

Treatment Modalities Of Peri-Implantitis -A Review

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Abstract:-

Replacing the lost teeth with the help of implants has become familiar and popular among clinicians, which is due to high success rate and technical accuracy. Peri implantitis is an inflammatory disease affecting the implant, thereby reducing the survival in oral cavity, leading to failure. This literature discusses about the various methods to treat peri-implantitis.

Key words: Peri implantitis, dental implants, cold plasma, PRF

Introduction:-

Replacing the lost teeth with implants has become common in our day to day practice. Peri implantitis^[1] is succeeded by peri-implant mucositis, which involves inflammation of mucosa covering the implant. Peri implantitis is caused by the progressive accumulation of microbial flora in oral cavity due to poor oral hygiene around the implant and its supporting structures which is a prime etiological factor of peri-implantitis, of which *Porphyromonas gingivalis* being a habitant in oral cavity. These organisms left reside for a long time cause progressive bone loss exceeding normal remodelling capacity of bone, leads to clinical attachment loss and failure of implant, which is a serious entity. The methods for treating peri implantitis include surgery, chemotherapy and laser therapy. Certain other novel techniques include Cold Atmospheric Pressure Air Plasma Jet [CAPAJ], application of enamel matrix derivative and PRF gel.

This article discusses about the various treatment options of treating periimplantitis.

Discussion:-

Peri implantitis^[1] is difficult to treat clinically, characterized by the loss of bone around implant and its surrounding structures, which hampers the survival of implant in oral cavity. Peri implantitis is defined as a change in the level of crestal bone in combination of bleeding upon probing and deepening of peri implant pockets. Understanding the pathogenesis, establishing correct diagnosis and providing treatment according to it, being a challenge, peri-implantitis can be cured. It is a polymicrobial disease leading to bone resorption resulting in loss of implant^[3], which is seen mostly within 5-10 yrs after implant placement. Limited bone loss from the first thread of implant is not considered as a disease state. Periodontal implant complications can be biological, technical or esthetic in origin.

Treatment modalities:-

A male aged 52 years was referred to evaluate a dental implant placed in mandibular second bicuspid area. Bleeding on probing and suppuration was noted at the peri implant mucosa. A depth of 6mm was recorded on probing. Firstly, a non surgical approach followed by surgical approach after reevaluation. The coronal portion was removed prior to surgery. Irrigation was done with 0.12% chlorhexidine digluconate. Following administration of local anaesthesia containing 2% lignocaine with 1:100,000 epinephrine, a full thickness flap was raised, showing bone loss around the implant circumferentially with loss of buccal plate. The area was well prepared using curettes and ultrasonic scaler after surface decontamination. The defect was grafted using bovine derived hydroxyapatite. Histologically, the site showed chronic inflammation with fibrosis and calcification. After the suture removal, implant was loaded and after 2 years, the prosthesis was functioning well with probing depth reduced to 4mm and suppuration was not evident. Application of enamel matrix

promoted osteogenic differentiation and increased proliferation. Combination of enamel matrix with bone graft of biphasic calcium phosphate has showed reduction in probing depth. A female aged 47 years reported to department of prosthodontics, six months after the surgery, for restoration of five implants placed in mid symphysis region of lower jaw. On examination, there was no pus discharge, no mobility, no active pockets, but dehiscence of soft tissue was present exposing 3-4 threads. Prior to surgery, 10 ml of blood was drawn from patient by means of venepuncture, collected in sterile glass tube without anticoagulant. The blood was quickly centrifuged at 2700 rpm for 12 minutes at room temperature using centrifuging device. Post centrifugation, three layers were formed, of these PRF^[4] clot was removed from middle portion of tube using sterile tweezers and placed on woven gauze whereas, acellular plasma and red cells present at top and bottom layers respectively. Partial thickness flap was raised and the amount of exposed implant was evident. Implantoplasty was performed and was disinfected with 0.12% chlorhexidine to remove bacterial deposits, limit and minimize plaque accumulation and facilitate healing. The coronal end of flap was positioned apically and sutured along with the apical end of the PRF membrane using 4-0 silk with PRF membrane. A sulcular incision was placed with two short vertical releasing incisions were performed. At vestibule, a split thickness mucosal flap was raised, whose coronal margins were sutured apically with periosteum. PRF membrane was placed above connective tissue, secured over gingival former with sling suture. On observation, PRF membrane appeared whitish colour on first day after surgery, neo-angiogenesis was seen on the eighth day post operatively, change of tissue biotype from thin to thick after 4 weeks postoperatively along with increase with vestibular depth, blanching was not observed while pulling lower lips. Notable difference was evident between pre-operative and post-operative condition. Histologically, an increased zone of keratinized tissue was present, which serves as a barrier against plaque induced inflammation. According to block and kent, presence of keratinized mucosa in posterior mandible was correlated with mucosal health showed crestal bone loss of 2mm or more. The clinical procedure of sub-epithelial connective tissue graft harvesting from the palate is often a challenge in obtaining large amount of tissue on one side and minimizing the post-operative pain on other side. PRF membrane was replaced for soft tissue grafting. Another treatment involving cold atmospheric pressure plasma jet are used to remove the biofilms on surface of implant, most by noble gas air plasma jets, but cold plasma is a feasible treatment option for peri-implantitis. According to Duske et al, mechanical treatment with noble gas cold plasma is considered as a promising treatment plan. It has following advantages like, (i) air can be effectively ignited (ii) It could achieve high electron density (iii) Can promote highly reactive species. Cold plasma^[2] has been widely utilized for improving properties like hydrophilicity, roughness and biocompatibility and results shows improvement in Cold atmospheric plasma air jet treatment. Advances in treating peri-implantitis include using hydrogels which forms a cross link network of natural or synthetic molecules, acts as a warehouse for storing biological drugs. This hydrogel was effective in coating over titanium implants without any inflammatory reaction and avoiding interference in apposition of bone. Another involves layer by layer coating deposition leading to highly potential one and reduced adverse effects.

Conclusion:-

Periimplantitis is difficult to treat, unless detected at an early stage. Periimplantitis can be partly eliminated at an early stage by instituting these above treatment methods and introducing more new methods could improve the survival of implants in oral cavity and could eliminate the occurrence of peri-implantitis in near future.

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