

TREATMENT OF INFRABONY OSSEOUS DEFECT USING BIOACTIVE GLASS: A CASE REPORT

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ABSTRACT:

Regeneration of the lost periodontium as a consequence of periodontal diseases yet unachieved by surgery and/or any other means to its previously existing normal physiologic level is one of the main goals of periodontal therapy. Several synthetic alloplastic materials have been used in the past as an implant in infrabony defects with a goal to reconstruct the lost part of attachment apparatus via new osseous tissue formation. The present case report was undertaken to evaluate the effect of bioactive glass in the treatment of human infrabony periodontal defects.

Key words: Bioactive glass, intrabony defects, periodontitis, regeneration

INTRODUCTION:

Regeneration of lost structures has become the primary therapeutic goal in periodontics.^[1] The objectives of periodontal regenerative therapy are to restore periodontal tissues affected by disease to their original architectural form and function. This requires regeneration of the gingival connective tissues destroyed by inflammation, formation of cementum, restoration of lost bone and re-establishment of connective tissue fibres into previously diseased root

surfaces.^[2] Conventional periodontal treatments, such as scaling and root planing, are highly effective at repairing disease-related defects and halting the progression of periodontitis but do little to promote regeneration of the lost periodontium.^[3] Thus, was the need for more effective techniques that could promote the body's natural ability to regenerate its lost periodontal tissues, particularly alveolar bone.

Over the years, various treatment modalities have been

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developed in an attempt to conserve which is already present and regenerate which has been lost and therefore, regenerative therapy refers to various modalities, such as bone grafts and guided tissue regeneration. The efforts to obtain optimal regeneration of the periodontium has created a renaissance of research in the utilization of autologous, allogenic, and alloplastic grafts in the treatment of periodontal osseous defects.^[4]

CASE DETAIL:

A 25 year female patient reported to the Department of Periodontics and Oral Implantology with the chief complaint of bleeding gums and food lodgement in lower back tooth region. On examination, gingiva was red in color, soft and edematous in consistency with spontaneous bleeding on probing. On probing there was a periodontal pocket of 7 mm on distal aspect of 36 [Figure 1].



Figure1- On Probing, Periodontal pocket of 7 mm on distal aspect of 36

Radiograph showed infrabony defect distal to 36 [Figure 2]. Patient oral hygiene was poor with no significant history of medication. The treatment plan was to

perform an open flap debridement in 36 region and utilize bioactive glass (novabone dental putty) to fill the osseous defect.



Figure 2- Radiograph showing infrabony defect distal to 36

Surgical technique

With identification of an appropriate infrabony defect, local anesthesia is administered. Periodontal flap surgery was done by giving sulcular incision and a full thickness mucoperiosteal flap was reflected to visualize the defect. No vertical incisions were given and the flap was extended to adjacent tooth on both sides for adequate reflection. On surgical exposure, a defect of 5 mm distal to 36 was seen [Figure 3].



Figure 3- On surgical exposure, a defect of 5 mm distal to 36

A thorough debridement was carried out to remove all granulomatous tissue and subgingival plaque and calculus. Bioactive glass was placed into the defects [Figure 4].



Figure 4- Placement of Bioactive glass

The flaps were sutured with close approximation of flaps using interrupted sutures.[Figure 5]



Figure 5- Suturing after flap repositioning

Post surgical treatment and follow-up

Patient was instructed not to brush the operated area for 1 week. A 0.12%

Chlorhexidine mouthwash was prescribed for rinsing twice daily. Periodontal dressing and sutures were removed after 10 days post-operatively and the patient was advised to continue the Chlorhexidine mouthwash for two weeks. After this he was advised to start mechanical plaque control in the operated quadrant using soft brush.

The patient was put on regular recall at 1, 3, 6 and 9 months. Clinical parameters were again recorded at 6 months. The clinical picture had improved considerably at the time of three-month recall visit and there was no pain or bleeding from the sites. After 6 months, the probing depth had reduced to 3 mm distal to 36 [Figure 6].



Figure 6- Postoperative probing depth 3 mm distal to 36 after 6 month

The radiograph showed good bony fill in the defect distal to 36 [Figure 7]. Clinically, the sites appeared healthy, firm and with good adaptation to the underlying tissues.



Figure 7- Postoperative radiograph showing bony fill in the defect distal to 36

DISCUSSION:

Periodontal disease is among the most prevalent diseases worldwide and is characterized by the presence of gingival inflammation, periodontal pocket formation, loss of periodontal attachment and loss of alveolar bone around the affected teeth.^[5] The goal of periodontal

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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.^[3]

Nowadays, bioactive glass products have been available for the treatment of intrabony defects. Bioactive glass has a good manageability, hemostatic and osteoconductive properties and it may also act as a barrier retarding epithelial down growth.^[7] So, The aim of this case report was to present the use of bioactive synthetic graft material (Novabone Dental Putty) in the treatment of intrabony periodontal osseous defects with excellent results.