

Technique for easy and fast removal of failed prefabricated metal posts in retreatment of endodontically treated tooth for restoring the esthetics: A Case Report

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Abstract

Field of endodontics has its own technologies and techniques that are required to achieve clinical success such as coronal disassembly, removing obturation materials, locating previously missed canals, etc. Removal of posts from endodontically treated teeth is a major obstacle in the retreatment of teeth having recurrent pathology, which often leads to the extraction

of a tooth that might have been saved with endodontic retreatment which can be further used as an abutment for prosthodontic restoration. This case report shows the technique for easy and fast removal of failed prefabricated metal posts in retreatment of endodontically treated teeth to restore the esthetics of patient.

Keywords: Metal Post, Ultrasonic Scaler, Esthetic Restoration

Introduction

It is common for clinicians to encounter endodontically treated teeth that contain posts. 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.^[1,2]

The basis 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 system.^[3,4,5]

Several techniques can be used to remove posts and these include the use of ultrasonic vibration, solvents with endodontic files, burs to drill the posts out, and post removal devices. Some examples of post removal devices are the Masserann kit, the Egger post remover, the Gonon post remover, which is also called the Thomas Extracteur De Pivots and more recently, the Ruddle post remover.

Ultrasonic vibration was the most common method used to remove the cast post and core from a maxillary incisor tooth. It was used in conjunction with other instruments included haemostats, forceps and burs. This method typically involves removing coronal cement and buildup material from around the post, then activating the tip of the ultrasonic instrument against the metal post. The ultrasonic energy transfers to the post and breaks down

the surrounding cement until the post loosens and is easily removed (6). Advantages to this system include minimal loss of tooth structure and a decrease in the risk of other root damage (6, 7, 8). The ultrasonic scaler tip is also much easier to use on posts that are not easily reached or grasped by other instruments. Sonic devices have also been used, but their role in post-removal has not been evaluated.

Purpose of this article is to show the easiest and most commonly used method of removing posts and compiling other methods that can be used to remove other types of post material too also the factors that influence the post removal.

Case report

A 42 year old female reached the department of prosthodontics with complain of dislodged restoration. Subjective symptoms include the pain, which was localized in nature and was intermittent. Radiographic analysis showed incomplete obturation and two metal posts in the central and lateral incisor of first quadrant placed in oblique direction. (Fig 1, 2 and 3) A thorough intraoral examination showed, faulty prosthesis in 14,15 and 16 region. 17 was grossly decayed and was advised for extraction. Treatment options were analysed, and removal of the metallic posts and endodontic retreatment followed by crown lengthening and porcelain fused to metal prosthesis was planned.

Step 1: Composite restoration was removed around the post with the diamond point bur. (Fig. 4)

Step 2: The tip of Ultrasonic scaler was applied on and around the post. This tip removed the cement around the post effectively which helped its loosening. The mechanical vibration transmitted to the post is often sufficient to break the cement bond between the post and the remaining root structure. (Fig. 5)

Step 3: As the post was threaded so, mosquito haemostat forceps was used to hold the post and rotated anticlockwise.(Fig. 6)

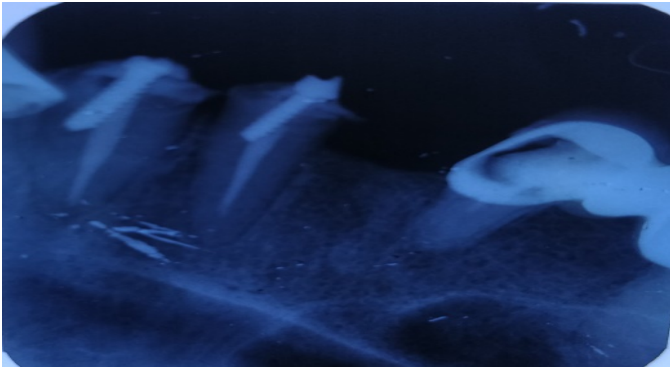


Fig 1: Preoperative Radiograph



Fig 2: Intraoral frontal view



Fig 3: Intraoral maxillary occlusal view



Fig 4: Composite removal with bur around posts



Fig 5: Application of ultrasonic scaler on and around posts



Fig. 6: Anticlockwise rotation with the help of



Fig.7: Removed metal posts mosquito haemostat forceps

Discussion

A definitive obturator is not indicated until the surgical site is healed and dimensionally stable and the patient is prepared physically and emotionally for the restorative care that maybe necessary. Interim obturators of this type favour rapid recovery, speech and swallowing, and

their construction is less stressful to the patient than many alternative procedures. The procedure has a number of advantages: (i) weight is low because the bulb is hollow⁷ and, (ii) the bulb is covered with a soft reline that does not damage tissues and that favours both a good seal and good retention.

The technique described in this article for the fabrication of the hollow bulb obturator was described by Chalian and Drane.⁹ Many authors have described various other techniques for the fabrication of the hollow bulb obturator. Grinding out the interior of the bulb,¹⁰ fastening the lid to the superior border,^{11,12} incorporation of the materials like sugar by LaFuente^{10, 13} and ice¹¹ during packing are some of the methods to create the hollow prostheses. El Mahdy et al.¹⁴ described the two flask technique to process the obturator and the tooth portion separately. Mc Andrew et al.¹⁵ described the technique of fabricating the prosthesis in two halves and sealing them using autopolymerizing resin. Iramaneerat et al.¹⁶ described the technique of injecting argon gas into the bulb of the obturator. Buzayan et al.¹⁷ described the use of hard thermoforming splint to fabricate closed hollow bulb obturator. Plaster index was used as a matrix for the fabrication of hollow obturator by Asher et al.¹⁸ Separate processing of two halves followed by joining them with an autopolymerizing resin. Additional techniques with the use of combinations of impressions, casts and multiple laboratory procedures rendered them time-consuming and limited in application.^{19,20} The uniform wall thickness of a hollow prosthesis ensures the least possible weight. Worley and Kniejski²¹ described a method for the fabrication of a closed hollow obturator while controlling the thickness of the hollow portion.

The advantages of fabricating one piece obturator are; it is hygienic, more esthetic, simple, and accurate and there

are no lines of demarcation between heat cure and autopolymerizing resin and size and shape of the hollow space achieved allow uniform wall thickness for closed hollow obturator. Due to these advantages the technique described by Chalian et al. is being followed for decades. The disadvantages are additional processing time required to process the lid, acrylic resin may seep into the hollow portion of the obturator, seepage of fluids is possible if the seal is improper. Time and tested methods are most of the time advisable, as they give predictable restorative outcome.

Conclusion

Through knowledge of the post-surgical defect anatomy, methods of fabrication of prosthesis, material science, patient's expectations and needs is required before any prosthetic rehabilitation. Advantage of using time and tested method is that a lot of literature available to predict the restorative outcome.

References

1. Gupta R, Dhingra A, Bhullar HK, Saurabh. Endodontic Retreatment by Removal of Metallic Post: A Case Report. *IJSS Case Reports & Reviews* 2015;1(11):16-18.
2. Castrisos T, Abbott PV. A survey of methods used for post removal in specialist endodontic practice. *International Endodontic Journal*, 35, 172-180, 2002.
3. L. Vangelov, S. Vladimirov. Removal of filling materials from the root canal in endodontic retreatment. *Zabolekarski pregled*, Vol. 87, 2005, 2, pp.140-146 [in Bulgarian]
4. E. Karova, Topalova-Pirinska S. Comparison of the time required for ultrasonic removal of prefabricated intraradicular posts. *J of IMAB*, Vol. 19, 2013, 4, pp. 426-429

5. S. Kratchman, M. Iqbal. Endodontic retreatment techniques. *Inside dentistry*, March 2006, Vol. 2, Issue 2
6. Gaffney JL, Lehman JW, Miles MJ. Expanded use of the ultrasonic scaler. *J Endodon* 1981 ;7:228-9.
7. Krell KV, Jordan RD, Madison S, Aquilino S. Using ultrasonic scalers to remove fractured root posts. *J Prosthet Dent* 1986;55:46-9.
8. Chenail BL, Teplitsky PE. Orthograde ultrasonic retrieval of root canal obstructions. *J Endodon* 1987;4:186-90.
9. Ruddle CJ. Micro-endodontic nonsurgical retreatment. *Dent Clin North Am* 1997;41:429-54.
10. Signore A, Benedicenti S, Kaitsas V, Barone M, Angiero F, Ravera G. Long-term survival of endodontically treated, maxillary anterior teeth restored with either tapered or parallel-sided glass-fiber posts and full-ceramic crown coverage. *J Dent* 2009;37:115-21.
11. Smith BJ. Removal of fractured posts using ultrasonic vibration: An in vivo study. *J Endod* 2001;27:632-4.
12. Yoshida T, Gomyo S, Itoh T, Shibata T, Sekine I. An experimental study of the removal of cemented dowel-retained cast cores by ultrasonic vibration. *J Endod* 1997;23:239-41.
13. Bergeron BE, Murchison DF, Schindler WG, Walker WA 3rd. Effect of ultrasonic vibration and various sealer and cement combinations on titanium post removal. *J Endod* 2001;27:13-7.
14. Gomes AP, Kubo CH, Santos RA, Santos DR, Padilha RQ. The influence of ultrasound on the retention of cast posts cemented with different agents. *Int Endod J* 2001;34:93-9.
15. Dickie J, McCrosson J. Post removal techniques part 1. *Dental Update*. 2014 Jul 2;41(6):490-8.
16. Buoncristiani J, Seto BG, Caputo AA (1994) Evaluation of ultrasonic and sonic instruments for intraradicular post removal. *Journal of Endodontics* 20 , 486–9.
17. Castrisos T, Abbott PV. A survey of methods used for post removal in specialist endodontic practice. *International endodontic journal*. 2002 Feb;35(2):172-80.
18. Krell KV, Jordan RD, Madison S, Aquilino S. Using ultrasonic scalers to remove fractured root posts. *J Prosthet Dent* 1986; 55: 46–49.
19. Gomes APM, Kubo CH, Santos RAB, Santos DR, Padilha RQ. The influence of ultrasound on the retention of cast posts cemented with different agents. *Int Endod J* 2001; 34: 93–99.
20. Satterthwaite JD, Stokes AN. Dentinal crack incidence following ultrasonic vibration to intraradicular posts. *N Z Dent J* 2004; 100: 105–109.
21. Alfredo E, Garrido AD, Souza-Filho CB, Corrêa-Sobrinho L, Sousa-Neto MD. In vitro evaluation of the effect of core diameter for removing radicular post with ultrasonic. *J Oral Rehabil* 2004; 31: 590–594.
22. Dominici JT, Clark S, Scheez J, Eleazer PD. Analysis of heat generation using ultrasonic vibration for post removal. *J Endod* 2005; 31: 301–303.
23. Cherukara GP, Pollock GR, Wright PS. Case report: removal of fractured endodontic posts with a sonic instrument. *Eur J Prosthodont Rest Dent* 2002; 10(1): 23–26.
24. Chong BS. Disassembling the coronal restoration. In *Managing Endodontic Failure in Practice*. 1st ed. London: Quintessence Publishing, 2004. 65–88