

PERI-IMPLANT DISEASES - DIAGNOSIS AND ITS MANAGEMENT

Dr. Shobha Prakash
Professor & Head

Dr. Sunitha J
Asst. Professor

DEPT. OF PERIODONTICS

INTRODUCTION

The goal of implant therapy is to provide long-term replacement for missing dentition on ideally positioned osseointegrated implants. Advances in radiographic imaging, splint construction, bone regeneration capabilities, and soft-tissue reconstruction permit placing implants predictably in acceptable positions. Surgery for dental implants is a procedure with a high rate of patient success defined as providing a viable implant-supported prosthesis that satisfies the patient.

The peri-implant mucosal seal is important for the maintenance of health and esthetics. Peri-implant mucosa is comprised of a connective tissue component and an epithelial component. According to European Workshop on Periodontology (1994)¹ peri-implant mucositis is defined as a reversible inflammation of the soft tissues surrounding an implant in function with no loss of supporting bone. Clinical signs are bleeding on probing and/or suppuration and increased probing depths (4-5mm). Peri-implantitis is defined as an inflammatory process affecting the tissues around an osseointegrated implant in function resulting in loss of supporting bone. Clinical signs are deep probing depths (>5mm), bleeding on probing and/or suppuration and loss of supporting bone (usually circumferential crater defect).

The occurrence of peri-implant diseases has been inconsistently reported. Therefore, the incidence and prevalence of peri-implant diseases are difficult to determine. However, a recent systematic review², comparing the survival and complication rates of tooth-supported fixed dental prostheses (FDPs) and implant-supported FDPs and single crowns, reported a biological complication rate of 8.6% at five years for implant supported reconstructions. These findings highlight not only the common occurrence of peri-implant disease, but the importance of evaluating the data on a patient level as well as an implant level. When evaluation is only performed on an implant level the incidence of disease is diluted.

Etiology of Peri-implant diseases

Clinical studies have demonstrated the similarities between the microflora associated with peri-implant diseases and periodontitis. High levels and proportions of periodontal pathogens, mainly gram negative anaerobic bacteria including *P.gingivalis*, *T.forsythia* and *T. denticola*, have been identified.^{3,4} Interestingly, some studies have identified organisms associated with peri-implantitis which are not commonly found in the oral cavity, including *S.aureus* and enteric rods. The identification of organisms present may have implications for treatment strategies.⁵

Recent evidence regarding the dynamics of colonization around implants has highlighted the importance of infection control prior to implant placement in partially dentate patient. The microflora in the peri-implant sulcus is established as early as 30 minutes to two weeks following implant placement and is nearly identical to that found at the adjacent teeth. Thus in partially dentate patients, deep pockets harboring high numbers and large proportions of periodontal pathogens act as a reservoir for recolonization and establishment of a microflora which is not conducive to health.

Contributing factors includes; patients' susceptibility, tooth loss due to periodontitis, smokers and IL-1 positive genotype patients. Implant related factors includes rough surface (titanium sprayed and hydroxyapatite surfaces), excess cementation, fractured abutment screw, excessive biomechanical forces etc.

Diagnosis:

The following diagnostic parameters have been recommended: (1) Soft tissue measurements using manual or automated probes. Although some reports state that probing is contraindicated, careful monitoring of probing depth over time seems useful in detecting changes of the peri-implant tissue. (2) Radiographic procedures such as standardized radiography, both with and without computerized analysis have been documented. Periodic evaluation of both soft and hard tissue around implant both clinically and radiographically are the best means of detecting changes in peri-implant tissues.

Treatment:

The main goal of treatment of peri-implant disease is to control the infection and to prevent disease progression. Treatment of peri-implant mucositis includes removal of plaque and calculus using appropriate instruments (carbon fiber curets, titanium-coated curets).

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In addition, oral hygiene instruction should be provided, with or without the incorporation of antiseptics (such as chlorhexidine). For treatment of peri-implantitis, a variety of antimicrobial treatment regimens in combination with non-surgical or surgical debridement, with or without regenerative therapy have been proposed. Decontamination procedures including the use of sterile saline, chlorhexidine, citric acid, hydrogen peroxide and CO₂ laser have been evaluated in animal studies. No significant differences in the amount of bone regeneration, or the percentage of reosseointegration differences were observed when comparing different decontaminating agents. The cumulative interceptive supportive therapy (CIST) protocol has been documented as a guide treatment of peri-implantitis. This protocol involves series of treatment modalities which are used in a cumulative manner according to disease severity.

Conclusion:

Successful implant therapy implies healthy and stable peri-implant conditions. The challenge of implant maintenance involves systematic and regular monitoring of the peri-implant tissues in order to diagnose the presence of health or disease. Early detection of signs of inflammation and appropriate interceptive supportive therapy is essential to prevent peri-implant diseases.

REFERENCES:

- 1) Albrektsson T, Isidor F. Consensus report N, Karring T, eds. Proceedings of the 1st European Workshop on Periodontology. Switzerland: Quintessence, 1994:365.
 - 2) Pjetursson B, Bragger U, Lang N, Zwahlen M. Comparison of survival and complication rates of tooth supported fixed dental prostheses (FDPs) and implant supported FDPs, and single crowns (SCs). Clin Oral Implants Res 2007;18 (suppl 3):97-113.
 - 3) Mombelli A et al. The microbiota of osseointegrated implants in patients with a history of periodontal disease. J Clin Periodontol 1995;22:124-130.
 - 4) Hutlin M et al. Microbiological findings and host response in patients with peri-implantitis. Clin Oral Implants Res 2002;13:349-358.
 - 5) Leonhardt A, Renvert S, Dahlen G. Microbial findings at failing implants. Clin Oral Implants Res 1999;10:339-345.
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