



Successful Retrieval of Metal Post Using Ultra Sonics and Nonsurgical Retreatment of Maxillary Lateral Incisor Using Minimum Armamentarium: A Case Report

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ABSTRACT: Non surgical root canal therapy has become a routine procedure in modern dentistry. Technical and scientific advances in endodontics have resulted in the retention of millions of teeth that would otherwise be lost. Removal of the different materials from the root canal in a failed endodontic treatment is a prime requisite for endodontic retreatment. Complete removal of the materials such as gutta percha, broken instruments, or post is of particular importance for accessing endodontic space, cleaning, shaping, and disinfection of the root canal. Intra radicular post removal poses a challenge to the clinician with associated risks. This case report focuses on removal of the metal post and endodontic retreatment of the maxillary lateral incisor with minimum armamentarium to enhance the longevity of the tooth.

KEYWORDS: - post retrieval, ultrasonics, retreatment, rehabilitation

I. INTRODUCTION

The incidence of the need for endodontic retreatment has been estimated at 8%–15% of all endodontic procedures. The reason may be that new pathology has developed or the restoration has failed. Root canal treated teeth with posts are more frequently encountered in the routine clinical practice. In a failed tooth treated endodontically, there is a need to retrieve the radicular post to assist in nonsurgical repeat root canal treatment and improve the style or design, technique, and functional aesthetics of a new restoration successfully.¹

Hence, this case report emphasizes the clinical approach to successful removal of metal post and subsequent retreatment of maxillary lateral incisor without any modern equipment such as endodontic microscope, Masserann's kit, or post removal system. It also provides an insight to practitioners for the effective management of a

challenging case in a clinical setup with minimum armamentarium.

II. CASE REPORT

A 20-year-old male patient reported to the Department of Conservative Dentistry and Endodontics complaining of fractured upper right front tooth. Patient gives history of trauma 3 years back, for which he consulted a dentist back in his home town and underwent treatment. Significant medical history- patient is asthmatic since 15 years and is on medication

CLINICAL EXAMINATION

Tooth of concern was 12. On detailed examination it was noticed that the crown portion of 12 was mobile and the metal post was exposed in the palatal aspect. Patient had class III skeletal Malocclusion according to angles classification. Patient was asymptomatic. Tender on percussion was negative. No vestibular tenderness.

(Figure -1) A- Intra oral view, B) class III malocclusion, C) metal post seen in the palatal aspect



Radiographic examination reveals, tooth number 12 was root canal treated and rehabilitated using metal post and core. X-ray reveals Post space preparation was not sufficient enough to retain the post and the post was not placed in the right angulations, it is misplaced laterally towards the distal side. There were no significant peri apical changes. The tissue seems to be healthy.

Figure -2) Pre operative x-ray with respect to tooth no.12



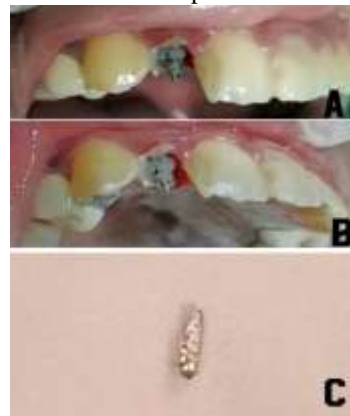
Diagnosis – Fractured coronal restoration secondary to maligned post.

After thorough clinical and radiographic examination, treatment was planned and decision was taken for post retrieval and nonsurgical retreatment. Procedure was explained to the patient with possible risks including the fracture of tooth during post removal, before commencing the treatment and informed consent was obtained.

Treatment was initiated with removal of fractured coronal fragment and Access cavity preparation. Space was created by removing the restorative material in and around the post using number 2 round bur. On clinical examination, it was found that the post was not placed in a right angulation. Tapered diamonds were used to refine in gentle brushing movement and also to remove roughness, giving flaring along the walls axially to accomplish the modification in access cavity shape to gain adequate space around the post for easy removal. Restricted space between the post and the axial was instrumented using ultrasonic tips (ED 4D, ED5: DTE D5, Dr Talal Woodpecker Medical Instrument Co., LTD), which are meant to be used for these purposes. Principally, ultrasonic instrument which is parallel was made use of below the orifice level and lateral to the radicular post in an irregularly cleaned and shaped canal with clear field of vision. Attempt was made to unscrew the post, which was done using the artery forceps. May be due to the mechanical interlocking, restorative material, and incorrect angulation of the post, the

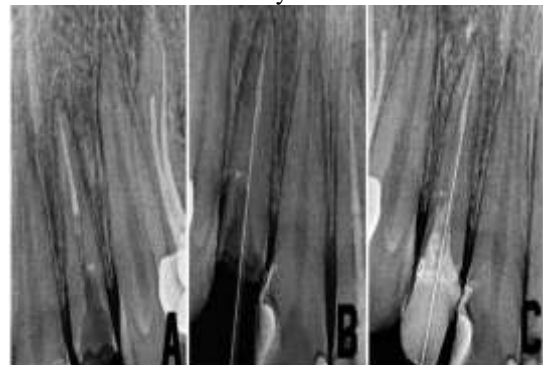
post fractured and a fragment of the post retained within the dentin. Through constant usage of ultrasonics and usage of artery forceps in anticlockwise rotation and gentle pull motion, the metal post was retrieved completely from the canal. Confirmatory radiographs were taken to analyse the radicular portion of the tooth.

Figure 3- A) After removal of fractured coronal segment, B) Retained post fragment, C) Retrieved metal post



Once the post was retrieved the access to the canal was negotiated and GP removal was done using peeso reamer (Mani). Post space was prepared and confirmatory radiographs were taken. Working field was isolated by placing polytetrafluoroethylene tape on the adjacent teeth. The crown build up was done using a glass fibre serrated no-2 post (Angelus Reforpost Fibre Glass) and core was build using dual cure resin cement (Coltene Paracore kit). Gross finishing and polishing of the crown was done in the first appointment.

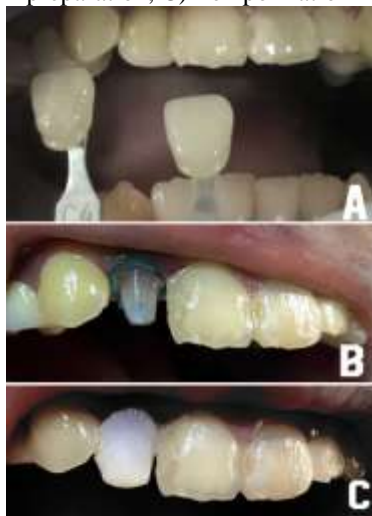
Figure 4- A) Post space preparation x-ray, B) Fibre post placement confirmatory x-ray, C) fibre post and core cementation x-ray





In the second appointment, shade selection was done. Crown preparation was done using tf13 bur (prima crown preparation kit). Due to lack of coronal structure the finish line was placed on the root surface of the coronal root. Gingival retraction cord no 0 was placed (Pascal Knit-Trax) to retract the gingiva prior to the impression making. The prepared tooth surface was temporized using cool temp material (coltene).

Figure 5- A) Shade selection, B) Crown preparation, C) Temporization



In the 3rd appointment, tooth number 12 was rehabilitated by a Zirconia full coverage restoration.

Figure 6- A) Post operative radiograph, B) Post cementation



FOLLOW-UP

1 month clinical/radio graphical follow up was done.

III. DISCUSSION

Several various factors impact removal of the post, such as decision of the operator, ability, experience, choosing with using the best available technologies and method to be used plays important role. To a greater extent, the operator's knowledge of internal and external anatomy, familiarity of variations in the internal anatomy of root canal associated with each tooth is essential. Furthermore, knowledge can be attained by different angulated pre procedural treatment radiographic evaluation which can aid in determining the length, extension, and diameter with the angle of the radicular post. Intraradicular posts retained, screwed, and micromechanical bonding into the radicular chamber with resin composite or chemical bonding with glass ionomers poses difficulty in retreatment procedure.²

Intraradicular posts used most commonly are prefabricated 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 fracture.^{3,4}

Post removal can be performed by various commercially available systems such as Masserann's kit, post removal system, endodontic extractors, ultrasonics, and a combination of tube extractors with cyanoacrylate. Abbott reported that post removal is a predictable procedure, if appropriate techniques and devices are used. He advocated the use of Masserann's kit, ultrasonics, Egger post removal, and unscrewing of the threaded screw posts.⁵

In the present case, we were not at disposal of any magnification device such as endodontic microscope or any equipment such as Masserann's kit. Hence, conventional ultrasonic tips were used followed by the use of artery forceps for unscrewing the posts. Lack of modern equipment presents the case with a higher challenge but allows a clinician to innovatively think and treat the case with the available equipment. Within the limitations, with minimum equipment, the post was removed successfully, and retreatment and prosthetic rehabilitation was done.

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IV. CONCLUSION

Successful post removal is possible only if there is proper operator judgment, training, experience, and most importantly the clinician's ability to use the available instruments in a clinical setup. Clinicians need to weigh risk versus benefit for every treatment decision that is made so they may best serve the patients who entrust them with their care

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