REMOVAL OF A FRACTURED POST AND RETREATMENT: CASE REPORT

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Abstract

A post that has fractured in a root canal can be a major problem in the endodontic retreatment. In such a situation the risk of root fracture or perforation during removal of the post remnant may be high. This case describe about solving the problem of fracture-post, removing the broken post in the canal, and retreatment of tooth. A 50 year old male patient came in to Department of Conservative Dentistry - Airlangga University with a chief complains fractured post-crown at maxillary central incisor. 2 years ago root canal treatment was performed. This post-crown fractured twice. These fractured posts can be loosened by using a ultrasonically with diamond-coated tip at the cement interface. The tip breaks up the luting cement with counter-clockwise motion and the irrigant washes it away, and this in turn helps removal with diamond-coated which is used to cut down along the cement. There are many factors that influence successful post removal such as operator judgment, training, experience, and utilizing the best technologies and techniques. Care must be taken to check the edges of the tip, sharpening them when necessary. Occasionally the edges can flare out, with resultant danger of excessive removal of dentin and increased risk of weakening the root or even perforation. Removal of the post leads to the risk of complications associated with the forming of ledges, perforations and fracture of the tooth root. For safe removal of the posts it is necessary to know and use appropriate armamentarium and suitable techniques.

Keyword: removal of metal endodontic post, endodontic retreatment, ultrasonics

INTRODUCTION

The incidence of the need for endodontic retreatment has been estimated at 8-15% of all endodontic procedures¹. The reason may be that new pathology has developed or the restoration has failed.

In such type of cases, the ability to remove the existing post depends on the type of material from which it is made. Metal posts are difficult to remove because of the hardness of the alloy. It is common for clinicians to encounter endodontically treated teeth that contain posts². Intraradicular posts used most commonly are pre-fabricated metal posts. They can be cylindrical-conical, screw
or cemented with a circular cross-section. Their radiopacity is similar to gutta-percha and fixing cement, and they have a module of elasticity different from that of the dentin. Intraradicular metal posts may produce tension, while in the active points overload arises in the course of the thread leading to a risk of root fracture².

The basic of success in teeth retreatment with failed primary endodontic treatment is the removal of various materials from the root canal – gutta percha, broken endodontic instruments, silver points. This frequently can be metal posts placed in root canals in teeth with large destruction of the clinical crown. Their removal is of essential importance for accessing endodontic space and total cleaning and disinfection of the root canal system².

Frequently, when endodontic treatment is failing, there is a need to remove a post to facilitate successful non-surgical retreatment. In other instances, the endodontic treatment may be judged successful, but the restorative needs require the removal of an existing post to improve the design, mechanics, and esthetics of a new restoration.²-4

The purpose of this paper is to present clinical cases including removal of intraradicular post and core followed by endodontic retreatment.

REPORT

A 50-year-old male patient reported with the chief complaint in the upper front tooth region of fractured post-crown at maxillary central incisor. 2 years ago root canal treatment was performed.

This post-crown fractured twice. Radiographic analysis showed normal periapical and incomplete obturation (Figure 1).

**Figure 1:** Pre-operative radiograph and clinical image showing broken metal-post in the maxillary central incisors.

**Figure 2:** Diamond-coated ultrasonic tip – used to remove dentin calcification or restorative materials in pulp chamber

**Figure 3:** The remaining of metal-post was removed from the canal.
Treatment options were analyzed, and removal of the metal post and endodontic retreatment was planned. Access cavity was modified using access cavity kit. Broken metal post was removed by ultrasonically endo-tip (Figures 2 and 3).

**Figure 4:** Older Gutta-percha was removed using reciprocal file.

Older Gutta-percha was removed using reciprocal file (Figure 4). With the help of sodium hypochlorite and saline, irrigation was done.

**Figure 5:** Post-operative radiograph after obturation and new-metal post inserted

The working canal length was determined and the canals were biomechanically prepared by single file technique using rotary file system.

Then the canals were obturated (Figure 5). The endodontic retreatment was found successful, and the patient was asymptomatic. Crown cementation was done (Figure 6).

**Figure 6:** Final intra-oral view after crown cementation

**DISCUSSION**

Endodontic non-surgical retreatment is a comprehensive field and may be divided into the following categories: Coronal disassembly, locating previously missed canals, removing obturation materials, negotiating blocks, bypassing ledges, managing transportations, repairing perforations, treatment planning fractures, and removing posts and broken instruments.

There are many factors that influence successful post removal such as operator judgment, training, experience, and utilizing the best technologies and techniques. Further, clinicians should have knowledge and respect for the anatomy of teeth and be familiar with the typical range of variation associated with each tooth type.

It is important to know tooth morphology including the length, circumferential dimension, and curvature of any given root including if present, the depth of an external concavity. This information is best appreciated by obtaining orifice
angulated pre-operative radiographs. Films also assist the clinician in visualizing the length, diameter, and direction of the post and aid in determining if it extends coronally into the pulp chamber. Other factors influencing post removal are the post type and cementing agent. Posts can be categorized into parallel versus tapered, active versus non-active, and metal versus new non-metal compositions.

Posts retained with the classic cements like zinc phosphate can generally be removed; however, posts bonded into the root canal space with materials like composite resins or glass ionomers are often more difficult to remove. In addition, other important factors that impact post removal are the available interocclusal space, existing restoration, and whether the coronal most aspect of the post is supra or subcrestal.

In this case, the broken metal post were entangled in the dentin of the maxillary central incisors. According to pre-operative radiograph in the maxillary central incisors endodontic non-surgical retreatment was planned.

These fractured posts can be loosened by using a ultrasonically with diamond-coated tip at the cement interface. The tip breaks up the luting cement with counter-clockwise motion and the irrigant washes it away, and this in turn helps removal with diamond-coated which is used to cut down along the cement. Care must be taken to check the edges of the tip, sharpening them when necessary. Occasionally the edges can flare out, with resultant danger of excessive removal of dentin and increased risk of weakening the root or even perforation.

**CONCLUSION**

Removing the post from root canal provides access to endodontic space for thorough cleaning and disinfection. Removal of the post leads to the risk of complications associated with the forming of ledges, perforations and fracture of the tooth root. For safe removal of the posts it is necessary to know and use appropriate armamentarium and suitable techniques.

**CLINICAL EXPERIENCE**

The post removal is a routine practice in the dental office, therefore, new solutions and better alternatives are need to the practitioner. We did not find in the literature many articles referring to this practice. Thus, the results from this study are relevant in the case planning and to promote more treatment option.

**REFERENCES**


