

# MULTIDISCIPLINARY APPROACH FOR THE TREATMENT OF ENDO-PERIO LESION. A CASE REPORT

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## Abstract

Endodontic-periodontal lesion remains a dilemma to a clinician today. The successful management of endodontic-periodontal lesions requires both endodontic therapy and periodontal regenerative procedures. Guided tissue regeneration (GTR) therapy has been widely practiced to regenerate lost periodontium. Treatment outcome is mainly depends on the extent of periodontal destruction, mobility of tooth, periapical lesion and successful management of endodontic element of an endo-perio lesion. Present case reports the multidisciplinary management of endo-perio lesion by a skilled endodontist and an experienced periodontist.

**Key Words:** Decalcified freeze dried bone allograft (DFDBA), Endo-perio lesion, Endodontic perforation; Grade II furcation involvement, GTR

## Introduction

The intimate relationship between periodontal and pulpal tissues was first described by Simring and Goldberg in 1964.<sup>1</sup> Since then, the term “endo-perio” lesion has been used to describe lesions due to inflammatory products found in varying degrees in both the periodontium and the pulpal tissues.<sup>2</sup>

Endodontic-periodontal lesions present challenges to the clinician as far as diagnosis and prognosis of the involved teeth are concerned. Etiologic factors such as bacteria, fungi, and viruses as well as various contributing factors such as trauma, root resorptions, perforations, and dental malformations play an important role in the development and progression of such lesions.<sup>3</sup>

Perforations in the furcation of molars often cause alveolar bone loss and these areas are difficult to manage. Various treatment modalities have been proposed for the treatment of furcation involvement, including open flap debridement, bio-modification of root surface and various regenerative procedures including GTR and bone grafts. Bone grafts having a property of osteogenesis, osteoinduction and osteoconduction have been used in the past.<sup>2</sup>

Guided tissue regeneration (GTR) therapy introduced in 1980s has been widely used to regenerate lost periodontium from periodontal disease.<sup>3-6</sup> Both human and animal studies have demonstrated various degrees of regeneration of bone and attachment apparatus. GTR therapy has also been implemented in the endodontic surgeries as a concomitant treatment during the management of the endodontic-periodontal lesions.<sup>7-8</sup>

## Classification

The most commonly used classification of Endodontic-Periodontal lesion was given by Simon *et al.*<sup>9</sup>

1. Primary endodontic lesion
2. Primary periodontal lesion
3. Primary endodontic lesion with secondary periodontal involvement
4. Primary periodontal lesion with secondary endodontic involvement

## 5. True combined lesion

This article presents successful management of an endodontic-periodontal lesion affecting a mandibular first molar with a Grade II furcation involvement, by multidisciplinary approach.

## Case Report

A 36-year-old patient reported to the Department of Conservative dentistry and Endodontics, Teerthanker Mahaveer Dental College and Research Centre, with the chief complaint of pain in the lower right “back tooth region” associated with pus discharge since 1 month. On clinical examination, a discoloured post-endo treated crown of 36 was found with draining sinus in the vestibule (Figure 1). There was no mobility or pain on percussion. Electric pulp testing was done to check the vitality of 36, which confirmed that the tooth was non-vital. Periodontal evaluation was done by the Periodontist and a grade II Furcation involvement was detected with Naber’s probe in relation to 36. The horizontal probing depth (HPD) with Naber's probe and vertical probing depth (VPD) with the UNC-15 probe were measured and found to be 9 mm and 8 mm (Figure 1) respectively.



Figure 1: Draining sinus in the vestibule in relation to endodontically failed mandibular first molar and corresponding furcation involvement detection using Naber's probe

IOPA radiograph (Figure 2) of 36 revealed radiolucency restricted to the furcation area but not extending to the root apices. Inadequate obturation of root canals was observed. The treatment was planned jointly by an endodontist and a periodontist.



Figure 2: IOPA showing radiolucency in the furcation area of 36

Endodontic re-treatment followed by guided tissue regeneration was planned for grade II furcation involvement and to explore any perforation in the furcation roof of 36.

#### Endodontic re-treatment procedure

The re-treatment procedure was initiated using Dentsply retreatment rotary Ni-Ti files. After removal of gutta-percha and complete debridement a perforation measuring 1 mm in diameter was observed at the floor of the pulp chamber close to the distal canal. The perforation was repaired using light cured Glass Ionomer. Canals were re-obtured using Protaper gutta-percha points and AH Plus sealer. Access cavity was sealed with Type II light cure Glass-Ionomer.

#### Periodontal Surgery – GTR

The area selected for surgery was anesthetized using xylocaine with adrenaline 1:200,000. A full thickness flap was raised at the buccal aspect following intra-crevicular incision and vertical releasing incision. A vertical releasing incision was placed extending into the alveolar mucosa on 35 distal line angle and 37 mesial line angles. Full thickness flap was raised; area was debrided in order to make the furcation defect visible. With the help of operating microscope, area was evaluated for any defect (Figure 3). The perforation was found to be well sealed.

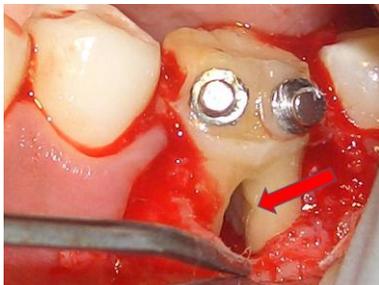


Figure 3: Full thickness flap raised and furcation defect exposed on 36.

Decalcified freeze dried bone allograft with osteoconductive and osteostimulative properties was placed in the furcation defect and guided tissue regeneration (GTR - PERIOL) membrane was secured over it extending over the bone on lateral and apical area as shown in (Figure 4).



Figure 4: Bone graft and resorbable GTR membrane placed over the defect of 36.

Membrane was sutured using resorbable 6-0 suture (vicryl, Johnsons and Johnson) and flap was coronally placed, secured with nonresorbable black silk (4-0) suture. Patient was advised thorough plaque control and was prescribed 0.12% chlorhexidine mouthwash twice daily. The sutures were removed 10 days after surgery.

The patient was put on regular recall at 1, 3 and 6 months. A DFDBA with GTR membrane resulted in a substantial amount of bone fill in the furcation. After 6 months, on clinical examination the probing depth was found to be less than 3 mm sans inflammation.



Figure 5: Post-operative clinical probing at 6 months.

#### Discussion

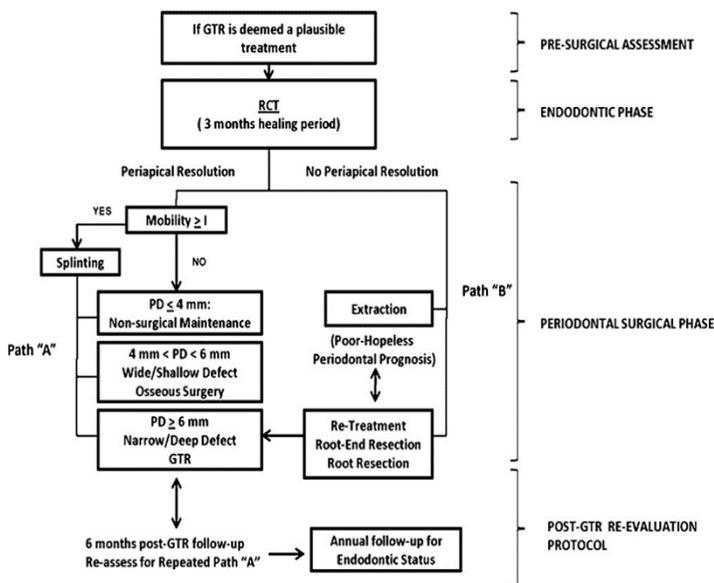
Diagnosis of endo-perio lesion remains the dilemma to a clinician. Proper history taking and sequential treatment planning is required by endodontist together with a periodontist.

The most common clinical/radiographic features of the endodontic-periodontal lesions are deep pocket depths and periapical radiolucency with a non-vital pulp status. Deep pockets were often localized and reached the full length of

the root, which resembled a vertical root fracture. Most of the teeth showed minimal mobility attributing to the partial support from the intact palatal or lingual plate.<sup>10-12</sup> Endodontic perforations often complicate endodontic treatment and pose problems to the periodontal health leading to varying degrees of periodontal destruction based on their locations. These may be due to operator errors during instrumentation or to resorptive defects in teeth that have undergone luxation or avulsion as a result of trauma. Perforations in the furcation of lower molars often caused alveolar bone loss and these areas are difficult to manage.<sup>13</sup>

The healing of an endodontic lesion is highly predictable, but the repair or regeneration of periodontal tissues is questionable if associated with it. Endodontic perforations often make the case more challenging. Endodontic therapy mostly should precede periodontal pocket elimination procedures in the case of a primary endodontic and secondary periodontal involvement; however, endodontic therapy would result only in resolution of the endodontic component of involvement and would have a little effect on the periodontal lesion. Therefore a thorough examination indicate the primary etiology and, thereby, direct the proper course of treatment plan as presented in this case.

A treatment strategy<sup>3</sup> for the periodontal regenerative procedures is given in the following flow chart:



### Conclusion

The result of the present case report suggest that the successful multidisciplinary management of endodontic perforation at the furcation of lower molar by an endodontist and periodontal regenerative surgery for the grade II furcation involvement of 36 with DFDBA along with GTR membrane performed by a periodontist resulted in a significant amount of bone fill with improved clinical attachment levels and healthy gingiva.

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