WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 7, 2060-2068. Case Study ISSN 2277– 7105

A SEQUENTIAL APPROACH IN THE TREATMENT OF ENDO-PERIO LESIONS WITH DIFFERENT ETIOLOGIES: A CASE SERIES

Dr. Surya Suprabhan*[1], Dr. A. S. Arya[2], Dr. Suchetha A[3], Dr. Keshava Prasad[4], Dr. Shashikala K.[5] and Dr. Apoorva S. M.

[1]Post Graduate Student Department of Periodontology DAPM R V Dental College Bangalore-560078.

[2]Post Graduate Student Department of Conservative and Endodontics DAPM R V Dental College Bangalore-560078.

[3]Professor and HOD Department of Periodontology DAPM R V Dental College Bangalore-560078.

[4]Professor and HOD Department of Conservative and Endodontics DAPM R V Dental College Bangalore-560078.

[5]Professor Department of Conservative and Endodontics DAPM R V Dental College Bangalore-560078.

[6]Reader, Department of Periodontology DAPM R V Dental College, Bangalore- 560078.

Article Received on
11 May 2020

Revised on 01 June 2020
Accepted on 22 June 2020

DOI: 10.20959/wjpr20207-17954

***Corresponding Author**
Dr. Surya Suprabhan
Post Graduate Student Department of Periodontology DAPM R V Dental College Bangalore-560078.

ABSTRACT

This article presents meticulous management of three different cases involving the endo-perio lesions with different etiological factors. Identifying the correct etiology and treating the cause is the at utmost importance for the successful management complex endo-perio lesions. This case series emphasis on accurate diagnosis, sequential treatment plan and multidisciplinary approach for successful clinical outcome.

INTRODUCTION

The endo-perio lesions are conditions characterized by the association of periodontal and pulpal disease in the same dental element. There are various etiologic factors such as bacterial, fungal, and viral; as well as other various contributing factors such as trauma, root resorption, perforations, and dental malformations which play an important role in the development and progression of such

lesions.[1] They are complex in nature and have varied pathogenesis hence the term 'endo – perio lesion' has been used to describe lesions due to inflammatory products found in varying degrees in both periodontium and pulpal tissues.[2] Due to complexity of infections, an inter disciplinary approach along with accurate diagnosis and treatment planning will aid in successful clinical outcome.

Case Report: 1

A 26-year-old male patient visited our department with a chief complaint of shaking of his lower left front tooth region since two weeks. Patient also gave complaint of pus discharge from the same area. On clinical examination; there was grade II mobility and 15mm deep pocket with respect to (wrt) distolabial aspect of #33. On radiographic examination, well defined radiolucency with bone loss in the distal aspect of #33. Tooth was found to be non-vital. Scaling and root planning were done followed by Root canal treatment (RCT). Periodontal flap surgery was planned after three weeks of RCT, under adequate Local anesthesia (LA), a full thickness flap was raised from #34-32. Open flap debridement was done and pre-suturing was performed. Plasma Rich Fibrin (PRF) and bone graft (Osteon II®) was placed at the distal aspect of #33. Sutures and Periodontal pack were placed. Patient was given antibiotics and analgesics. Patient was recalled after one week for suture removal on which, the healing was found to be satisfactory. Patient was recalled for routine follow-up at 3 and 6 months post-operatively. Reduction in the Pocket depth was noted. There was no mobility at 6-month follow-up.

Case Report: 2

A 24-year-old female patient reported to the department with a chief complaint of dull pain wrt upper left back tooth region. On clinical examination, there was food lodgment and overhanging restoration wrt 16 and fractured miracle mix restoration wrt #15. A 7mm pocket was also seen at mesiobuccal aspect of 16. On radiographic examination, there was evidence of bone loss and overhanging restoration wrt mesial aspect of #16. Patient gave history of RCT two years back. Since, the overhanging restoration was sub-gingivally placed and clinically inaccessible to remove, an open flap debridement followed by regeneration of lost bone was planned. Scaling and root planning were done, and the patient was recalled after one week for periodontal flap surgery. After administration of adequate amount of LA, a full thickness flap was raised from #15-17. Overhanging restoration was removed, and debridement was done. Fractured restoration wrt #15 was replaced using miracle mix cement.

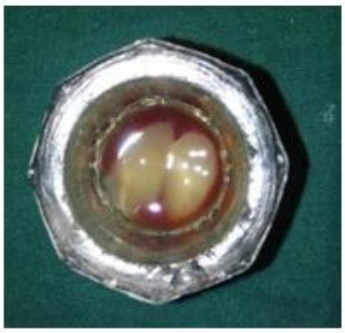
A radiograph was taken to ensure that no fragment of miracle mix was left behind. Bone graft (G- bone graft®) was placed wrt mesial aspect of 16. Flap was sutured and periodontal pack was placed. Patient was given antibiotics and analgesics. Patient was recalled after one week for suture removal on which, the healing was found to be satisfactory. Patient was recalled at 3 months post-operatively and is still under follow up. Significant bone fill was evident on 3-month evaluation.

Case Report: 3

A 51-year-old female patient visited our department with a chief complaint of bleeding gums and dull pain wrt upper and lower arch. On clinical examination, there were generalized pockets. A deep dentinal caries was seen wrt 46. Grade I furcation involvement was also present. Treatment plan was proposed. First, scaling and root planning were done, followed by RCT wrt 46. After three weeks of RCT, periodontal flap surgery was planned. On administrating adequate amount of LA, a full thickness flap was raised from 45-47. Open flap debridement and pre-suturing were done. Bone graft (G- bone graft®) was placed wrt distal portion of 46. Flap was sutured and periodontal pack was placed. Patient was given antibiotics and analgesics. Patient was recalled after one week for suture removal, on which, satisfactory healing was found. Patient was recalled at 3 months post-operatively. Clinical parameters were reduced, and significant radiographic bone fill was evident during the 3 months follow up.

Clinical pictures

Case report-1



PRF

PLACEMENT OF PRF

SUTURES PLACED

Case report 2

OCCLUSAL VIEW OF OVERHANGING RESTORATION

BUCCAL VIEW OF OVERHANGING RESTORATION

OVERHANGING RESTORATION

REDUCTION OF OVERHANGING RESTORATION

G-BONE BONE GRAFT

PLACEMENT OF G-BONE BONE GRAFT

SUTURES PLACED

Case report-3

9mm POCKET DEPTH

AFTER OPEN FLAP DEBRIDEMENT

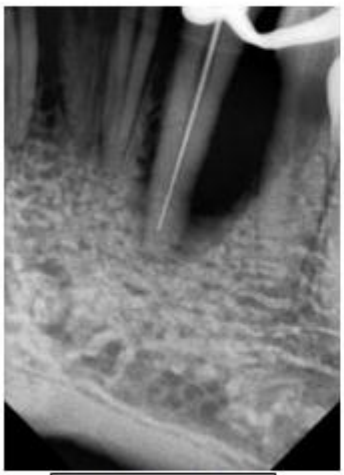
G-BONE GRAFT

PLACEMENT OF G-BONE GRAFT

SUTURES PLACED

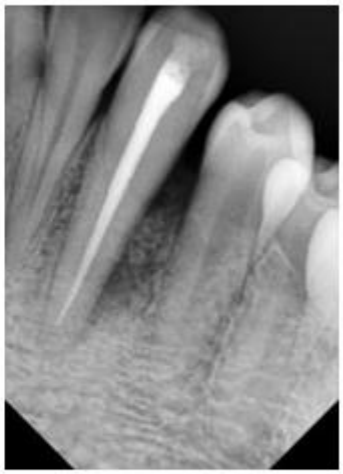
Radiographic findings

Case report-1



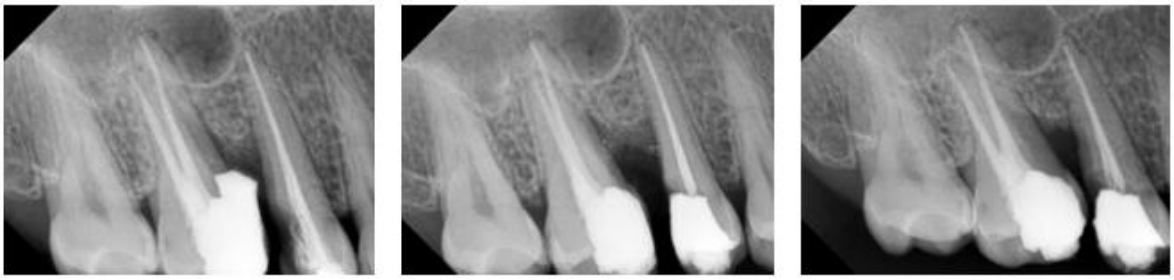
PRE-OP XRAY

3 MONTHS POST OP XRAY



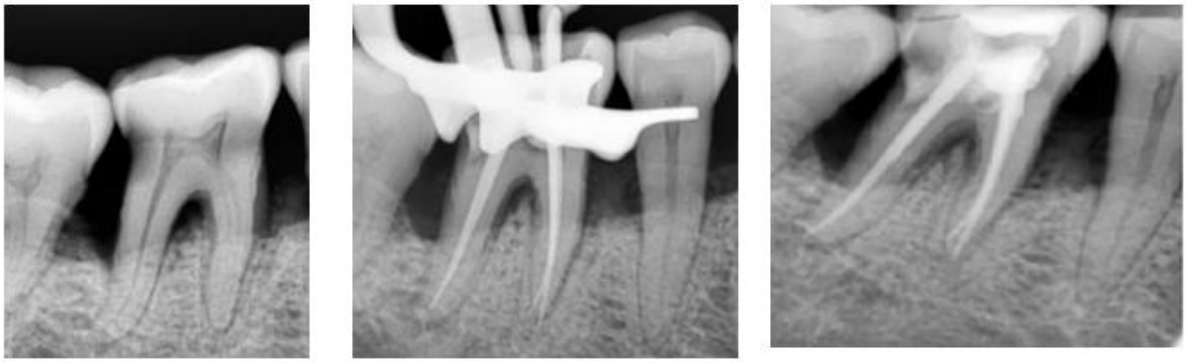
6 MONTHS POST OP XRAY

Case report-2



PRE-OP XRAY | IMMEDIATE POST OP XRAY | 3 MONTHS POST OP XRAY

Case report-3



PRE-OP XRAY | MASTERCONE RADIOGRAPH | 3 MONTHS POST OP XRAY

DISCUSSION

The 1st case report deals with an endo-perio lesion, as a result of long-standing trauma from occlusion. The role of trauma from occlusion, in the pathogenesis of periodontal disease is not fully understood, but some provisional conclusions can be drawn from the evidence available at this time. (1) Trauma from occlusion does not initiate or aggravate marginal gingivitis, or initiate periodontal pockets; (2) it can cause increased tooth mobility; (3) active trauma tends to accelerate bone loss and pocket formation depending on the presence of local irritants and inflammation; (4) trauma may be perpetuated by bruxism.[3] It seems in the first case report, severe bone loss and deep pocket would have occurred because of active trauma that was present wrt 22-23 and 33. Along with root canal therapy the trauma was relieved and later periodontal surgery was done. For regeneration, a combination of growth factor (PRF) and alloplast bone graft material (Osteon II ®) was used. PRF is a second-generation platelet

concentrate, introduced by Choukroun et al. in 2001. It has several advantages over Platelet-rich plasma as it neither requires anticoagulant nor bovine thrombin for its preparation. The conversion of fibrinogen into fibrin takes place slowly as there are small quantities of thrombin that is present in the blood sample itself. Thus, a physiological architecture that is very favorable to the healing process is obtained with PRF. The presence of leukocytes and cytokines in the fibrin network play a significant role in the self-regulation of inflammatory and infectious phenomena within the grafted material.[4] Osteon II® is a 100% synthetic bone graft material. It constitutes of 70% beta tricalcium phosphate and 30% hydroxyapetite. It has an effective osteoconductive property for bone formation. They permit outgrowth of osteogenic cells from existing bone surfaces into adjacent bone graft material. Since there are no organic components, Osteon II ®does not induce any allergic reaction and is clinically very well tolerated. It is capable of inducing migration, adhesion, and proliferation of osteoblasts inside the pore network.[5] The architecture effectively promotes angiogenesis inside the pore system and interconnections, and blood vessels are able to carry cells and soluble signals promoting bone formation and finally bone regeneration.[6]

In the 2nd case report, severe bone loss has been observed because of overhanging amalgam restoration. The roughness of the restorative material like amalgam has been implicated in gingival inflammation. It is believed that the gingival inflammation occurs due to the favorable environment for plaque accumulation rather than from mechanical irritation.[7] There will be adherence of bacteria to amalgam and tooth surfaces, results in accumulation of plaque and calculus formation with subsequent gingival inflammation. The overhanging restoration may impinge on the embrasure space and make interproximal cleaning difficult. Because of continued plaque accumulation and subsequently gingival inflammation, alveolar bone destruction may result. Bjorn et al. reported a statistically significant reduction in alveolar bone height associated with overhanging restorations.[8] Hence it is advisable to reduce the overhangs so that there is no food accumulation, gingival inflammation and further bone loss. For regeneration, G-bone graft ® was placed. G-Bone grafts® are of synthetic Calcium Hydroxyapetite in low crystalline form. It is a mixture of HA, TCP and other forms of calcium such as calcium carbonate and bi calcium phosphate. This case was followed up for 3 months and is still ongoing. A significant amount of bone fill can be seen post operatively in the follow-up radiographs.

In the 3rd case report, deep pocket was present wrt to distal aspect of 46. Bone loss was also evident. Scaling and root planning were done. After root canal therapy, patient was recalled after three weeks for review. During re-evaluation it was confirmed that there was secondary periodontal involvement which needed periodontal intervention. Johnson et al had described Periodontal Treatment Needs System (PTNS) which is based on the motivation and instruction in effective oral hygiene measures, subgingival debridement of the root surfaces of periodontally involved teeth and debridement facilitated by surgery.[9] For regeneration, G-bone graft® was placed. Wang and Boyapati suggested PASS principle that is critical for bone regeneration: primary wound closure, angiogenesis as a blood supply and source of undifferentiated mesenchymal cells, space maintenance, and stability of the wound.[10] During the 3rd month follow up, significant bone fill was evident.

CONCLUSION

The healing of an endodontic lesion is always highly predictable, but the regeneration of periodontium is questionable if associated with it. And also, the success of endodontic therapy is dependent on the completion of periodontal therapy. The complete treatment of both aspects of endo-perio lesions is essential for successful long-term results. In all the three case reports discussed here, alveolar bone gain is evident along with healing of the periodontal pockets.

REFERENCES

1. Singh, Preetinder. “Endo-perio dilemma: a brief review.” Dental research journal, 2011; 8(1): 39-47.
2. Ahmed HMA, Hashem AAR Accessory roots and root canals in human anterior teeth: a review and clinical considerations. International Endodontic Journal, 2016; 48: 724– 36.
3. Ramfjord SP, Ash MM. Significance of occlusion in the etiology and treatment of early, moderate and advanced periodontitis.
4. Toffler M, Toscano N, Holtzcaw D. Introducing Choukron′s PRF to the reconstructive surgery milieu. J Implant Adv Clin Dent, 2009; 1: 21-3.
5. Mangano C, Scarano A, Iezzi G, Orsini G, Perrotti V, Mangano F, *et al.* Maxillary sinus augmentation using an engineered porous hydroxyapatite: A clinical, histological, and transmission electron microscopy study in man. J Oral Implantol, 2006; 32: 122-31.
6. Okuda K, Tai H, Tanabe K, Suzuki H, Sato T, Kawase T, *et al.* Platelet-rich plasma combined with a porous hydroxyapatite graft for the treatment of intrabony periodontal

defects in humans: A comparative controlled clinical study. J Periodontol, 2005; 76: 890-8.

7. Waerhaug, J.: Effect of rough surfaces upon gingival tissue. J Dent Res, 1956; 35: 323.
8. Bjorn A, Bjorn, H., and Grkovic, B.: Marginal fit ofrestorations and its relation to periodontal bone level. Part I: Metal fillings. Odontol RevylO, 1969; 311.
9. Johnson JR, Gjermo P, Bellini HD. A System to classify the need for periodontal treatment. Acta Odontol Scand, 1973; 31: 297-305.
10. Wang HL, Boyapati L. "PASS" principles for predictable bone regeneration. Implant Dentistry, 2006 Mar 1; 15(1): 8-17.