International Journal of Medical Science in Clinical Research and Review
Online ISSN: 2581-8945
Available Online at http://www.ijmscrr.in Volume 7|Issue 03 (May-June) |2024 Page: 602-605

Case Report

Esthetic rehabilitation and retreatment of endodontically treated tooth: A Case Series

Authors:
Dr. Lavanya K. Prasad[1], Dr. Rahul Bhartia[2], Dr. Shrashti Kasera[3], Dr. Madhulika Banerjee[4]
[1]*Post Graduate Student, Department of conservative dentistry and endodontics,* Rishiraj college of dental sciences and research centre
[2]*Professor, Department of conservative dentistry and endodontics,* Rishiraj college of dental sciences and research centre
[3]*Post Graduate Student, Department of conservative dentistry and endodontic,* Rishiraj college of dental sciences and research centre
[4]*Post Graduate Student, Department of conservative dentistry and endodontics,* Rishiraj college of dental sciences and research centre
Corresponding Author:
Dr. Rahul Bhartia

Article Received: 25-April-2024, Revised: 15-May-2024, Accepted: 05-June-2024

ABSTRACT:
Introduction: Initial root canal treatment is highly successful, appreciated by patients, and cost-effective, but failures occur. Nonsurgical retreatment is generally prioritized before surgical endodontic treatment.[1] **Case Report** 1: A 18 Years old female Patient complained of decay in her upper front teeth region Underwent root canal treatment one and half years ago. O/E–RVG shows incomplete BMP.[2] **Case report 2**: A 16 years old male patient complained of fractured restoration in upper front teeth region since 2-3 months. The patient had fractured tooth and underwent root canal treatment 4 years ago. O/E- discoloration in 11 and Ellies class IV fractured 21. Xray shows some random material in the canals. Incomplete obturation. **Case report 3:** A 45 years old male patient complained of decay in upper front teeth region since 1 year. The patient underwent root canal treatment 6 years ago. O/E- secondary caries irt 23, post endo restoration absent. Treatment plan for all cases-Re-RCT done following all retreatment protocols. Removal of caries, removal of old gutta percha with h-file, irrigation, BMP and obturation done, in Case 2 Apical plug and MTA dressing given in 11 before obturation. **Discussion**: Failure in any steps in root canal treatment can lead to failure of whole treatment, right from case selection, access opening, working length determination, BMP, obturation and post endo restoration. There are many ways to do retreatment, non-surgical and surgical. Non-surgical is generally prioritized for retreatment.

Keywords: retreatment, root canal treatment, fractured tooth

INTRODUCTION:

Initial root canal treatment is highly successful, appreciated by patients, and cost-effective, but failures do occur [1].

Biological failure causes due to:

- Without rubber dam, improper irrigants, Unable to get the canal ready to the desired length, canals that are missing, Improper obturation

Other causes of failure include:

- Inadequate coronal repair, fractured root Economic limitations and resistant germs.

If root canal treatment has failed, there are usually four possible treatment options:

- Review
- Root canal retreatment
- Root end surgery
- Extraction

Review:

According to current recommendations, the outcome of therapy for teeth with root fillings should be evaluated radiographically for a maximum of two years and, in some circumstances, up to four years. Relieving symptoms, sinus tract healing, and reducing or eliminating periapical radiolucency would all be signs of success.

Root Canal Retreatment:

Irrigants and medications are used to disinfect the diseased root canal after the current root filling is removed. Since it may be necessary to disassemble restorations in order to reach the canal system, root canal retreatment is frequently far more difficult than original treatment. Before beginning a drawn-out and very costly course of therapy, it is crucial to determine

whether the tooth can be restored. If the tooth cannot be restored, it should be removed and replaced with one that is appropriate.

Root end Surgery:
Inserting a root end filling in a tooth with an infected root canal would surely result in failure, hence surgery is usually saved for situations when retreatment or seemingly excellent root canal treatment has failed. A professional is perhaps the ideal person to oversee the technically complex current surgical method.

Extraction:
The only choice left is extraction if a tooth cannot be restored or if root canal retreatment has a bad outlook. Since it is now more apparent how successful contemporary root canal retreatment is, fewer teeth have been classified in this group over time.
If a root canal treatment fails, retreatment is frequently the best course of action, particularly if a technical issue was the cause of the failure.[2]
Prioritizing nonsurgical retreatment over surgical endodontic treatment is standard practice.[1]

CASE REPORTS:
CASE I- A 18 Years old female Patient complained of decay in her upper front teeth region reported to department of conservative dentistry and endodontics
Underwent root canal treatment one and half years ago
Medical History – No relevant medical history
ExtraoraL - There was no extraoral swelling or lacerations present
Intraoral – RVG shows incomplete root canal treatment
Radiographic Investigation – RVG reveals incomplete root canal treatment[3].

CASE II- A 16 years old male patient complained of fractured restoration in upper front teeth region since 2-3 months in department of conservative dentistry and endodontics.
Patient had fractured tooth and underwent root canal treatment 4 years ago
Medical History – No relevant medical history
Extra orally –discoloration in 11 and Ellies class IV fractured 21
Intraorally – Xray shows some random material in the canals. Incomplete obturation[3].
Radiographic Investigation –RVG reveals some random material in the canals. Incomplete obturation.

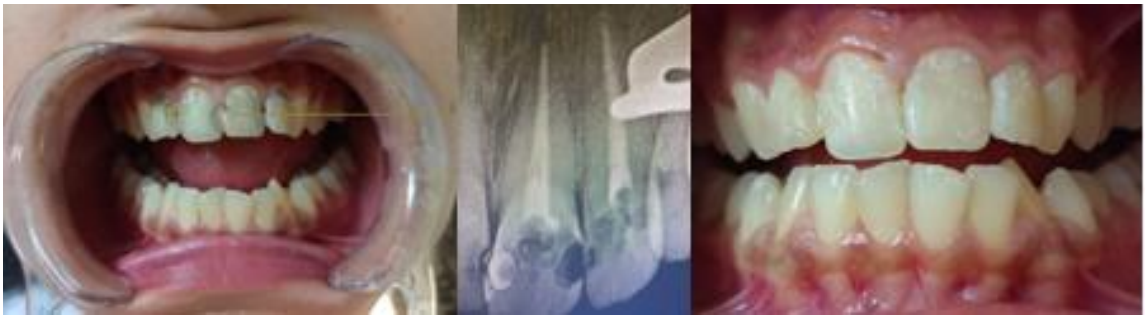
CASE III- A 45 years old male patient complained of decay in upper front teeth region since 1 year in department of conservative dentistry and endodontics at our college Rishiraj college of dental sciences.
Patient underwent root canal treatment 6 years ago
Medical History – No relevant medical history
Extra orally – secondary caries irt 23, post endo restoration absent.
Intraorally – Xray shows secondary caries in 23
Radiographic Investigation –RVG reveals secondary caries with post endo restoration absent in 23

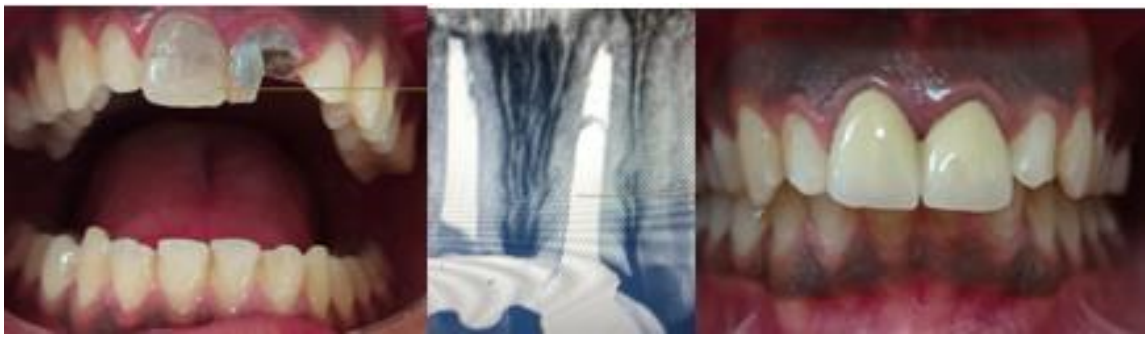
TREATMENT PLAN:
CASE I:
Final Diagnosis:
secondary dental caries irt 11,12
Secondary dental caries with apical periodontitis irt 21,22 Incomplete root canal treatment irt 21,22

Treatment Plan:
- 21,22- caries removal, previous obturation removed, BMP , obturation, post endo build up done.
- -11,12- caries removal and direct composite restoration done

CASE II:
Final Diagnosis:
- apical periodontitis irt 11,21
- Incomplete obturation irt 11,21

Treatment Plan:
- irrigation, BMP and obturation done irt 11,21
- Apical plug and MTA dressing given in 11 before obturation
- cast post preparation done irt 21
- Crown preparation irt 11
- crown cementation done irt 11,21





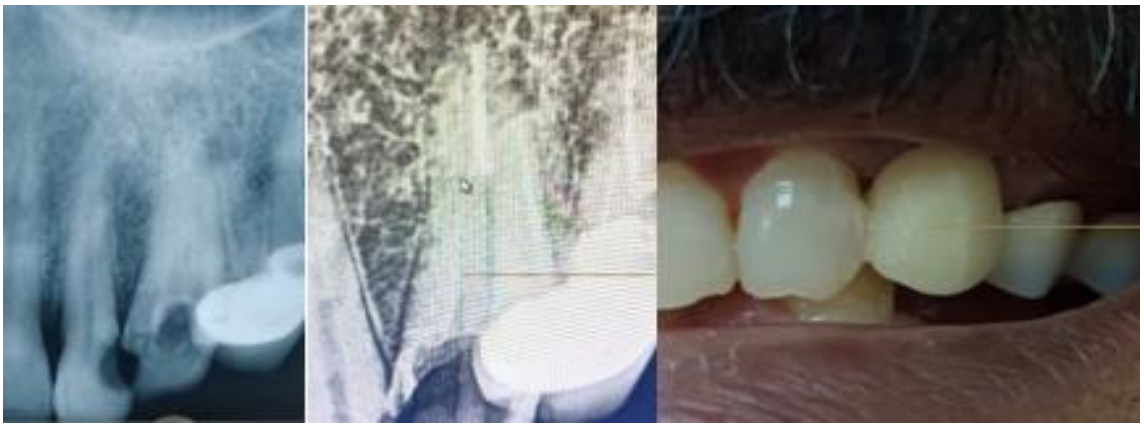
CASE III:

Final Diagnosis:

- secondary dental caries irt 23
- Post endo restoration absent irt 23

Treatment Plan:

- 23- caries removal, previous gutta percha removed, BMP done, sectional obturation, fiber post placement , core build up , crown preparation done and crown cementation done



DISCUSSION:

- Failure in any steps in root canal treatment can lead to failure of whole treatment, right from case selection, access opening, working length determination, BMP, obturation and post endo restoration. There are many ways to do retreatment, non-surgical and surgical. Non-surgical is generally prioritized for retreatment.
- Chlorhexidine is found to be useful against c. albicans and e. faecalis which is frequently found in teeth with failed Root Canal Treatment[4].
- There are a few situations in which sealed root canals may become contaminated again: (a) after endodontic treatment, if the patient has postponed getting permanent restorations; (b) if the temporary filling material's seal has come loose; or (c) if the filling material and/or tooth structure have broken or fractured. In such cases, oral bacteria might come into contact with the coronal section of the root canal system. To the extent that retreatment of the canal would be required, the concern is how soon the entire root canal system is contaminated once again.
- Swanson and Madison (1) assessed how long artificial saliva could be applied to obturation material before the seal's integrity was compromised. After subjecting the coronal section of obturated root canals to artificial saliva for varying lengths of time, they were submerged in Pelikan ink for a full 48 hours. They discovered that in every exposed specimen, the dye permeated between 79 and 85% of the root length. The control group, which came into contact with ink for 48 hours but was not given artificial saliva, did not experience any leakage. The subsequent research conducted by Madison and colleagues. (2) indicated that depending on the type of sealer employed, the ink penetrated

between 33 and 80% of the root length in teeth exposed to artificial saliva for seven days.[3]

CONCLUSION:

A proper biomechanical preparation, adequate irrigation protocols, 3 dimensional obturation and good post endo restoration in time is required even in case of retreatment. This may lead to increased success rate of most of the cases of root canal retreatment.

REFERENCES:

1. Torabinejad M ,White SN Endodontic treatment options after unsuccessful initial root canal treatment: Alternatives to single-tooth implants PMID: 26778004DOI: 10.1016/j.adaj.2015.11.017
2. T.R. FORD, J.S. RHODES Root Canal Retreatment: 1. Case Assessment and Treatment Planning 2004 Jan-Feb;31(1):34-9. doi: 10.12968/denu.2004.31.1.34
3. Torabinejad M, Ung B, Kettering JD. In vitro bacterial penetration of coronally unsealed endodontically treated teeth. J Endod 1990;126:566
4. Shenoy A, Nayak S, Bella N. An in vitro comparison of the antimicrobial effects of sodium dichloroisocyanurate, CHX and sodium hypochlorite against Enterococcus faecalis and Candida albicans. Guident 2013;6:69-74.
5. H A Ray[1], M Trope Periapical status of endodontically treated teeth in relation to the technical quality of the root filling and the coronal restoration Int Endod J1995 Jan;28(1):12-8
6. Ingle's endodontics 6th edition, chapter 40- restoration of endodontically treated teeth. BC Becker 2008
7. Friedman S, Stabholtz A, Tamse A. Endodontic retreatment – case selection and technique. 1. Criteria for case selection. J Endodont 1986; 12: 28– 33.
8. Friedman S, Stabholtz A, Tamse A. Endodontic retreatment – case selection and technique. 3. Retreatment techniques. J Endodont 1990; 16: 543– 549.
9. Fors UGH, Berg JO. Endodontic treatment of canals obstructed by foreign objects. Int Endodont J 1986: 19: 2–10.
10. Pitt Ford TR, Torabinejad T, McKendry DJ, Hong CU, Kariyawasam SP. Use of Mineral Trioxide Aggregate for repair of furcal perforations. Oral Surg Oral Med Oral Path Oral Radiol Endodont 1995; 79: 756–762.
11. Saunders WP, Saunders EM. Coronal leakage as a cause of failure in root canal therapy: a review. Endodont Dent Traumatol 1994; 10: 105–108.
12. Ray HA, Trope M. Periapical status of endodontically treated teeth in relation to the technical quality of the root filling and the coronal restoration. Int Endodont J 1995; 28: 12–18.
13. Molander A, Reit C, Dahlén G, Kvist T. Microbiological status of root-filled teeth with apical periodontitis. Int Endodont J 1998; 23: 113–118.
14. Pitt Ford TR, Torabinejad T, McKendry DJ, Hong CU, Kariyawasam SP. Use of Mineral Trioxide Aggregate for repair of furcal perforations. Oral Surg Oral Med Oral Pathol Oral Radiol Endodont 1995; 79: 756–762.
15. Ruddle CJ. Non surgical endodontic retreatment. In: Cohen S, Burns RC, editors. Pathways of the pulp. 8th edition. St. Louis: Mosby-Year Book; 2002
16. Ruddle CJ. Microendodontic nonsurgical retreatment. Dent Clin North Am 1997;41(3):429