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A novel approach to treat peri-implantitis using sticky bone: A case report

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Abstract---Dental rehabilitation using implants sometimes lead to complications which ultimately leads to implant loss. With respect to peri implantitis, the non surgical mechanical therapy has not demonstrated to be equally effective. Therefore, surgical therapies have been proposed for treating peri implantitis. The aim of this procedure was to evaluate efficacy of using sticky bone - demineralized freeze dried bone allograft (DBDFA) + I-prf in management of a peri-implant defect. A full thickness flap was reflected, exposing the defect. Mechanical debridement of implant surface was done with Teflon curettes. After degranulation, implant surface was rinsed with 10% povidone iodine for 10 minutes. DFDBA + I-PRF was used to completely fill the defect and it was covered using a collagen membrane, Healiguide. 6 months post operatively, radiograph showed bone gain around the dental implant. DFDBA + Prf along with Healiguide shows promising results in treatment of peri-implantitis.

Keywords---peri-implantitis, implant, bone graft, sticky bone, PRF, collagen membrane.

Introduction

With advancements in dentistry, dental implants have become one of the most desirable choice for replacement of missing tooth or teeth. Successful studies with follow up periods of 16 months have demonstrated 82.9% positive results. ^[1] With proper care and adequate knowledge of the indications and contraindications, risk factors as well as the anatomical knowledge, dental implants seems to be a safe treatment modality. Still in the past few years, there has been a lot of evidence on the occurrence of peri-implant infections, which represent one of the most recurrent complications that affect both the hard and soft tissues surrounding the implant. These complications vary from inflammation and bleeding on probing to bone resorption around the implant and ultimately implant failure. ^[2] Failure of implant due to peri-implantitis is a caused due to the interplay of specific factors of the host with those of the biofilm. Also, the diagnosis and treatment of a peri-implantitis can be a significant issue to the dentist and it depends on a clinical approach which is backed by supporting evidence. Since dental implants are being very routinely placed in most of the practices, it is of utmost importance that clinicians are able to evaluate the condition of implants for their long term survival and provide treatment strategies for failing implants. Therefore, different modalities for prevention and treatment of peri-implant disease should be implemented in dental rehabilitation postulations. The purpose of this case report was to display the outcome of a case of peri-implantitis using surgical intervention with regenerative procedures, in order to achieve bone gain around the implant placed.

Case report

A 37-year-old male patient in a good general health reported to the Department of Periodontics and Oral Implantology, DY Patil School of Dentistry, Navi Mumbai. He was systemically healthy and had no allergies to medications. The patient complained of mobility with an implant placed in the right posterior region 2 years back. Clinically there an implant in the 46 region, with no prosthesis over the implant, but only a healing abutment was placed. It was associated with Miller's Grade I mobility and a probing depth of 7 mm on the mesial aspect and 5 mm on the distal aspect of the implant. An intra oral radiograph revealed a significant amount of bone loss around the implant. It was diagnosed as a case of Moderate Peri-implantitis. ^[3]



(a) Pre-op implant site with gingival former



(b) Pre-op implant site without gingival former



(c) Pre-op intra oral radiograph

Treatment procedure

After the diagnosis of moderate peri-implantitis, oral prophylaxis was performed under the non-surgical treatment protocol, which was followed by surgical intervention. 2% lignocaine with 1:80000 was administered in the region of 46 to anaesthetize the surgical site. A crestal incision was placed mesially and distally to the affected implant, along with sulcular incisions around the adjacent teeth. A full thickness mucoperiosteal flap was elevated to gain access to the bone defect. The mechanical decontamination of granulation tissue was performed with Teflon curettes to minimize possible damage to the implant surface. The exposed implant threads were then irrigated with 10% povidone iodine solution for 2 minutes and later rinsed off with sterile saline solution. Blood was then taken from the patient's forearm and collected into a tube, which was used to prepare Injectable Platelet Rich Fibrin (I-PRF). This was achieved by spinning the tube in a centrifuge at 700 rpm for 3 minutes. It was then mixed with granules of allograft bone DFDBA (Demineralized Freeze-Dried Bone Allograft) to form Sticky bone (stable fibrin bone graft). It has its own body and due to its easy handling properties, it can be molded into desirable shape. Sticky bone was then adapted to the defect site and a collagen membrane (Healiguide) was placed as a barrier membrane. The flaps were then approximated and interrupted sutures were given. The patient was prescribed antibiotic therapy consisting of capsule Amoxillin 500 mg thrice a day for 5 days, Tablet EnzoFlam as an analgesic twice a day for 3 days and chlorhexidine gluconate 0.2% mouthwash for 14 days. The patient was recalled after 14 days for suture removal.



(d) 7 mm probing depth on the mesial aspect



(e) Placement of sticky bone in the defect



(f) Placement of Healiguide over the graft



(g) Placement of interrupted sutures after flap closure

Results

The patient was recalled at a follow up period of 1 month, 3 months & 6 months post-operatively. Clinical examination and radiographic investigations were repeated to evaluate the changes. Clinically, there was a reduction in mobility (grade 1 to 0), no bleeding on probing and there was a reduction in the pocket depth to 4 mm. Radiographically, 1-month post op, there was radio opacity seen around the implant, indicating bone gain. There was a further increase in the

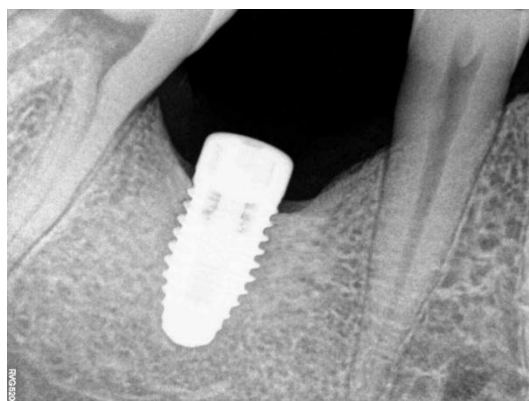
radio opacity at 3 months post operatively. 6-month follow up radiograph showed significant amount of bone gain around the implant.



(h) 1 month follow up radiograph



(i) 3 months follow up radiograph



(j) 6 months follow up radiograph



(k) Crown placement post 6 months w.r.t. 46

Discussion

The primary goal of peri-implant disease treatment is to reduce the microbial load and control the inflammatory reaction to re-establish a healthy peri-implant tissue. ^[4] The treatment modalities for peri-implantitis comprises of non-surgical and surgical approach. The non-surgical approach includes mechanical debridement alone or combined with antibiotics or lasers. The surgical approach includes open flap debridement that may be associated with resective or regenerative techniques. In peri-implantitis, the surgical approach has shown to perform better than non-surgical techniques. ^[5]

Guided Bone Regeneration is based on the concept of providing space over a defect so that osteogenic cells can grow and prevent the growth of undesired cells into the maintained space where blood clot is protected and gingival connective tissue is excluded to preserve the growth of osteogenic cells. There are two types of barrier membranes used, bioresorbable or non-resorbable where bioresorbable is further divided into synthetic and natural. Commercially available non-resorbable membranes are expanded polytetrafluoroethylene (ePTFE), titanium-reinforced ePTFE, high-density PTFE, or titanium mesh, whereas bioresorbable barrier membranes are synthetic polymeric forms and natural forms are collagen and connective tissue. Membranes used in combination with a bone graft material maximizes the regenerative outcomes. ^[6] A combination of autograft and allograft/xenograft offers good results by providing advantages of both grafts used. As sticky bone has its own body and can be easily moulded into the required shape, it offers easy handling and also prevents dispersion. ^[7]

Conclusion

Different treatment modalities have been planned and used in the treatment of peri-implantitis. In this case report, a bone substitute with the use of a resorbable collagen membrane was used to treat the osseous defect due to peri-implantitis. It can thus be concluded that in cases of peri-implantitis where there is bone loss and positive clinical findings like bleeding on probing & mobility, regenerative procedures can be implemented to improve the peri-implant condition & prevent further peri-implant bone loss, preventing implant failure. Sticky bone + collagen membrane proves to be a reliable treatment option in an attempt to save a failing implant.

References

1. Simonis P, Dufour T, Tenenbaum H: Long-term implant survival and success: a 10-16-year follow-up of non-submerged dental implants. *Clin Oral Implants Res* 2010, 21:772-777
2. Schwarz, F.; Derks, J.; Monje, A.; Wang, H.L. Peri-implantitis. *J. Periodontol.* 2018, 89 (Suppl. 1), S267-S29
3. Stuart F., Paul F. A proposed classification for peri-implantitis. *Int J Periodontics Restorative Dent.* 2012;32:533-540
4. Schou S, Berglundh T, Lang NP. Surgical treatment of peri-implantitis. *Int J Oral Maxillofac Implants* 2004;19 Suppl:140-9
5. Claffey N, Clarke E, Polyzois I, Renvert S. Surgical treatment of peri-implantitis. *J Clin Periodontol* 2008;35:316-32.
6. McAllister BS, Haghighat K. Bone augmentation techniques. *J Periodontol.* 2007;78:377-96
7. Kökdere NN, Baykul T, Findik Y. The use of platelet-rich fibrin (PRF) and PRF-mixed particulated autogenous bone graft in the treatment of bone defects: An experimental and histomorphometrical study. *Dent Res J (Isfahan)* 2015;12:418-24.