



Case Report

Aesthetic Non Surgical Management of Fractured Metal Posts- A Case Report

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Abstract

Several clinical symptoms that develop after root canal treatment are more likely, the emergence of persistent inflammatory processes in the apical region without any subjective symptoms are signs that primary endodontic treatment has failed. A 28-year-old female patient reported with the fractured post and crown in both the maxillary central incisors. Intraradicular metal posts were removed using ultrasonic instruments. Retreatment was performed and prosthetic reconstructions were carried out. In conclusion, the presented report clearly showed that the difficult of removing individual posts could be easily performed with the use of the ultrasonic device and always orthograde retreatment followed by good prosthetic reconstruction should be considered aesthetic choice of treatment in similar clinical conditions.

Keywords: Endodontic retreatment; Fractured post; Ultrasonic endodontic instruments.

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INTRODUCTION

In current endodontic practice, the science of diagnosis constitutes the fundamental basis for the therapeutic institution and consequently for treatment indication. Endodontic failure typically happens as a result of technical, pathological, or systemic reasons. The immediate exploration of the root canal is required and the need for retreatment is justified by the prevention of subsequent difficulties resulting from the preservation of subpar endodontic treatment in a tooth that will support an intraradicular post and core and a fixed crown [1].

In clinical practice, repeated endodontic procedures are usually required to restore teeth with various root canal blockages, including as obliteration of canals, instrument fragments, or the presence of intraradicular reinforcement aid in the root canal [1]. In order to retrieve instruments or posts from the root canal, a variety of tools and procedures are used, including various ultrasonic instruments [2], extractors [3], special trepanning drills [4], and various solvents, chelators, and irrigants [5]. Because of common problems, such as dentin loss, iatrogenic errors, or fracture of the remaining radicular region, removing individual cast posts poses a unique difficulty [6]. The dentist's training and experience, the availability of the right tools and equipment, the size, shape, and diameter of the post, and the type of luting agent used to secure the post within the canal are all factors that affect the procedure's success and predictability [7].

By this perspective, the aim of this study is to report a clinical case of the removal of a post and core followed by retreatment in the maxillary central incisors.

Case Description

A 28-year-old female patient reported to the Endodontic Clinic, with the fractured post and crown in both the maxillary central incisors. Clinical examination revealed fractured crown with prefabricated metal post in 11 and 21, whereas intraoral periapical radiograph revealed, radiopacity corresponding to the individual prefabricated metal posts and fractured core in both the teeth and incomplete root canal filling material not reaching the apical constriction was observed in 11 and 21. Individual posts were removed after the diagnosis and reasons for endodontic retreatment were determined. Using an ultrasonic scaler, individual metal posts from the root canals were removed (EMS—Electro Medical Systems SA, Switzerland). To prevent overheating of the surrounding dentin, continuous ultrasonic vibrations were administered for a maximum of 15 seconds in all directions linked to the long axis of individual posts. The influence of ultrasonic vibrations on the posts caused the intracanal post to become loose from the retention cavity, allowing for the meticulous and delicate removal of the intracanal post using only forceps and no rotating motion. Endodontic retreatment and unfettered access to the root canals were made possible by removing the intracanal posts from the root canals and endodontic retreatment, which was started during the same visit.

The residual root filling material from the canal were removed using H-File (Mani,Tochigi,Japan) endodontic instruments. During removal of root filling material, the debris was flushed out using irrigants and the instruments and care was taken not to push the residues beyond the foramen. After complete retrieval of gutta-percha working lengths were calculated by applying an electronic apex-locator (RootZX II; J.Morita, Tokyo, Japan), and both root canals were cleaned and shaped using step back technique. Shaping and cleaning of the canal was performed under copious irrigation with sodium-hypochlorite (3%). After root canal preparation, the canal was flushed with 17% EDTA solution and followed by 2% Chlorhexidine as final irrigant. Saline was used in between each irrigant to avoid any possible interactions between them. After drying the root canals using paper points final obturation was performed using gutta-percha and epoxy-resin based paste for

permanent obturation (AH Plus, Dentsply/Maillefer, Ballaigues, Switzerland), using cold lateral-compaction technique. The post operative RVG was taken immediately after root canal retreatment, revealing two homogeneously obturated root canals with apical filling levels corresponding to electronically determined working lengths (Figure 1a-f).

In the next visit, post space preparation was performed and prefabricated Fiber Reinforced Post (FRC) was luted using resin cement and composite core build up was done in 11 and 21. Then the crown preparation was modified for a metal ceramic crown and impressions were made. Metal ceramic crowns were luted using type I Glass Ionomer Cement in 11 and 21.



Figure 1: a. Pre operative clinical; b. Pre operative radiograph; c. Intra oral after post removal; d. Metal post; e. Post operative clinical; f. Post operative radiograph

DISCUSSION

When appropriately carried out in accessible and penetrable root canals, non-surgical orthograde Endodontic retreatment eliminates the need for invasive treatments like apical surgery or extraction and produces good, long-lasting results with a high cure rate [8-11]. In Contrast to common clinical scenario, where repeated retreatment typically suggests and indicates surgical Intervention, Pennington's [12] reports suggested that, in

case repeated orthograde endodontic treatment and implant replacement should be considered a second and third line intervention, respectively. Therefore, in this clinical scenario retrieval of fractured post and retreatment was carried out.

During the steps for intraradicular post and core removal, the clinician is likely to face unpleasant accidents, which can be responsible for resulting in treatment failure or unfavourable prognosis [13-17]. Aiming to avoid or reduce the operative accidents, such as tooth perforations and fractures, it is necessary to structure an adequate planning for each specific situation [18-20]. Consequently, the use of ultrasound is regarded as a safe treatment, with less tooth substance loss, little root injury that results in fractures and perforations, and a quick, efficient, and predictable process overall [4]. In our scenario, the proposed technique considerably lowers the danger of harming the remaining tooth tissue and decreases the loss of tooth structure [4]. However, thin diameter ultrasonic instruments should not be used, due to the risk of breakage, especially in situations when usage is protracted [1].

In this case presented here prefabricated FRC post was used for two reasons, one was to improve the aesthetics and other reason was that in both the root canal the remaining dentin thickness was less. Prosthetic reconstruction of both the maxillary incisors was performed immediately after root canal filling, which significantly yield the successful retreatment.

CONCLUSION

In conclusion, the presented report established the difficult task of retrieving posts could be readily done with the help of ultrasonic device and always orthograde retreatment followed by good prosthetic reconstruction should be considered aesthetic choice of treatment in similar clinical conditions.

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