



"COMPREHENSIVE CARE FOR ENDO-PERIO LESIONS: A MULTIDISCIPLINARY APPROACH"

Periodontology

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ABSTRACT

This presents a case study highlighting the effective treatment of an endo-perio lesion utilizing a combination of demineralized freeze-dried bone (DFDB) graft and Platelet Rich fibrin (PRF). The patient presented with a vertical defect requiring significant bone regeneration. Surgical intervention involved thorough debridement of the lesion followed by application of DFDB graft material and PRF. Post-operative monitoring revealed substantial bone gain in the vertical defect area, with successful resolution of the endo-perio lesion. This case underscores the efficacy of DFDB bone graft and PRF in promoting bone regeneration and resolving complex endo-perio lesions, demonstrating promising outcomes in periodontal and endodontic interventional therapies.

KEYWORDS

Perio-Endo Lesion, DFDB, Regeneration, PRF.

INTRODUCTION:

Three main pathways have been implicated in the development of periodontal-endodontic lesions, namely:

1. Dentinal tubules
2. Lateral and accessory canals
3. Apical foramen

Based on the primary cause of the disease, Simon et al. has given classification of Endodontic Periodontal lesion:

- (i) Primary Endodontic lesions,
- (ii) Primary Endodontic lesions with Secondary Periodontal involvement
- (Iii) Primary Periodontal lesions,
- (iv) Primary Periodontal lesions with Secondary Endodontic involvement,
- (v) True Combined lesions.

Primary periodontal lesion with secondary endodontic involvement

- It has been reported that pulpal changes resulting from periodontal disease are more likely to occur when the apical foramen is involved.
- In these cases, bacteria originating from the periodontal pocket are the most likely source of root canal infection

METHOD:

The study was approved by the ethical committee of the Institution and Patient's informed consent was taken before the commencement of treatment.

- A 45 year old male Patient reported to the dept. of Periodontology with chief complaint of pain and persistent pus in lower front teeth region. On History taking, Pain was intermittent in nature, on intra oral examination, The probing pocket depth (PPD) of distal aspect of #32 was 9 mm, Tenderness on percussion was positive, bleeding on probing was present, tooth was grade II mobile. Radiograph was taken which showed Vertical bone loss distal to 32.



Fig no 1: Pre-op probing depth

Taking into Consideration all the clinical and radiographic findings, Diagnosis: **Primary periodontal lesion with secondary endodontic involvement**

Nonsurgical periodontal therapy was done & Patient was referred to endo w.r.t 32 for endodontic treatment following which periodontal regenerative flap surgery was planned.

Endodontic treatment as follows: After local anesthesia (2% lidocaine with 1:100,000 epinephrine) and rubber dam isolation and appropriate access cavity was prepared

Cleaning and shaping of the root canal system was performed using Neoendo flex (Orikam Healthcare India Pvt. Ltd) with abundant 5% sodium hypochlorite and 17% EDTA irrigation.

The working length was determined by an electronic apex locator (Airpex mini apex locator, Orikam Healthcare India Pvt. Ltd.). The root canal was instrumented by using nickel titanium rotary instrumentation and calcium hydroxide was placed as an interappointment dressing. After three weeks, Root canal obturation was performed with lateral condensation of gutta percha. (Diadent Group International)

The endodontic access cavity was restored with the composite material.

After completion of endodontic treatment patient was followed up for 3 months. IOPA was taken with 32 which showed Vertical defect w.r.t 32.



Fig no2 : Pre-op radiograph

Patients Complete blood count, bleeding time, and clotting time, Blood sugar levels were assessed and found to be within normal limits before surgery.

Surgical Procedure:

- Intraoral antiseptics & extra oral antiseptics were performed using iodine solution.
- Following administration of local anesthesia, sulcular incisions were made, and mucoperiosteal flap was reflected.
- Defect debridement was carried out with the help of area specific curettes.

Regenerative procedure was done using PRF + DFDB bone graft.

The mucoperiosteal flap was repositioned and secured in place using 3-0 non-resorbable black silk surgical suture followed by Coe Pack periodontal dressing.



Fig no 3: Ofd Done, Intrabony Defect Distal To 32



Fig no 4: PRF and DFDB bone graft Placed

For Prf Preparation:

The PRF was prepared following the protocol developed by Choukroun et al. Intravenous blood was collected using a 10ml syringe. The collected intravenous blood was then transferred in sterile plain blood collection tubes, without anticoagulant and immediately centrifuged in a swing-out head centrifuge machine (Remi R-8C) at 3,000 rpm for 10 minutes.

After centrifugation, 3 distinct layers were visible topmost acellular plasma (platelet-poor plasma), at bottom red blood corpuscles and in middle structured fibrin clot



Fig no 5: DFDB Bone graft and PRF Prepared

Post-operative care:

- Antibiotics and analgesics (amoxicillin 500 mg two times a day for 5 days and anti-inflammatory and Serrapeptidase two times a day for 5 days) were prescribed along with 0.2% chlorhexidine mouth wash twice daily, for 1 week.
- Periodontal pack and sutures were removed after 1 week postoperatively.
- Patients were instructed for gentle brushing with soft toothbrush. Patients were instructed for oral hygiene maintenance and examined weekly for 1 month and then 3 and 6 months.

RESULTS:

After 6 months, the probing depth was found to reduce by 4 mm. The post-op radiograph shows bone fill.

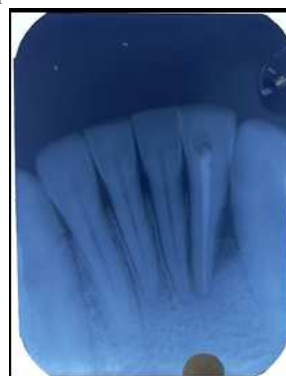


Fig no 6: Post-Op Radiograph

DISCUSSION:

The ideal goal for periodontal therapy is the reconstitution of bone and connective tissue attachment that has been destroyed by the disease process⁹. To repair periodontal tissue damage, various treatments include scaling root planing, Open flap debridement surgery and addition of various biomaterials for tissue regeneration.

In this study, we evaluated the effectiveness of DFDB bone graft with Platelet rich fibrin (PRF) in perio endo lesion.

Aksel H, 2014, Presented a case series, different kinds of endo-perio lesion were treated with sequential endodontic and periodontal treatment.

- The follow-up radiographs showed complete healing of the hard and soft tissue lesions.
- The tooth with endo-perio lesions should be evaluated thoroughly in terms of any cracks and fracture, especially furcation areas for a long-term prognosis.
- It was showed that 3 months treatment intervals between endodontic treatment and periodontal surgery has no harmful effect on periodontal tissue healing.
- Dr. Surya Et al, 2020, Presented a case report, a combined lesion due to traumatic occlusion, it was first treated with conventional root canal therapy and then followed by periodontal therapy.
- At a three month post operative evaluation there was reduction in pocket depth. Radiographic examination revealed evidence of regeneration of the bone.
- This shows that proper diagnosis, followed by elimination of etiological factors and utilizing a multidisciplinary treatment

approach can restore the functional status of teeth with endo-perio lesions.

- **Munis Mukhtar et al**, 2021, Reported a case of 22-year old female patient presented with clinical findings of vertical bone loss in two adjacent teeth, **ENDO T/T: Root canal treatment, Perio T/t: Non-surgical periodontal therapy followed by guided tissue regeneration using decalcified freeze-dried bone allograft (DFDBA) and collagen membrane.**

Analysis of clinical and radiographic findings showed marked reduction in pocket depth up to 12mm with hard tissue repair on 3-month, 2-year and 5- year follow ups.

Conclusion of the study, Successful management and subsequent repair of bone defect in this case, suggests that endo-perio involved teeth having questionable to poor prognosis can be effectively treated.

CONCLUSION:

- A perio-endo lesion can have a varied pathogenesis which ranges from quite simple to relatively complex one.
- Due to the complexity of these affections, an interdisciplinary approach with a good collaboration between Periodontist and endodontist is recommended.
- Periodontal Regeneration of infected tissue or lost tissue is very crucial for preserving the integrity of the attachment apparatus and ultimately saving the tooth.
- It could be concluded that DFDB bone graft mixed with PRF made it feasible for manipulation of the material and effective defect fill.

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