrated decayed maxillary right first molar (Fig 1). Conservative access opening was done under local anesthesia (Fig 2). This

was done to preserve the tooth structure as much as possible. On access, three canals were identified. Copious irrigation with sodium hypochlorite and saline was done and canals were cleaned with 5.25% sodium hypochlorite and saline. A combination of electronic apex locator (Dentsply) and periapical radiographs were used to estimate working lengths (Fig 3). The Master apical file size was an Hyflex #25 taper .06 in Mesio Buccal and Distobuccal canals and #30 taper 0.06 in palatal canal. Copious irrigation with 5% sodium hypochlorite was performed during shaping and cleaning procedure.

On subsequent appointment, the canals again, Bio Mechanical Preparation (BMP) was done using Glyde (Dentsply) as a chelating agent and irrigation was alternated using Sodium Hypochlorite (NaOCl 3%) and normal saline. Chlorhexidine (Dentachlor 2%) was used as a final rinse. Canals were dried with paper points, coated with Sealapex (Kerr Manufacturing Co.) and master cone selection was confirmed with radiograph (Fig 4) and obturated using single cone technique (Fig 5). After endodontic treatment, the tooth was restored with composite resin (Filtek Z250; 3M ESPE, St Paul, MN), which was clinically adequate (Fig 6).



Fig 2: Access opening



Fig 3: Working Length Determination



Fig 4: Master cone radiograph

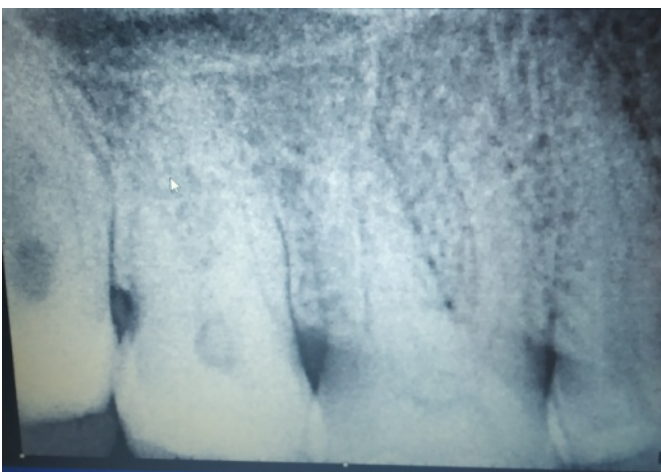


Fig 1 : Pre-operative radiograph



Fig 5 : Obturation



Fig 6: Post-endodontic restoration

Discussion

John Khademi and David Clark modified traditional access cavities and developed the constricted or conservative endodontic access cavities to minimize the tooth structure removal while maintaining the mechanical stability of the tooth for long-term survival and function of the endodontically treated teeth. Here, teeth are accessed at central fossa and extended only as necessary to detect canal orifices, thus preserves the pericervical dentin and part of the chamber floor [5]. Preparation of Endodontic access cavity should aim at

the removal of minimal tooth structure but maintaining the biological objective of cleaning and shaping. For the anterior tooth, the cutting should be as incisal as possible, and for posterior teeth, cavity should be centered between the roots and the root canal. The endodontic access must be wider than the coronal extension of the root canal thus making the soffit area which helps in cushioning of the endodontically treated teeth [4].

Conclusion

A clinician should focus on minimal invasive technique in order to achieve higher rate of success and less procedural errors. The main aim of this step is to maintain the pericervical dentin, which helps in better transfer of the forces applied on the occlusal surface to the radicular portion of the tooth.

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