

A SYMBIOTIC TREATMENT APPROACH FOR PERIO-ENDODONTIC LESION

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ABSTRACT

The term perio-endo lesion has been indiscriminately used to categorize a disease of either periodontal or endodontic etiology, with or without secondary involvement of the other, as well as true combined lesions. However, it does not provide any information about the primary etiology. An understanding of the mechanisms of interaction of pulp and periodontium, correct examination and diagnosis will help to determine the prognosis and proper treatment plan of the tooth.

This case report describes a symbiotic treatment approach for a primary periodontal lesion with secondary endodontic involvement showing complete regression of the underlying pathology.

Keywords- perio-endo, bone defect, prognosis.

INTRODUCTION

Over the past few years the dental literature has consistently reflected a controversy regarding the effect of periodontal disease on the dental pulp and more recently the effect of pulpal necrosis on the initiation and progression of marginal bone loss. It was in 1964, when **Simring & Goldberg**¹ first described the relationship between periodontal and endodontic disease. The relationship between pulpal and periodontal disease can be traced to embryological development, since both are derived from a common mesodermal source². As the tooth develops and the root is formed, the anatomical-physiological pathways for communication are created. The most common route of communication is the apical foramen, others include dentinal tubules, lateral and accessory canals, palatogingival groove etc. Accidental (non-physiological) pathways may also occur like perforation of the root, vertical root fracture etc. This interrelationship has been traditionally demonstrated using radiographic, histological and clinical criteria.

The endodontic status of the involved tooth should be determined first⁶. The vitality testing is most widely used as diagnostic aid. However these tests measure the neural response providing little information regarding the vascularity of the pulp. They are advantageous when it indicates a necrotic pulp, which assures the clinician that the pulpal disease is contributing to the periodontal breakdown and endodontic therapy is indicated. Recent attempts that may provide information about the vascularity include the use of doppler devices, pulse oximetry, and magnetic resonance imaging⁷.

The prognosis and treatment of each endodontic periodontal lesion varies. Primary endodontic disease should only be treated by endodontic therapy. Primary

periodontal disease should only be treated by periodontal therapy. In this case, the prognosis depends on the severity of the periodontal disease and the patient response. Primary endodontic disease with secondary periodontal involvement should first be treated with endodontic therapy. Treatment results should be evaluated in 23 months and only then periodontal treatment should be considered. This sequence of treatment allows sufficient time for the initial tissue healing and better assessment of the periodontal condition⁸. It also reduces the potential risk of introducing bacteria and their byproducts during the initial phase of healing.

Primary perio with secondary endodontic involvement and true combined lesions require both endodontic and periodontal therapies. The prognosis of these lesions depends primarily upon severity of the periodontal disease and tissues response to treatment. True combined diseases usually have a more guarded prognosis.

CASE REPORT

A 39 year-old male patient reported with the chief complaint of pain, swelling, and pus discharge from the maxillary right first molar (#16) from one month duration. The tooth was previously sensitive to hot and cold, and had recently developed spontaneous pain and pus discharge. Periodontal probing depths were 9mm mesially and 6mm mid-buccally, and 7.5mm distally. A periapical radiograph showed a widening of the periodontal ligament space in the periapical area with an infrabony defect on the mesial aspect of the tooth. It also revealed root canal obturated #16 [Figure 1]. A perio-endo lesion associated with #16 was diagnosed.

The patient was advised to take Amoxicillin 500mg thrice daily, Paracetamol 650mg thrice daily, Metronidazole 400mg thrice daily, and B-complex with Lactobacillus once daily. Patient was given an appointment for follow up after seven days. The patient returned after a week with reduction in pain and swelling. A one-month recall was planned for further follow up. After one month it was observed a stable situation and disappearance of pain, however, the pockets persisted around the tooth. It was decided to correct the defect after one month. The site was surgically opened up for debridement and a circumferential defect was evident around the tooth [Figure 2]. The alloplastic bone graft BIO-OSS (Ostofom) was placed to cover the exposed root and fill the defect [Figure 3].

The clinical appearance of the tooth had improved considerably at the time of evaluation three and six months following treatment. The periodontal pockets had reduced from 9mm to 3 mm mesially, from 6mm to 1mm labially, and from 7.5mm to 2mm distally. Radiographic evidence

showed a significant radio-opacity [Figure 4]. The results were stable and maintained at the end of nine-months follow-up.

DISCUSSION

Simon, Glick and Frank⁷ in 1972 classified the lesions based on the primary source of infection as:

1. Primary periodontal lesions.
2. Primary endodontic lesions.
3. Primary periodontal lesions with secondary endodontic involvement.
4. Primary endodontic lesions with secondary periodontal involvement.
5. True combined lesions.

Wang & Glickman⁸ in 2002 introduced the category "Concomitant lesions" which refers to existence of both lesions independently.

By understanding the pathogenesis, the clinician can then suggest an appropriate course of treatment and assess the prognosis. Once the lesions progress to their final involvement, they give a similar radiographic picture and the differential diagnosis becomes more challenging.

The above case show that the treatment strategy for primary periodontal lesions with secondary endodontic involvement is determined by its correct diagnosis.

Jansson & Ehnevid⁹ evaluated series of papers and reported that root canal treatment should be completed at a high technical level before periodontal therapy is initiated.

In another study, **Blomof et al**¹⁰ concluded that root canal therapy should be performed and periodontal therapy avoided, or at least delayed, for one or two months and then only if the attachment apparatus does not seem to be improving, the clinician should proceed with periodontal therapy.

However, **Sanders and colleagues**¹¹ reported that after the use of freeze dried bone allografts 65 % of the teeth that did not have root canal treatment showed complete or greater than 50 % bone fill in periodontal osseous defects, while only 33% of teeth which had root canal treatment prior to periodontal surgical procedure had complete or greater than 50% bone fill.

Treatment appraisal and prognosis depend primarily on the diagnosis of the specific perio- endo lesion. The main factors to consider for treatment decision-making are pulp vitality and type and extent of the periodontal defect.

The treatment and prognosis of primarily endodontic and primarily periodontal disease is very straightforward. However, prognosis of combined forms of the lesions is more difficult to predict. Endodontic therapy is more predictable and completion of this therapy before periodontal procedures has a positive effect on periodontal healing. The prognosis of combined diseases rests with the severity and extent of the periodontal lesion and the efficacy of periodontal therapy.

In conclusion a proper diagnosis of the lesion following thorough history of the patient combined with clinical and radiographic examination can lead to successful treatment and prognosis of the endo perio lesions.

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Figure Legends

- Fig.1 Pre-operative radiograph shows widening of the periodontal ligament in the periapical area with an infrabony defect on the mesial aspect of mesiobuccal root.
- Fig.2 Shows circumferential defect around mesiobuccal root during open flap debridement.
- Fig.3 Placement of bonegraft on mesial aspect of mesiobuccal root after complete removal of pathology.
- Fig.4 Post operative radiograph shows radio-opacity around mesiobuccal root.



Fig. 1



Fig. 2



Fig. 3



Fig. 4