

## GUIDE BONE REGENERATION WITH PLATELET RICH FIBRIN FOR OPTIMAL IMPLANT PLACEMENT: AN OVERVIEW AND A CASE REPORT

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### Abstract

Guided bone regeneration is used most often when a tooth is extracted and a defect in the bone remains, leaving inadequate bone for implant placement. To regenerate enough bone for successful implant placement, a ridge augmentation technique is often required. Platelet Rich Fibrin (PRF) is used in guided bone and tissue regeneration. Outside of PRF, no other grafting material can govern and stimulate all 3 of the key processes involved in tissue and bone regeneration including angiogenesis, chemotaxis, and cell proliferation. The aim of this research was to evaluate the efficiency of PRF membrane and PRF/graft combination on bone healing in the male patient after tooth removal.

Case study: A 51-year-old male presented following atraumatic extraction of the gangrenous maxillary second premolar. The operative site was treated with guided bone regeneration (GBR), using sticky bone for space maintenance (made from bovine-derived xenograft (Bio-Oss) as a bone substitute mixed with advanced- platelet rich fibrin (A-PRF pieces and drained supernatant). A-PRF membrane was applied to isolate the defect site for GBR and as an interposition barrier to promote soft tissue healing. After 6 months of GBR the implant was placed and a natural-appearing esthetic outcome was eventually achieved with the final restorations.

Alveolar bone deficiency in most cases is no longer a contraindication to placement implants. The purpose of using PRF was to activate and facilitate the healing and regenerative capacity of the host tissue, by providing a strong fibrin scaffold, major growth factors, and allowing space for tissue regeneration. We used PRF as a protective barrier on the bone graft site and helped avoid perforations of the weakened gingival tissues and prevent associated contamination of the bone graft below.

PRF seems to be an accepted minimally invasive approach with good clinical results. Applying PRF to the bone defects may accelerate the bone graft healing and shorten the period for rehabilitation.

**Key words:** Guided bone regeneration, Implant placement, Platelet rich fibrin.