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ENDODONTIC RETREATMENT USING SINGLE FILE NEONITI SYSTEM

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ABSTRACT

Root canal failures in endodontic treatment are sometimes inevitable and retreatment is the only option to restore the function of the tooth. Factors which leads to the failure of root canal treatment are missed canal, improper removal of infected pulp, incomplete obturation or over obturation, coronal/apical leakage etc. In such cases, endodontic retreatment is required. Clinically, failure of endodontic treatment is determined on the basis of radiographic findings and clinical signs or symptoms of the treated teeth. Retreatment can be done either surgically or non-surgically. Non-surgical endodontic retreatment is the best choice as there are many drawbacks of surgical retreatment procedure, like post-operative pain, swelling etc. Non-surgical endodontic retreatment is an attempt to re-establish healthy periapical tissues after insufficient treatment or reinfection of an obturated root canal system because of coronal or apical leakage [1-4]. The main goal of non-surgical retreatment is to completely obturate all the root canals after removing the infected obturating material.

INTRODUCTION

Non-surgical endodontic retreatment is an attempt to re-establish healthy periapical tissues after insufficient treatment or reinfection of an obturated root canal system because of coronal or apical leakage [1-4]. The main goal of non-surgical retreatment is to completely obturate all the root canals after removing the infected obturating com material [5]. Gutta percha can be removed from the root canals using hand files with heat or chemical as solvent, but it is a time consuming procedure. Various types of rotary retreatment files are available for the removal of gutta percha from the root canals, eg. ProTaper D (Dentsply Maillefer, Ballaigues, Switzerland), Mtwo Retreatment files (VDW, Munich, Germany) and R Endo (Micro-Mega, Besancon, France), which make the process faster and is convenient to both clinician and patient [6].

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Recently a new file, NeoNiTi (Neolix, France) has been introduced in dentistry which can be used as a retreatment file. This file has been developed using a newly developed wirecut electrical discharge machining (EDM) process. This manufacturing process entails the melting, evaporation and ejection of material within a dielectric field. The energy required for the machining is produced by high-frequency electrical discharge between two electrodes, that is, the workpiece on the one side and the cutting wire on the otherside. Furthermore, EDM naturally produces a rough surface on the workpiece, resulting in abrasive properties that greatly enhance the cutting speed of the NiTi rotary files [7-8].

Using its exclusive EDM manufacturing process, NEOLIX has developed Neoniti A1 and Neoniti C1. Neoniti C1, an orifice opener (S25, T12 and L10); and Neoniti A1, for root-canal preparation to full working length (S25,T6 and L25). Recommended speed and torque for this file is 350-550 rpm and 1.5Ncm respectively.

The neoniti C1 file has a high cutting efficiency, no screwing effect, and good flexibility even towards the handle, allowing good tactile perception during the

circumferential brushing action. The repositioning of the canal orifices can be achieved easily and quickly. The neoniti A1 file has no screwing effect. It can achieve an easy and safe access to the apex even in the case of curved canals, and has a rounded gothic tip, achieving a satisfying shape of the apex for later successful root-canal filling. According to the preliminary results, it appears that the neoniti A1 file can be used for a single-instrument technique in continuous rotation after the use of the orifice opener [9]. There is a standardized protocol for the sterilization of the instrument system. The instruments are washed in an appropriate detergent solution (eg: Quaternary Ammonium) and then brushed with a metallic brush. The instruments can be placed in an ultrasonic bath for 15 min. Properly dried instruments are then placed in sterilization bags and autoclaved at 134 °C/273.2 °F for 18 minutes.

Thus this file can be used again after autoclaving and thus it saves cost to the clinician.

Following cases were done with NeoNiti rotary file system for root canal retreatment.

Case 1

A 32 years old patient came with chief complaint of pain in lower left back tooth region since last 2 weeks. The pain was dull, constant and localized in nature. It was increased on biting & chewing and relieved by taking medication. On clinical examination fractured tooth cusp was seen with respect to 36. Radiographic examination showed periapical radiolucency with respect to 36. Treatment planning was endodontic retreatment with respect to 46 (Figure 1).

Case 2

A 29-year-old female patient complains of pain in lower right back tooth region since last 10 days. The pain was dull, constant and localized in nature and was relieved by taking medication. The patient had no significant medical history. The patient had undergone root canal treatment in mandibular first molar 10 months back. The radiographic examination revealed incomplete obturation w.r.t. 46. Treatment planning was endodontic retreatment with respect to Mandibular first molar (Figure 2).

Figure 1. a) Pre operative radiograph b) Working Length Radiograph after Gutta-Percha removal c) Master cone radiograph d)Obturation Radiograph

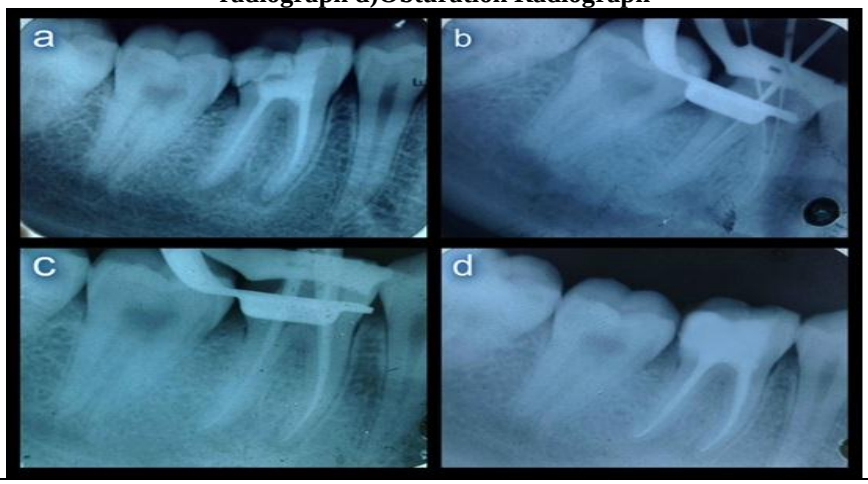

Figure 2: a) Pre operative radiograph b) Post Operative Radiograph

CONCLUSION

NeoNiti rotary file may be suggested as a good alternative for the root canal retreatment as it was found efficient in removing gutta percha from the root canal.

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