Abstract: The pulp and periodontium have embryonic, anatomic and functional inter-relationships. The simultaneous existence of pulpal problems and inflammatory periodontal disease can complicate diagnosis and treatment planning. This case report evaluates the efficacy of Alloplast material along with bio-absorbable barrier membrane periocoll in the management of fenestration associated with an endo-perio lesion in a right mandibular first molar. A 32-year-old female patient with an endo-perio lesion in the right mandibular first molar was initially treated with endodontic therapy. Patient complaint of pain in the same region after 2 weeks following the endodontic treatment, the patient was then referred to periodontics department, a 5 mm pocket was noticed in the buccal aspect of 46. Fenestration was seen with distal root of 46 after open flap debridement. Defect was treated using graft substitute material along with guided tissue regeneration (GTR) membrane. There was a significant bony fill on radiographic examination. After 6 month there was a significant gain in CAL and PD reduction.

Keywords: Allopost, Endo-perio Lesion, Guided Tissue Regeneration, Perio-dontal Disease

I. Introduction

The pulp & the periodontium are closely related, they have embryonic, anatomic and functional similarities. Turner and Drew was the one who summarized the effect of periodontal diseases on the pulp in the 1970s. The relationship between periodontal and pulpal disease was first described by Simring and Goldberg in 1964. Pulpal and periodontal problems are estimated to cause 50% of tooth mortality. Though endoperiodontal lesions are encountered occasionally they may pose difficulty to the clinician in diagnosis and complicate the treatment. The periodontal-endodontic lesions have been characterized by the association of the pulp and periodontal disease in a same tooth, which makes complex its diagnosis because a single lesion may present signs of endodontic and periodontal involvement. This suggests that one disease may be the result or cause of the other or even originated from two different and independent processes which are associated by their advancement. The effect of periodontal inflammation on dental pulp is very controversial.

The Periodontium & Dent pulp have an embryonic, anatomic and functional inter-relationships. The dental pulp and periodontium are ectomesenchymal in origin. Lindhe also reported that in case of accessory canal exposure, bacterial infiltrates of the inflammatory process can reach the pulp through apical foramen and canaliculi of the furcation area. According to Adriaens et al., bacteria coming from the periodontal pockets have the capacity of reaching the root canals towards the pulp. This suggest that the dentinal tubules may serve as a reservoir for the microorganisms and that may recolonize the treated root surface.

The most commonly used classification was given by Simon et al.
The area selected for surgery was anesthetized using xylacine with adrenaline 1:80,000. A full thickness mucoperiosteal flap was raised at the buccal aspect following intracrevicular incision in the 46 region extending one tooth and vertical releasing incision at the line angle of 47 region not extending into the alveolar mucosa in the 46 region. Full thickness flap followed by split thickness flap was raised beyond the mucogingival junction. This was done to facilitate coronal positioning of the flap to achieve better regenerative procedure. After reflection, thorough degranulation and debridement was done at the fenestration. Also thorough scaling and root planning was carried out on the exposed root surface area of the defect.

Alloplast (bioactive glass) material with osteoconductive and osteostimulative properties was placed and stabilized in the fenestration area with resorbable membrane (Periocoll)[fig5, 6] Coronal advanced flap and primary soft tissue closure was done with non-resorbable black silk (3–0) suture using interrupted suturing technique. The patient was advised proper plaque control, and was prescribed 0.12% chlorhexidine mouthwash for rinsing twice daily. The sutures were removed 10 days after surgery and the patient was advised to brush at the surgical site using anultra-soft bristle brush for 2 weeks. The patient was also advised to continue mouthwash for another 3 weeks. The patient was put on regular recall at 1, 3, 6 months. A bioactive glass material resulted in a substantial amount of bone fill in the fenestration. After 6 months, the probing depth was found to reduce significantly. The post-op radiograph shows bone fill in the defect as shown in figure 2.

III. Discussion

The periodontal-endodontic lesions have been characterized by the involvement of the pulp and periodontal disease in the same tooth. This makes it difficult to diagnose whether the lesion is endodontically or periodontal lesion involved. Generally, in a case of combined endo-perio lesion, only endodontic treatment would result in healing of the endodontic lesion. The prognosis may depend on the periodontal repair/regeneration initiated by either of the treatment protocol. In this case, following endodontic therapy the periodontal lesion had reduced radiographically to some extent after 1 month but did not subsided completely and there was no change in the clinical symptoms like pus discharge through pocket. This has confirmed a secondary periodontal involvement along with primary endodontic lesion. Recently, many studies have been publishing with bioactive glass material. The Bioactive glass have both osteoconductive and osteostimulatory effects. This Pore size (90–710 μm) allows optimal space for neovascularization. It enhances bone formation by ionic dissolution of the ceramic particles such that the silica gel layer forms over the particles on contact with body fluids. Over this silica gel layer, a calcium phosphate layer forms which quickly converts into a hydroxyl carbonate apatite layer.

When the etiology is purely endodontic, calcium hydroxide can be used as the best intracanal medicament to subside the lesion. It is an excellent medicament as it is a bactericidal, anti-inflammatory and proteolytic, it inhibits resorption and it favors repair. Calcium hydroxide is mainly effective in endodontic lesions with extensive periapical pathology and pseudo pockets. This will help in resolving the pseudo pocket within a few days. In any conditions with both endodontic and periodontal lesion, an attempt should be made to identify the primary cause of a combined lesion but this may not always be possible. In such cases, it is not essential to determine which disease entity occurred first as the treatment will involve endodontic and then periodontal management. The results of this case report suggest that bioactive glass is effective bone filler seen radiographically and reduces pocket depth clinically. This was also seen from the studies by Anderegg ET al., Raja ET al., and Humagain ET al. used bioactive glass in the fraction defects. Therefore it can concluded that bioactive glass is effective as a bone graft substitute in treatment of periodontal component of the endo-perio lesion.

IV. Conclusion

Endodontic-periodontal lesions present challenges to the clinician as far as diagnosis and prognosis of the involved teeth are concerned. It is multifactorial disease entity having multiple etiologic factors such as bacteria, fungi, and viruses as well as other various contributing factors such as trauma, root resorptions, perforations and dental malformations also play an important role in the development and progression of such lesions. The endo-perio lesion is a condition characterized by the association of pulpal disease and periodontal in the same dental element. This highlights the importance of taking the complete clinical history and making the right diagnosis to ensure correct prognosis and treatment.

Reference


DOI: 10.9790/0853-14980103 www.iorsjournals.org
Efficacy of Bioactive Glass Material with Guided Tissue Regeneration in the Endo-Perio Lesion


Figure 1. Preoperative RVG
Figure 2. Postoperative 6 month RVG
Figure 3. Periodontal abscess
Figure 4. Fenestration with 46
Figure 5. Bioactive glass material
Figure 6. Periocol membrane
Figure 7. Six Months follow up