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RESEARCH ARTICLE

SEQUENTIAL MANAGEMENT OF ENDO- PERIO LESION: A CASE REPORT

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ABSTRACT

Endodontic-periodontal combined lesion is a clinical dilemma because, arriving at a differential diagnosis and deciding a prognosis is difficult. An untreated primary endodontic lesion can become secondarily involved with periodontal breakdown, which may clinically present with unusual signs and symptoms. This can delay the diagnosis and formulating the correct treatment. This case report describes the diagnosis and treatment protocol for an Endo-perio lesion of primary endodontic with secondary periodontal involvement.

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INTRODUCTION

A 26-year-old male patient came to the outpatient department of A J Institute of Dental Sciences, Mangalore with a chief complaint of pain in the lower left back tooth region for the past one month. Patient gave history of dull pain which was spontaneous & intermittent in nature. History of Root Canal Treatment initiation a month back was given. Upon clinical examination temporary restoration was seen with respect to tooth no. 36 with a periodontal pocket of 10 mm. (Fig:1). The tooth was tender on percussion. Radiographic investigation revealed presence of radiopacity in the apical one third of the mesial canal suggestive of a broken instrument& widening of periodontal ligament space (Fig:2). Hence, a diagnosis of primary endodontic lesion with secondary periodontal involvement was made irt 36. The treatment plan formulated continuation of Root Canal therapy followed by periodontal therapy.

Treatment Procedure: A multidisciplinary approach was formulated to salvage the tooth. Endodontic treatment was carried out first and the patient was followed up for two months.

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During the first visit restoration was removed, retrievability of the instrument was difficult as it had separated in the apical curvature of the mesiobuccal canal. Hence it was bypassed using a 10 K-file. Working length was obtained using an apex locator (Root ZX mini) and confirmed radiographically. Biomechanical preparation was done up to 30 size K-file with copious irrigation with 2.5% sodium hypochlorite and saline. Temporary filling was placed. Antibiotics and anti-inflammatory drugs were prescribed (Cap Amoxicillin 500mg thrice daily for 5 days and Tab Diclofenac sodium 50 mg twice daily for three days was prescribed and the patient was recalled after 5 days. When the patient reported for the second visit after 5 days, periodontal abscess was seen in relation to 36. The abscess was drained and irrigated with chlorhexidine. Biomechanical preparation was continued and an open dressing was given. Patient was recalled after 2 days. On the 3rd visit abscess was still persisting and 10mm pocket was persisting. (Fig.3) Drainage was repeated followed by irrigation with chlorhexidine 2%. Calcium hydroxide was placed as an intra canal medicament and closed dressing was given. The patient was asked to continue the course of antibiotic for 3 more days. On periodontal evaluation, Grade II furcation involvement and Grade I mobility was noted irt 36. Subgingival curettage was performed under LA using Gracey's curettes on 36. Re-evaluation was done after 1 week of curettage and a persistent pocket of 10mm was note. In the following visit, obturation was done using cold lateral condensation technique and temporary restoration was given

Fig. 1. Periodontal abscess wrt 36

Fig. 2. IOPA wrt 36

Figure 3. 10mm pocket seen in MB,DB,L,B region

(Fig.4). Two months follow up after endodontic treatment, a persistent periodontal pocket of 10mm (Fig. 5,6) was noted. As there was complete healing of endodontic lesion, periodontal regenerative therapy was planned for treatment of furcation defect.

Figure 4. Immediately after obturation

Fig. 5. PPD 2 months after endodontic treatment

Fig. 6. IOPA 2 months after endodontic treatment

A full thickness flap was reflected to visualize the underlying defect. After thorough degranulation (Fig:7) two-wall intrabony defect was seen wrt 36. Root conditioning was done with Tetracycline hydrochloride (Fig8), followed by placement of bone graft (Osseo graft) (Fig:9) with PRF membrane (Fig.13). The flap was secured with suture & periodontal dressing was given. Post-operative instructions were given. Patient was recalled after seven days.

Fig. 7. Degranulation done using curette and two wall defects noted

Fig 8. Root biomodification was done using Tetracycline

Fig. 9. Xenograft is placed over the defect

Procurement of PRF: PRF membrane was obtained by withdrawing 10 ml of blood from the patient's anti-cubital vein followed by centrifuging it at 2700 RPM for 12 min (Fig10,11,12). PRF could easily be compressed into a PRF membrane, by pressing the PRF clot between two pieces of surgical gauze.

Fig:10 REMI R-8C

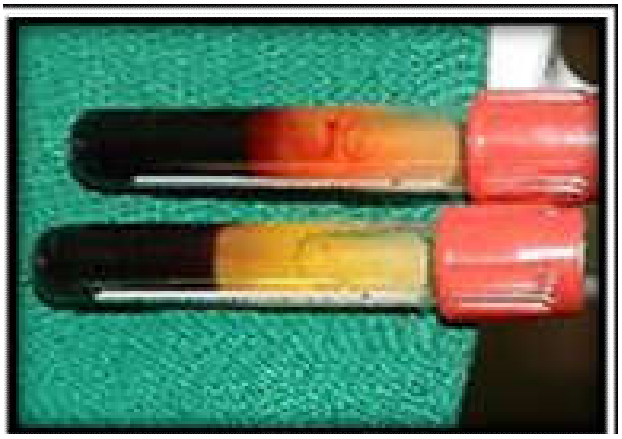

Fig:11 3 layers obtained after centrifugation

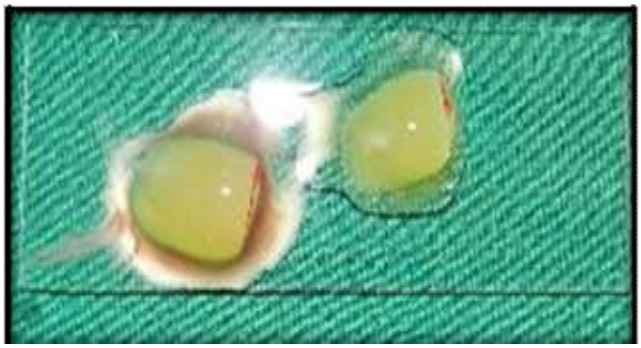

Fig 12. PRF membrane was prepared

Fig. 13. PRF membrane placed over the defect

PREPERATION OF PRF MEMBRANE

Follow Up: The periodontal parameters were recorded after seven days, at one month and at three months postoperatively (Fig. 14,15,16,17)

DISCUSSION

Simring and Golberg were the first to describe the embryonic, anatomic and functional interrelationship between pulp and periodontium (Raja Sunitha,m 2008). One of the most common challenges in today's clinical practice is to treat an endo-perio lesion. Simultaneous existence of a pulpal pathology and an inflammatory periodontal disease can complicate diagnosis and treatment planning and affect the sequence of treatment to be performed.

Fig. 14 Re –evaluation 3 months after periodontal surgery PPD=4mm

Fig. 15. Re-evaluation after 3 months

Fig. 16. Grade I furcation involvement=2mm

Fig. 17. Permanent restoration done

This is particularly true for patients of advanced periodontitis, tooth loss and pulpal diseases. Diagnosis is often challenging because these diseases have been primarily studied as separate entities and such primary diseases may mimic clinical characteristics of other diseases (Rotstein, 2000). A thorough history and careful clinical and radiographic examination are required to identify and accurately assess the contribution of each lesion to patient's problem and to determine the sequence that produces optimal results (Rotstein, 2000). Endodontic treatment is highly predictable & when appropriately performed has high success rate. Periodontal lesion cannot be treated as long as endodontic lesion is present; but effective endodontic treatment cannot eliminate a periodontal pocket (Shenoy, 2010). If majority of bony support has been lost due to periodontitis, regardless of predictability of endodontic therapy, the tooth may have hopeless prognosis. Regeneration, root resection and hemi section are indicated as a part of strategic treatment of multirooted teeth (Aksel, 2014; Harrington, 2000). In this case, the clinical and radiographic findings suggest primary endodontic involvement. Hence, first endodontic therapy was performed followed by periodontal therapy & bone grafting for periodontal regeneration. Generally, in a case of combined endo-perio lesion, an adequate endodontic therapy would result in healing of the endodontic component, and the prognosis would finally depend on the efficacy of periodontal repair/regeneration initiated by either of the treatment procedures. In this case, following endodontic treatment, the periodontal lesion did reduce to an extent on radiographic evaluation after two months but did not subside completely with no change in the clinical parameters. This confirmed a secondary periodontal involvement along with primary endodontic component. With the advent of newer restorative and regenerative materials successful periodontal treatment of endo-periolesions has been made possible (Bonaccorso, 2014). Calcium hydroxide as an intracanal medicament is especially effective in endodontic lesions with extensive periapical pathology and pseudo pockets, because of its temporary obturating action which would inhibit periodontal contamination of the instrumented canals via patent channels of communication. This regimen usually will resolve the pseudo pocket within few weeks. Little or no improvement would be seen with the periodontal perspective after endodontic treatment, leaving a very poor and often hopeless prognosis and as there was a Grade II furcation defect with deep periodontal pocket the treatment involved

regenerative therapy with bone graft along with PRF membrane. Oseograft (Fig.22) is a biocompatible and osteoconductive material that offer a chemical environment and a surface conducive to new bone formation (Gupta, 2017). Platelet rich fibrin have been found to be a key autologous source of growth factors (Kang et al., 2011). Their actions are based on the fact that upon activation, platelets secrete active proteins including platelets derived growth factors and these autologous platelets concentrates are widely used as bioactive surgical additives to decrease inflammation and increase the speed of healing process (Kang et al., 2011). The importance of maintenance therapy also should be stressed upon in the successful management of these cases. Maintenance therapy should be initiated even before surgery and it is the responsibility of dentist to educate the patient regarding the importance of periodontal oral hygiene maintenance, as it hugely influences outcome of the treatment.

Conclusion

Diagnosis of teeth with combined endo-perio problems may be difficult to establish. Hence, it necessitates proper history, and use of various diagnostic aids to assist in accurate clinical diagnosis. Lesions with combined causes will require both endodontic & periodontal therapy. In addition, regenerative techniques, root resection & hemi sections offer alternative approaches, thus enhancing clinician's ability to deal with these complex clinical problems.

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