



Root Canal Treatment Of Mandibular Molar Using Endo Arch Blue Rotary Files : A Case Report

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Abstract

Clinicians must be aware of the variations of first molar like canal configuration, curvature, extensions of decay, any calcifications etc. This case demonstrate root canal treatment of 4 canal mandibular first molar. After the diagnosis of irreversible pulpitis on lower first molar, endodontic treatment was carried out. Root canal shaping was performed with crown down technique using endo arch rotary file systems according to manufacturer's recommendations. It is the most important and functional tooth of mandibular arch, so conservation of this tooth is very necessary in day to day dental practice.

Keywords: NIL

Introduction

Mandibular first molar teeth always are most vulnerable to decay because their most early eruption in the oral cavity, plaque accumulation and obscure the correct access to the tooth surface for proper cleaning. Apart from that, they sometimes erupt within the mouth with abnormal eruption patterns, which also make them more vulnerable to tooth decay, still as gingival and periodontal diseases. More over as this tooth erupts early in the oral cavity negligence to cleaning & oral hygiene leads to the decay of the first molar early in human being. The maximum proportion of tooth loss due to caries occurred between 21 and 30 years of age. For caries, the maximum proportion of tooth loss involved the posterior teeth, most frequently, the molars.¹ It has been observed that the percentage of tooth loss due to caries is much higher than tooth loss due to periodontal disease.² Recent studies suggest that root canal treatment results in excellent clinical outcome for the patients, in favour of the preservation

of teeth. Therefore, endodontic treatment ensures a highly predictable method to retain teeth with irreversible pulpal disease.³ Before commencing endodontic treatment in first molar teeth, a detailed understanding of their root and canal variations and their endodontic implications is of prime importance.

The quality of root canal treatment with heat treated control memory rotary instruments like Endo arch is usually connected with the shape of the blade and the tip, in other words suitable taper of this group of canal instruments. These are the new generation of machine driven instruments and show good progress in the speed of root canal preparation.⁴ The aim of this article was to show and analyse on the bases of every day clinical practice case, the efficacy of the crown down technique in RCT of multi rooted teeth using Endo arch rotary files.

Case Report :

A 26 yrs female patient reported to the dental Dept of conservative dentistry and endodontics with pain in

mandibular right first molar for the past three days. The patient had similar episode of pain about 15 days ago. Pain was throbbing in nature and was relieved by medication. Clinical examination revealed a large decay involving the occlusal surface and the tooth was tender on percussion. Thermal tests were done to check the vitality of the tooth and it was positive. A provisional diagnosis of chronic irreversible pulpitis was made. Radiograph was taken and it did not reveal any periapical lesion except for widened periodontal ligament (PDL). (Figure 1). Treatment plan was endodontic treatment followed by crown w.r.t 36. After achieving adequate local anaesthesia access cavity was made. On access, four canals were located (mesio-buccal, mesio-lingual, disto-buccal & disto-lingual). Copious irrigation done with bleaching agent and saline and canals were cleaned with 5.25% sodiumhypochlorite and saline. Electronic apex locator (Dentsply) and periapical radiographs

were taken to estimate working lengths (Fig 2). Biomechanical preparation was done by Endo arch rotary files. Copious irrigation with 5% sodium hypochlorite was done during biomechanical preparation that is cleaning & shaping of the root canal. Patient was medicated with antibiotics and analgesics. On subsequent appointment, the four canals again, BMP was done using glyde (Densply) as a chelating agent and irrigation was performed using sodium hypochlorite 3% and normal saline. Master cone was fitted into the canals corresponding working lengths and radiograph was taken (Fig 3). Canals were dried using paper points, coated with selapex sealer (Kerr) and obturated using mono cone gutta percha technique. After completion endodontic treatment the tooth was restored with tetric n ceran bulk fill composite. (Fig 4) After a week patient was recalled & crown was placed.⁵ (Fig 5).

Fig 1 : Preoperative radiograph



Fig 2 : Working length determination

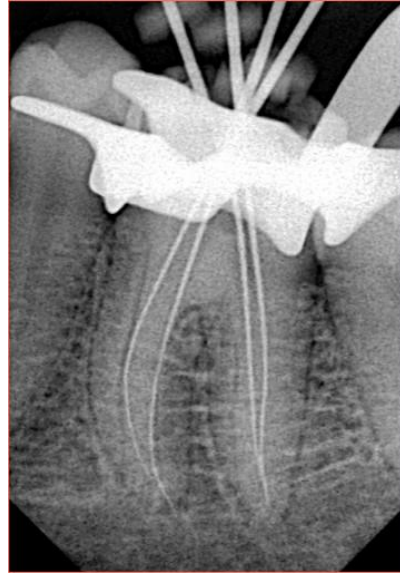


Fig 3 : Master cone

Fig 4 : Obturation

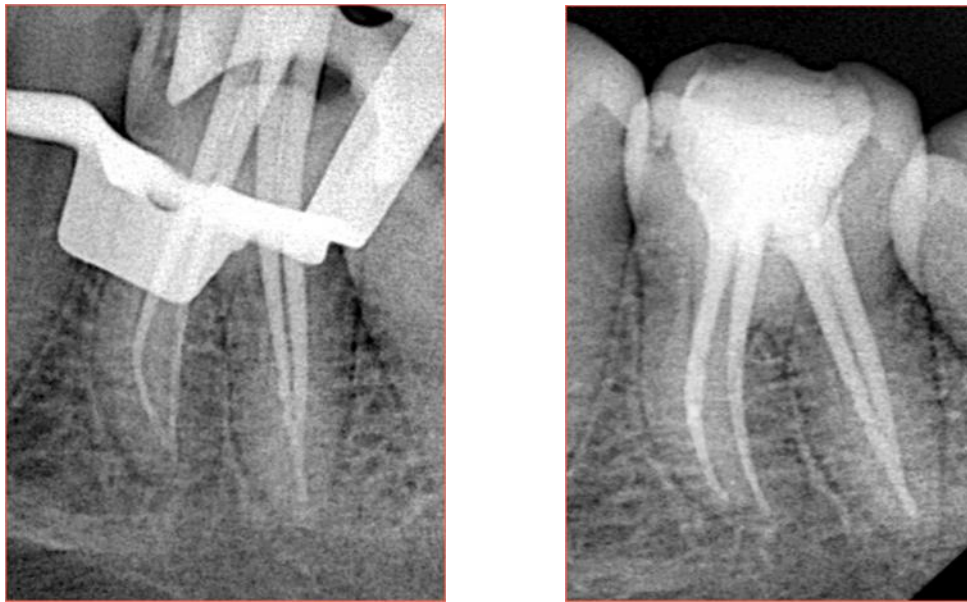


Fig 5 : Crown placement



Discussion :

The main goal of endodontic therapy are to shape and clean the root canal system in order to receive a three-dimensional and hermetic seal of the entire endodontic space. The need to express instruments of a suitable size to reach the apex of curved root canals drove the development of preparation techniques with a big focus on the apical part. The crown-down technique involves the widening of the canal orifices with Gates-Glidden drills followed by the incremental removal of root canal contents proceeding from the canal orifice to the apical

portion using manual files. Files are used from larger to smaller without any apical pressure. A crown-down approach provides certain advantages including early organic root canal debris removal, the creation of a large reservoir for irrigating solutions, a straighter access to the apical region of curved canals, and greater maintenance with regard to the exact working length and apical size.⁶

A primary goal of crown-down technique is to lower or eliminate the amount of necrotic debris that could be extruded through the apical foramen during instrumentation. This would help prevent post-

operative discomfort, incomplete cleansing, and difficulty in achieving a biocompatible sealing at the apical constriction. One of the important advantages of step-down preparation is the freedom from constraint of the apical enlarging instruments.

Endo arch blue files are heat treated and controlled memory rotary files. Special cutting edge design with extreme flexibility allowing pre bending to facilitate any difficult root canal treatment. Gradual shift from 04 taper to 06 taper to optimally shape canals and minimize risk of instrument fracture. It has largest range of files like orifice shaper, glide path files and final shapers. Endo arch files should be used sequentially to optimal size and taper according to desired obturation size. The rotary files should never be forced in the canal and should always be used in an outward brushing motion. Speed should be 300-350 RPM and torque should be 1.8-2.2 N/CM according to recommended manufacturer. There are variety of ranges of these endo arch blue files are available like starter kit which includes 21 mm & 25 mm (17/08, 17/04, 20/04, 25/04, 25/06, 30/04 or 30/06 or 30/09), Re fill packs (17/08, 15/03, 15/04, 19/02, 17/04, 20/04, 20/06, 25/04, 30/04, 30/06, 30/09, 35/04, 40/04), in 28 mm (17/04, 20/04, 25/04, 30/04, 40/04, 20/06, 25/06).

Conclusion :

Mandibular first molar is the most active and bulky tooth of the lower arch and it erupts early, so proper oral hygiene is needed to avoid tooth decay. If the tooth become carious then early restoration of the tooth is the prime concern. Endodontic treatment is indicated when the patient is symptomatic and decay involves pulp. Every clinician should know the anatomy, position and the variation of the root canal anatomy of the mandibular first molar before commencing the endodontic treatment. Proper skill and patience is needed for doing the successful

endodontic treatment. Following the basic principles and taking advantage of new innovations in the field of rotary endodontics, even most severely curved canals can be negotiated and treated successfully by using highly flexible rotary files. Moreover Crown down technique ensures greatest success rate in the field of endodontic treatment. Here Endo arch blue rotary files played a very well balanced treatment outcome.

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