International Journal of Research in Health and Allied Sciences

Journal home page: www.ijrhas.com

Official Publication of "Society for Scientific Research and Studies" [Regd.]

ISSN: 2455-7803

Case Report

Healing Of Previously Treated Tooth with Periradicular Lesion without Surgery: Retreatment Case Report

Jasneed M[1], Aysha Nahidha K P[2]

[1]BDS, MDS, Endodontist, Aster Clinic, Al Khor, Qatar
[2]Dental trainee, Aster medical centre plus, Qatar

ABSTRACT:
This case report describes endodontic treatment of a large periradicular lesion in a 46 year old male with spontaneous intermittent pain in relation to his lower left back tooth region presented into private practice, accompanied with a restoration, which is tender on percussion and poorly root treated with incomplete obturation, missed mesiolingual canal and mesial root perforation. Re-root canal treatment had been done on involved tooth along with perforation closure followed by permanent coronal restoration in multiple appointments. Postoperative examination during further follow-ups showed complete healing of periradicular lesion. The proper diagnosis of apical periodontitis and appropriate treatment plan of infected root canal system of previously treated tooth allowed complete healing of this lesion without endodontic surgery.
Key words: Peri-radicular lesion

Received: 11 July, 2021 Accepted: 20 July, 2021

Corresponding author: Dr. Aysha Nahidha K P, Dental trainee, Aster medical centre plus, Qatar

This article may be cited as: Jasneed M, Aysha Nahidha K P. Healing Of Previously Treated Tooth with Periradicular Lesion without Surgery: Retreatment Case Report. Int J Res Health Allied Sci 2021; 7(5):16-19.

INTRODUCTION

Endodontic retreatment is a modality, which is carried out when primary root canal treatment fails. Sometimes treated tooth fails to heal or gets an infection again. It can be either after months or years of treatment. Factors contributing to failure of endodontically treated tooth are the persistence of bacteria either in intracanal or extra canal, inadequate obturation, overextensions of filling materials, microleakage in coronal seal, missed canals and iatrogenic errors. Treatment methods to handle large periradicular lesion varies from non-surgical endodontic therapy with or without surgery to extraction of the tooth. Appropriate anatomical knowledge and evaluation of pre-operative radiograph also contribute to a desirable outcome.

CASE REPORT

A 46-year-old male presented to a private clinic in Qatar, with a chief complaint of intermittent spontaneous pain in the mandibular back tooth region. He had no history of trauma in the region and his medical history was noncontributory. Extraoral examination shows normal lymph node, TMJ and no facial swelling. On intraoral examination, tooth 37 with a restoration was tender on percussion and palpation shows small firm swelling of the buccal vestibule in the tooth 37 region. The periapical radiograph shows RCT treated tooth with a periapical lesion of 6 mm along with inadequate obturation, a missed mesiolingual canal and suspected mesial root perforation (figure 1).

During the first visit, the tooth was isolated with a rubber dam, and the former coronal post endodontic restoration was removed to facilitate entry into the pulp chamber using tungsten carbide bur. Access cavity was refined to expose the pulp chamber using Endo Z bur. Previous obturation material was removed with gates glidden drills and retreatment files (D1, D2, D3 Dentsply) using GP solvent(Septodont Endosolv) and saline irrigation. Suspected perforation was confirmed using k-file number 10(figure no:2). After copious irrigation, a temporary dressing (MD Temp) was placed.

Figure 1: Preoperative radiograph

On the next visit, after scouting for the canals and doing coronal pre-flaring, radiographic working length determination was done, which was confirmed using an electronic apex locator (Figure 3). The root canals were prepared in rotary crown down motion using Wave One files and RC Prep was used as a lubricant. Master cone was selected (Figure 4) and final Irrigation was done with sodium hypochlorite solution (2.5%) , 17% EDTA, saline. And intracanal medicament calcium hydroxide was placed. During the following visit, the Root canal was obturated with gutta-percha along with sealing of perforation site with Bio Root RCS (Figure 5). Bio Root RCS was used as a canal sealer. The coronal seal was obtained with a flowable composite(3M) and post endodontic composite restoration(Dentsply) was given (Figure 5). A full-coverage zirconium crown was given after 2 weeks (Figure 6). The patient was recalled after 3 months, but he couldn't come due to personal reasons. A teleconsultation confirmed his symptoms had been subsided. On 6 month (Figure 7) and one-year follow-up (Figure 8), the patient had no signs and symptoms, the periapical radiograph illustrated complete regression of the lesion. Clinical examination revealed no tenderness to percussion.

Figure 2: Suspected perforation confirmed using k file number 10

DISCUSSION

This case describes endodontic retreatment for the previously root-treated tooth with periradicular lesion which may be due to missed canal, root perforation and inadequate obturation. An accurate diagnosis can be done by microscopic examination. However, the clinical diagnosis seemed rational. Various treatment options for large periradicular lesions vary from root canal treatment to surgical procedures. Proper chemo-mechanical cleaning of the root canal and proper disinfection is phenomenal for the success of treatment. About 74% of 42 endodontically treated teeth in one study have shown bony healing of large periradicular lesions(1). According to Caliskan, large periradicular lesions have a poor prognosis. Missed canals have been linked with approximately 40%endodontic failures(2).In this case report, the mesiolingual canal had been missed during primary Endodontic treatment and was detected and properly treated. The other factors like inadequate obturation of mesiobuccal canal(3) and mesial root perforation (4)further contributed to the failure of primary endodontic treatment, which are carefully resolved during retreatment.

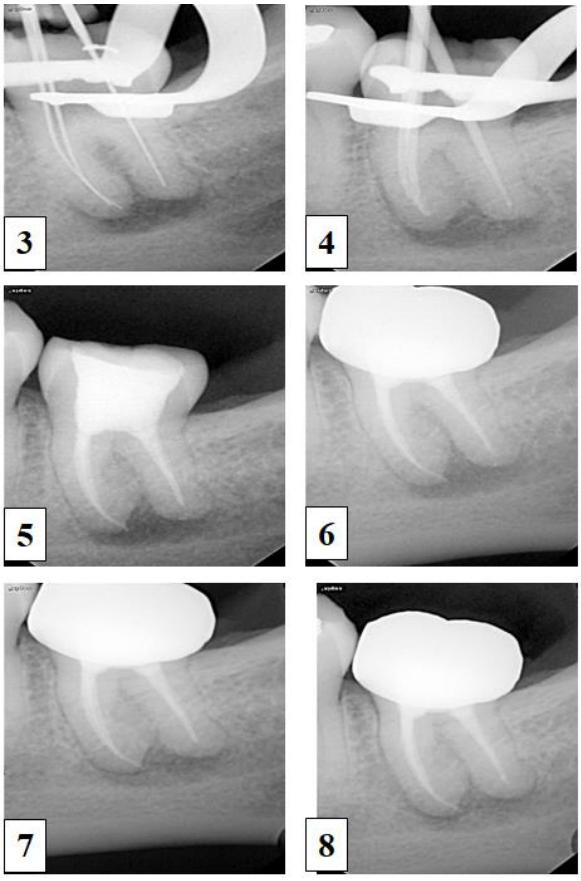

Figure 3: Working length determination using apex locator**, Figure 4:** Master cone selection, **Figure 5:** Obturation using gutta-percha, perforation sealed using Bio root RCS and post endodontic restoration given, **Figure 6:** 2 week follow up, **Figure 7:** 6 Months follow up, and **Figure 8:** 1 year follow up

In the studies which accessed teeth with endodontic failures,65% of cases shown inadequate obturation whereas 42% had missed canals(3). Post endo restoration placed immediately also contributes to the success rate. Many studies have shown that an adequate post endorestoration placed immediately has a role in success rate(5)In this case, composite restoration was given immediately after obturation and coronal seal placement.

The number of visits for endodontic treatment is a topic of controversy in endodontics. A systematic review in 2008 revealed that there is no significant difference between single and multiple visits in the outcome of endodontic treatment(6)This retreatment case was done in three visits which confirms three visits endodontic treatment can result in successful treatment.

The calcium hydroxide paste is used as an antibacterial dressing in this case. The complete mechanism of action for this dressing is still unclear. The calcium hydroxide paste can accelerate periapical repair and eliminate residual microorganisms by reducing inflammation, stimulation of calcification and endotoxin neutralization(7).In favor of these studies, in this case, periapical healing occurred in a 6-month visit and progressed in 9-months and almost regressed in one year follow up.

The medical history of the patient was non-contributory, which may be contributed to the success of clinical and radiological healing of the periapical lesion. Previous studies have shown that the general health of the patient may contribute to the healing of periradicular lesions (8). An increase in the density of lesion and trabecular regeneration in the radiograph and absence of signs and symptoms confirmed healing. However, conventional techniques are not completely reliable.

CONCLUSION

This given case, multiple visit root canal retreatment without any surgery, proved successful in healing periradicular lesions. Proper diagnosis and appropriate treatment plan of the infected root canal of the previously treated tooth helps in the complete healing of periradicular lesion.

CONFLICT OF INTEREST

None declared

ACKNOWLEDGMENT

The authors are thankful to the patient for giving consent

REFERENCE

1. (a) Calişkan MK. Prognosis of large cyst-like periapical lesions following nonsurgical root canal treatment: a clinical review. Int Endod J. 2004;37:408–16 [PubMed] [Google Scholar]
(b) Tabassum S, Khan FR. Failure of endodontic treatment: The usual suspects. Eur J Dent. 2016 Jan-Mar;10(1):144-147. doi: 10.4103/1305-7456.175682. PMID: 27011754; PMCID: PMC4784145.
(c) Musani I, Goyal V, Singh A, Bhat C. Evaluation and comparison of biological cleaning efficacy of two endofiles and irrigants as judged by microbial quantification in primary teeth - an in vivo study. Int J Clin Pediatr Dent. 2009 Sep;2(3):15-22. doi: 10.5005/jp-journals-10005-1013. Epub 2009 Dec 26. PMID: 25206117; PMCID: PMC4086577.

2. (a) Baruwa AO, Martins JNR, Meirinhos J, Pereira B, Gouveia J, Quaresma SA, Monroe A, Ginjeira A. The Influence of Missed Canals on the Prevalence of Periapical Lesions in Endodontically Treated Teeth: A Cross-sectional Study. J Endod. 2020 Jan;46(1):34-39.e1. doi: 10.1016/j.joen.2019.10.007. Epub 2019 Nov 14. Erratum in: J Endod. 2020 Jun;46(6):881. PMID: 31733814.
(b) Witherspoon DE, Small JC, Regan JD. Missed canal systems are the most likely basis for endodontic retreatment of molars. Tex Dent J. 2013 Feb;130(2):127-39. PMID: 23930451
(c) Mohammadi Z, Asgary S, Shalavi S, V Abbott P. A Clinical Update on the Different Methods to Decrease the Occurrence of Missed Root Canals. Iran Endod J. 2016 Summer;11(3):208-13. doi: 10.7508/iej.2016.03.012. Epub 2016 May 1. PMID: 27471533; PMCID: PMC4947846.

3. (a) Akbar I. Radiographic study of the problems and failures of endodontic treatment. Int J Health Sci (Qassim). 2015 Apr;9(2):111-8. PMID: 26309429; PMCID: PMC4538887.
(b) Eur J Dent. 2016 Jan-Mar; 10(1): 144–147.doi: 10.4103/1305-7456.175682PMCID: PMC4784145PMID: 27011754. Sadia Tabassum1 and Farhan Raza Khan1

4. (a) Gorni, F.G.; Andreano, A.; Ambrogi, F.; Brambilla, E.; Gagliani, M. Patient and clinical characteristics associated with primary healing of iatrogenic perforations after root canal treatment: Results of a long-term Italian study. J. Endod. 2016,42, 211–215
(b)Beavers RA, Bergenholtz G, Cox CF. Periodontal wound healing following intentional root perforations in permanent teeth of Macaca mulatta. Int Endod J. 1986 Jan;19(1):36-44. doi: 10.1111/j.1365-2591.1986.tb00888.x. PMID: 3456992.
(c) Sarao SK, Berlin-Broner Y, Levin L. Occurrence and risk factors of dental root perforations: a systematic review. Int Dent J. 2020 Aug 20. doi: 10.1111/idj.12602. Epub ahead of print. PMID:

5. (a) . Kayahan MB, Malkondu O, Canpolat C, Kaptan F, Bayirli G, Kazazoglu E. Periapical health related to the type of coronal restorations and quality of root canal fillings in a Turkish subpopulation. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2008;105:e58–62. [PubMed] [Google Scholar]
(b) Siqueira JF Jr, Rôças IN, Alves FR, Campos LC. Periradicular status related to the quality of coronal restorations and root canal fillings in a Brazilian population. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2005;100:369–74. [PubMed] [Google Scholar]
(c) Heling I, Gorfil C, Slutzky H, Kopolovic K, Zalkind M, Slutzky-Goldberg I. Endodontic failure caused by inadequate restorative procedures: review and treatment recommendations. J Prosthet Dent. 2002;87:674–8. [PubMed] [Google Scholar]
(d) Slutzky-Goldberg I, Slutzky H, Gorfil C, Smidt A. Restoration of endodontically treated teeth review and

treatment recommendations. Int J Dent. 2009;2009:150251. doi:10.1155/2009/150251
(e) Baba NZ, White SN, Bogen G. Restoration of Endodontically Treated Teeth. InEndodontic Prognosis 2017 (pp. 161-192). Springer, Cham

6. (a) Figini L, Lodi G, Gorni F, Gagliani M. Single versus multiple visits for endodontic treatment of permanent teeth: a Cochrane systematic review. J Endod. 2008;34:1041–7. [PubMed] [Google Scholar]
(b) Soltanoff W. A comparative study of the single-visit and the multiple-visit endodontic procedure. J Endod. 1978 Sep;4(9):278–281. [PubMed] [Google Scholar]
(c) Schwendicke F, Göstemeyer GSingle-visit or multiple-visit root canal treatment: systematic review, meta-analysis and trial sequential analysisBMJ Open 2017;7:e013115. doi: 10.1136/bmjopen-2016-013115

7. (a) JOE Editorial Board. Uses of calcium hydroxide: an online study guide. J Endod. 2008 May;34(5 Suppl):e87-92. doi: 10.1016/j.joen.2007.07.023. PMID: 18457714.
(b)Kim D, Kim E. Antimicrobial effect of calcium hydroxide as an intracanal medicament in root canal treatment: a literature review - Part I. In vitro studies. Restor Dent Endod. 2014 Nov;39(4):241-52. doi: 10.5395/rde.2014.39.4.241. Epub 2014 Aug 20. PMID: 25383341; PMCID: PMC4223092.
(c)Seux D, Couble ML, Hartmann DJ, Gauthier JP, Magloire H. Odontoblast-like cytodifferentiation of human dental pulp cells in vitro in the presence of a calcium hydroxide-containing cement. Arch Oral Biol. 1991;36(2):117-28. doi: 10.1016/0003-9969(91)90074-5. PMID: 2059161.

8. (a) Broon NJ, Bortoluzzi EA, Bramante CM. Repair of large periapical radiolucent lesions of endodontic origin without surgical treatment. Aust Endod J. 2007 Apr;33(1):36-41. doi: 10.1111/j.1747-4477.2007.00046.x. PMID: 17461840.
(b) Elemam RF, Pretty I. Comparison of the success rate of endodontic treatment and implant treatment. ISRN Dent. 2011;2011:640509.