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Sticky Bone using Dfdba Bone Graft in the Management of the Intrabony Defects: A Case Report

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Introduction

Periodontal disease is among the most prevalent diseases worldwide.

Is characterized by the presence of gingival inflammation, periodontal pocket formation, loss of periodontal attachment and loss of alveolar bone around the affected teeth.

Regeneration of lost structures has become the primary therapeutic goal in periodontics.

The objectives of periodontal regenerative therapy are to reconstitute the bone, cementum, and periodontal ligament on a previously diseased root surface.

For the last few decades, demineralized freeze-dried bone allograft (DFDBA) has been used alone and in combination with other treatment modalities for periodontal regeneration.

The presence of BONE MORPHOGENETIC PROTEINS contained within DFDBA aids in mesenchymal cell migration, attachment, and osteogenesis.

Choukroun's PRF, is a matrix of autologous fibrin, in which are embedded intrinsically a large quantity of platelet and leukocyte cytokines during centrifugation leading to their progressive release over time (7-11 days), as the network of fibrin disintegrates

I-PRF Obtaining Method

Mourão 2015

centrifuging for two minutes at 3300 rpm

Sticky Bone

It is moldable, so well adapted over various shapes of bony defect. Micro and macro movement of grafted bone is prevented, so the volume of bone augmentation is maintained during healing period, therefore the need for block bone and titanium mesh is minimized. Fibrin network entraps platelets and leukocytes to release growth factors, so bone regeneration and soft tissue regeneration is accelerated. No biochemical additives are needed to make sticky bone. Fibrin interconnection also minimizes soft tissue ingrowth into sticky bone graft.

Aim

TO EVALUATE THE EFFICACY OF STICKY BONE USING DFDBA BONE GRAFT IN THE MANAGEMENT OF THE INTRABONY DEFECTS.

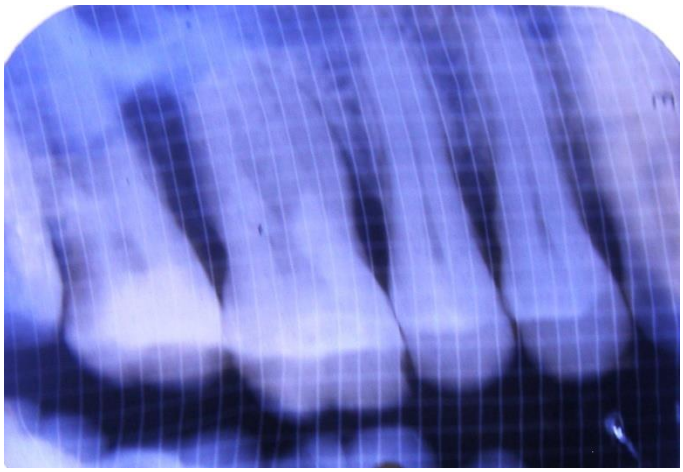
Background

A 25-year male patient presented with chief complaint of PAIN in right back posterior teeth.

Patient gives history of dull, intermittent and non-radiating pain.

No significant past medical history.

Non-Smoker.



9 mm of PD IRT distal to 26#

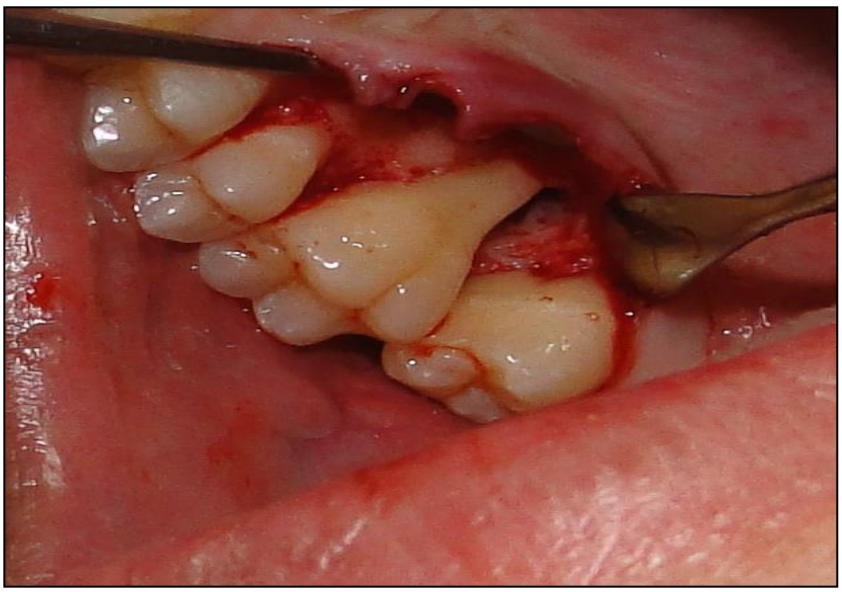
Pre-surgical phase

The complete treatment plan was explained to the patient, and duly written consent was obtained.

COMPLETE oral prophylaxis and routine blood investigations were done.

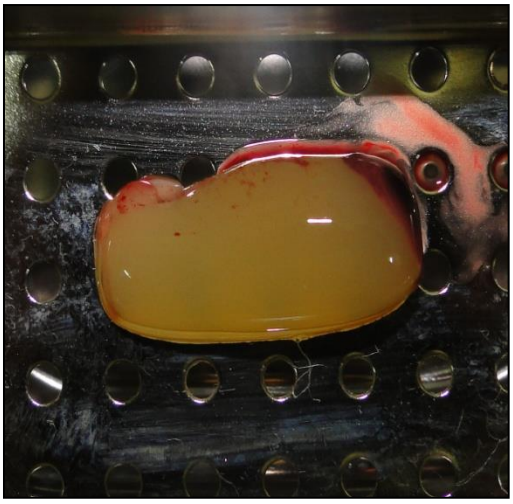
Two hours prior to surgery, 2g of amoxicillin was administered to patient. Antibiotic therapy was continued for one week postoperatively.

Surgical Procedure



Defect after Debridement

Preparation Of Sticky Bone

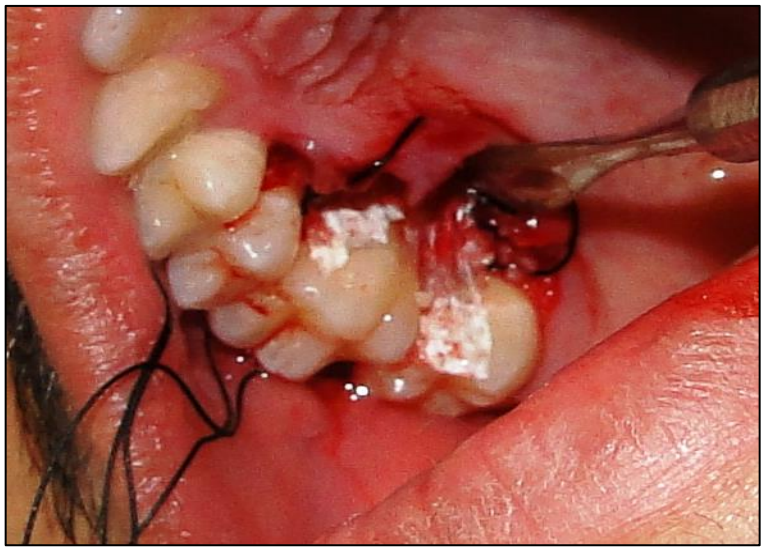


PRF

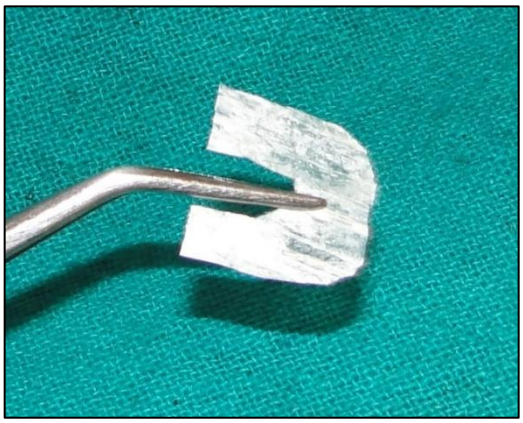
DFDBA Bone Graft **Sticky Bone**

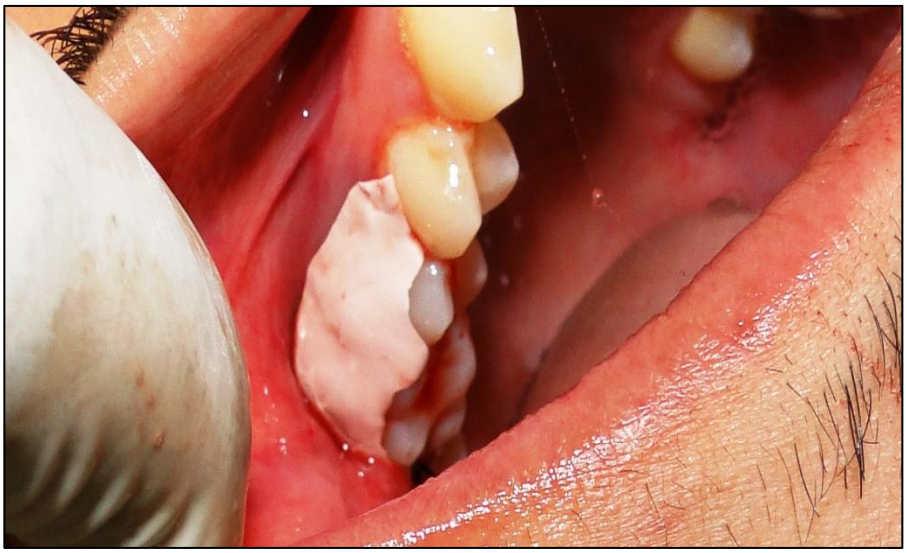
I-PRF

Placement of Sticky Bones into the defect.



Placement of Amniotic Membrane.



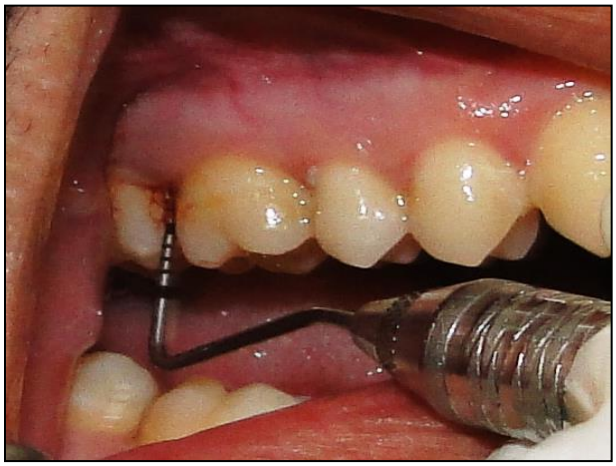


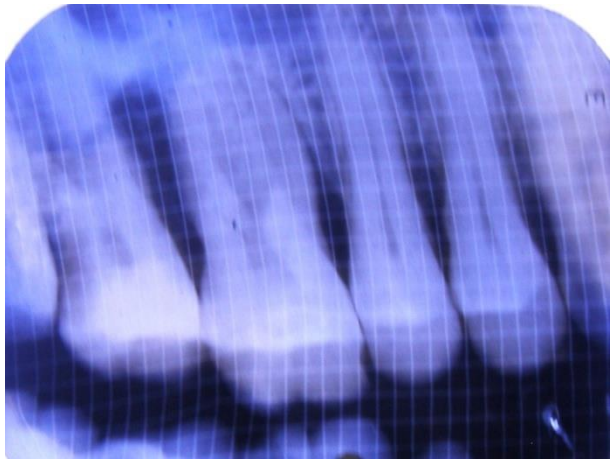
Suture & COE pack placed.

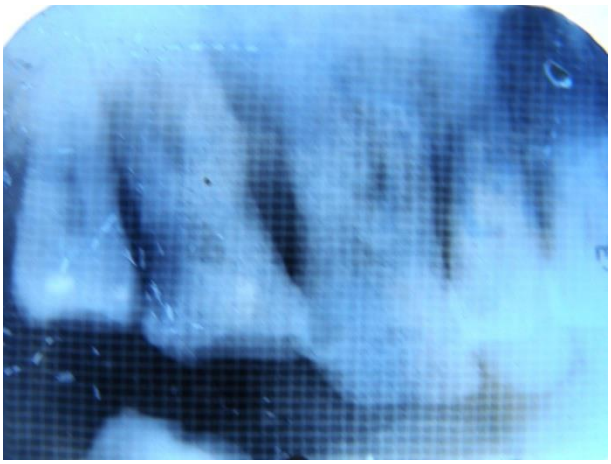
Result

Healing takes place uneventfully with no instances of infection, which shows the acceptance of graft.

There was no sign of bleeding on probing, reduction in pocket probing and significant radiographic bone fill was observed after 9 months.







After 9 Months

Discussion

The goal of periodontal therapy includes not only the arrest of periodontal disease progression, but also the regeneration of structures lost due to disease.

Bone grafting is one of the most common forms of regenerative therapy and is usually essential for restoring periodontal supporting tissue.

DFDBA is widely used in periodontal therapy and has been demonstrated to be safe and capable of inducing new bone formation.

It shown to be both osteoconductive and osteoinductive.

PRF consists of a fibrin matrix polymerised in a tetramolecular structure; the incorporation of platelets, leukocytes, and cytokines; and circulating stem cells.

Slow fibrin polymerization during PRF processing leads to the intrinsic incorporation of platelet cytokines and glycan chains in the fibrin meshes.

This result implies that PRF, unlike the other platelet concentrates, is able to progressively release cytokines during fibrin matrix remodelling. Flow cytometry showed that i-PRF includes the highest number of platelets and leukocytes among all the solid PRF-based matrices.

i-PRF made scientific promises in terms of clinically applicable cell-based tissue engineering. Biomaterials such as bone substitute materials can be easily combined with fluid i-PRF.

Amniotic membrane (AM) closely mimics basement membrane of human oral mucosa and provides a source of stem cells, immunomodulatory, anti-inflammatory, and antiscarring effects among many more which make it an exciting option for the future of periodontal regeneration.

Conclusion

Within the limits of present case report, it can be concluded that the combination therapy of Injectable PRF (i-PRF) with demineralized bone grafts holds a promising potential for CAL gain, PPD reduction, and bone fill in an intrabony defect.

However, further long-term clinical research with larger sample size and confirmatory histological evaluations and advanced radiodiagnostical assessment can provide a greater insight to better assess the clinical benefits and actual regenerative process of the combination approach Injectable PRF (i-PRF) with demineralized bone grafts. (STICKY BONE)