

Periodontal Management of an Endo-Perio Lesion - A Case Report

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Abstract

The term endo-perio lesion describes those defects that are an extension of an endodontic lesion into an existing periodontal lesion. Such lesions have the characteristics of both diseases, and this complicates both the diagnosis and the treatment planning. With proper treatment, the healing of an endodontic lesion is highly predictable, whereas the regeneration of tissues lost to periodontitis is less foreseeable. This case report describes the favorable result of a periodontally involved tooth with an angular bone defect that was treated with platelet-rich fibrin and hydroxyapatite bone graft material after endodontically treating the tooth.

Keywords: Alloplastic graft, Endo-perio lesion, Growth factor, Platelet rich fibrin, Regeneration.

INTRODUCTION

The relationship between periodontal and pulpal disease was first described by Simring and Goldberg in 1964.^[1] Since then, the term “endo-perio lesion” has been used to describe those defects that result from the extension of an endodontic lesion into an existing periodontal lesion.^[2,3] The healing of an endodontic lesion after proper endodontic treatment is highly predictable. However, the regeneration of tissues lost to periodontitis is a daunting task. With advanced periodontal attachment loss, only an optimal endodontic treatment may not be sufficient to retain the tooth as a functioning member of the dentition. If the periodontal lesion is a multi-wall bony defect, the success of the therapy likely depends on the ability to fill or regenerate the attachment to obliterate the defect.^[4] To fill these periodontal intrabony defects, there are several bone graft materials available, of which porous hydroxyapatite (HA) has proven to be efficacious.^[5,6] These porous HA bone grafts have excellent bone-conductive properties that allow the outgrowth of osteogenic cells from existing bone surfaces into the neighboring bone material.^[7-9] Platelet-rich fibrin (PRF) is an autologous fibrin matrix consisting of platelet cytokines, growth factors, and cells that facilitate the promotion of osteoblast proliferation and suppress the growth of oral epithelial cells.^[10] This paper reports a case of an infrabony defect being treated with PRF and HA.

CASE REPORT

A 37-year-old male patient came to the Department of Periodontics with a complaint of pain and sensitivity on the upper right posterior tooth for the last 6 months. On examination, a 6 mm probing pocket depth (PPD) was found on the distal aspect of tooth #14. The tooth was sensitive to both hot and cold. An intra-oral periapical (IOPA) X-ray showed an angular bone defect on the distal aspect of #14. The tooth was tender on percussion. The patient underwent root canal treatment and was then re-evaluated after 8 weeks, where a very little amount of PPD reduction was noted (Figure 1). Regenerative periodontal therapy was then planned.

After adequate local anesthesia, a crevicular incision was given, and a full-thickness mucoperiosteal flap was elevated. Following proper debridement, biomechanical preparation was done with citric acid, and the defect was filled with PRF mixed with HA. The guided tissue regeneration membrane was placed and sutured with vicryl (Figures 2 and 3). The mucoperiosteal flap was then closed with a silk suture. Postoperative follow-

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up was done at 1 week, 2 weeks, 1 month, 3 months, and 6 months after surgery. At each visit, the patient was instructed to maintain oral hygiene, and the surgical site was irrigated with normal saline. There was a marked reduction of PPD after three months ($PPD \leq 3$ mm), which was maintained up to 6 months. The tooth was asymptomatic on percussion at the time of evaluation. The IOPA X-ray showed adequate bone fill in the defect site (Figure 4).

DISCUSSION

Periodontal therapy has progressed significantly since 1957, when Prichard first focused on the morphology and treatment of the infrabony pocket.^[11] There have been several researches since then that have focused on the multiple benefits of PRF, including the capability to slowly release autologous growth factors with the presentation of a stronger and more long-lasting effect on the differentiation and proliferation of osteoblasts.^[12-14] Anitua *et al.* demonstrated that patients receiving dental implants after sinus floor augmentation surgery with PRF exhibited a 100% survival rate with a mean follow-up of 33 months.^[15] In a study by Trisi *et al.*, the use of

PRF glue, along with autogenous bone and Biogran, improved new bone formation and formed a greater amount of bone in only 5–6 months.^[16] In a meta-analytical study done by Liu *et al.*, the authors concluded that PRF acts as an efficacious substitute for other regenerative procedures in order to treat periodontal bony defects.^[17]

Platelets consist of platelet-derived growth factor AB, transforming growth factor β -1, and vascular endothelial growth factor that stimulate cell proliferation, matrix remodeling, and angiogenesis. The use of PRF in the maxillary intrabony defect in the present case report showed faster healing. Previous cases have shown that gingival recession treated with PRF membrane generated greater gingival thickness and complete root coverage. PRF is considered to be efficaciously used in sinus lift procedures, cystic cavity procedures, and socket augmentation procedures. They can also be adjunctively used in surgical periodontal therapy and could possibly enhance soft tissue and hard tissue healing.^[18]

Previous studies have reported that the amalgamation of a mineralized, rigid graft material with a semi-fluid, non-rigid agent, for example, enamel matrix proteins, suggestively improved the clinical consequences of intrabony defects

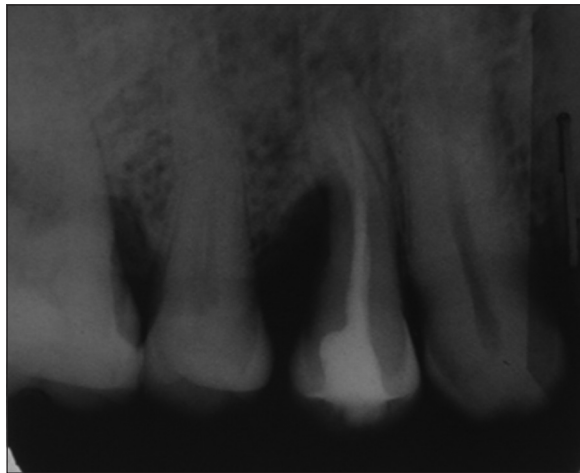


Figure 1: Post-endodontic treatment



Figure 3: Material and membrane placed

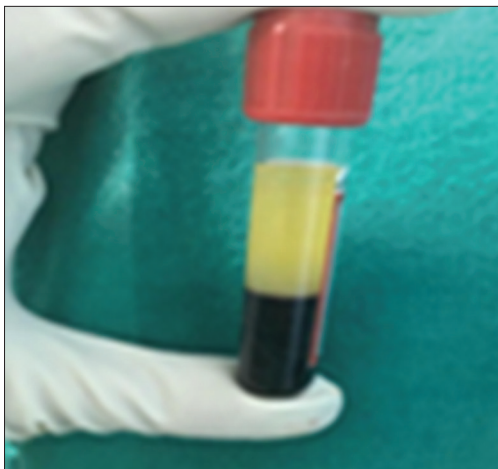


Figure 2: Platelet-rich fibrin prepared

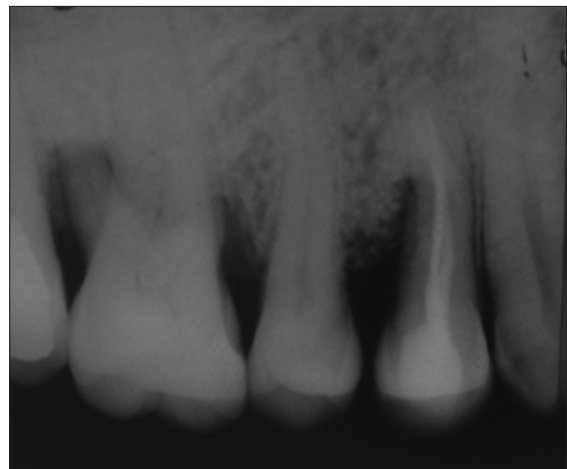


Figure 4: Radiological evidence of bone fill

preserved without the addition of rigid graft material.^[19] Therefore, HA was used for the present case, keeping in mind the objective that it could improve the PRF properties by preserving the adequate space for tissue regeneration to ensue and also exert an osteoconductive effect in the intrabony defect area. Hence, it was evident from the present case follow-up period that the combination of HA and PRF produced a greater reduction in pocket depth, facilitated clinical attachment gain, and helped to fill the defect. A PRF membrane was used to cover the defects after they were filled, which helped to contain the HA and PRF in the intrabony defect during the initial phase of healing.

CONCLUSION

The use of PRF and HA for the management of intrabony defects may lead to enhanced wound healing and a noteworthy decrease in intrabony defect depth.

CONFLICTS OF INTEREST

Nil.

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