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Non Surgical Retreatment of Mandibular Second Molar – A Case Report

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***Abstract**: This case demonstrates a 3-canal mandibular second molar treated by non-surgical root canal therapy. Acute exacerbation was noted on a previously root-filled left mandibular first molar with periapical lesions,extraoral as well as intraoral swelling and endodontic re-treatment was arranged. Three canals (the mesiobuccal, mesiolingual and distal) were identified. The mesiobuccal, mesiolingual and distal canals were found in their normal locations. Clinicians need to be aware of the unusual root canal anatomy of the mandibular first molar. After thorough root canal cleaning and shaping, root canal obturation with gutta-percha and calcium hydroxide based sealer by single cone technique was performed. A 6-month recall showed complete healing.*

***Key words**: mandibular second molar, endodontic re-treatment, root canal anatomy.*

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I. Introduction

Endodontic failures can be attributable to inadequacies in shaping, cleaning and obturation, iatrogenic events, or re-infection of the root canal system when the coronal seal is lost after completion of root canal treatment[1]. Regardless of the etiology, the sum of all causes is leakage and bacterial contamination[2,3].

Before commencing with any treatment, it is profoundly important to consider all interdisciplinary treatment options in terms of time, cost, prognosis and potential for patient satisfaction. Endodontic failures must be evaluated so a decision can be made among nonsurgical retreatment, surgical retreatment, or extraction[4]. The goals of nonsurgical retreatment are to remove materials from the root canal space and if present, address deficiencies or repair defects that are pathologic or iatrogenic in origin[5].

II. Case Report

A 26-year-old female presented with a history of throbbing pain and extra-oral swelling for past 3 days(Fig 1). The pain kept her awake at night and was arising from the lower right side of his face radiating to the right ear. Clinical evaluation revealed that the patient had intraoral swelling in association with right mandibular second molar. On radiographic examination, a frank pathology was evident that was present apical to the roots of the right mandibular second molar. This tooth had been previously endodontically treated and the substandard obturation was considered as the reason for failure. Therefore, a diagnosis of post-treatment disease secondary to bacterial leakage was made.

The emergency treatment began. On access, three obturated canals were identified (Fig 2). After removing gutta percha using Mtwo R files. the access cavity gets filled with the pus(Fig 3). Copious irrigation with sodium hypochlorite and saline was done and canals were cleaned with 5.25% sodium hypochlorite and saline (Fig 4). A combination of electronic apex locator (Dentsply) and periapical radiographs were used to estimate working lengths (Fig 5). The Master apical file size was an Mtwo #35 taper .04.

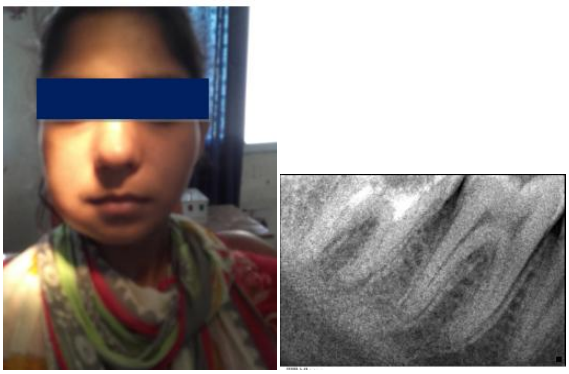

Fig 1: Extraoral swelling and radiograph

Fig 2: Obturated canals on re-access

Fig 3: Pus drainage after Gutta Percha removal

Fig 4: Intra-oral view After debridement

Fig 5: Working length determination

Fig 6: Extra-oral appearance

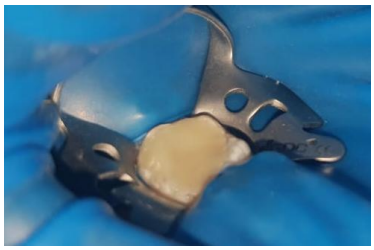

Fig 7: Intraoral post-operative

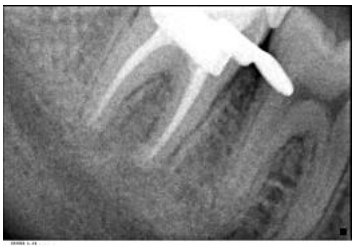

Fig 8: Post operative after obturation

After a week, the patient returned to dental clinic for her endodontic visit without any discomfort. Copious irrigation with 5% sodium hypochlorite was performed during shaping and cleaning procedure. Patient was medicated with antibiotics, analgesics and muscle relaxants. On subsequent appointment, the canals again, Bio Mechanical Preparation (BMP) was done using Glyde (Dentsply) as a chelating agent and irrigation was alternated using Sodium Hypochlorite (NaOCl 3%) and normal saline. Chlorhexidine (Dentachlor 2%) was used as a final rinse. After a week, the swelling was significantly reduced (Fig 6), canals were dried with paper points, coated with Sealapex (Kerr Manufacturing Co.) and obturated using single cone technique. After endodontic retreatment, the tooth was restored with composite resin (Filtek Z250; 3M ESPE, St Paul, MN), which was clinically adequate (Fig 7,8).

III. Discussion

The basic precondition for successful root canal treatment is to seal the root canal system completely through a thorough mechanical and chemical debridement of the entire root canal, followed by three-dimensional obturation with an inert filling material and a final coronal restoration, thereby preventing from reinfection of microorganisms[6]. In the present clinical case, nonsurgical retreatment was indicated because of the radiographic appearance of insufficient root canal therapy. Furthermore, there was radiographic evidence of a periapical lesion with the presence of defective root filling and coronal microleakage. Generally, the success rate of retreatment is considered to be lower than the success rate of primary endodontic treatment17. Yet, it is also deemed that if access to the apical foramen is not inhibited by canal blocks, retreatment can have a similar result with primary endodontic treatment. More specifically, the outcome of secondary endodontic treatment has been reported to be successful in 74-77% of cases. Negative prognostic factors are the pre-existence of a periapical lesion, the quality of previous treatment, the quality of the coronal restoration and the occurrence of iatrogenic errors[7].

IV. Conclusion

There is enough potential for success of primary root canal filling but fact remains that clinicians are confronted with post treatment disease. Endodontic retreatment could be a suitable option in case of a post treatment disease following an endodontic failure. Nonsurgical procedures could look of minor importance or insignificant during retreatment, for managing surgical endodontic failure especially when reendodontic surgery appears inevitable. However, with non surgical treatment approach and adequate apical and coronal sealing we can achieve favourable clinical outcome even in case of failed surgically treated teeth.

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