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REVIEW ARTICLE

PERI-IMPLANTITIS- AETIOLOGY, CLINICAL FEATURES AND TREATMENT: A COMPREHENSIVE REVIEW

[1]Divya Jyoti, [2]Vivek Sharma, [3]Jaspreet Singh Gill, [4]Gaurav Kansal, [5]Gagandeep Gupta, [6]Rohit Wadhwa

[1]PG student, [2]Professor & HOD, [3]Professor, [4]Reader, [5]Senior Lecturer, Department of Periodontics, Desh Bhagat Dental College and Hospital, Punjab, [6]PG student, Department of Conservative Dentistry, Desh Bhagat Dental College and Hospital, Punjab

ABSTRACT:
Peri-implant mucositis refers to the presence of inflammation in the mucosa around implants without any bone loss. In patients suffering from peri-implantitis, besides the inflammation in the peri-implant mucosa, loss of supporting bone is also seen. Known risk factors for the disease includes poor oral hygiene, smoking and previous history of periodontitis. Hence; in this review, we aim to summarize the aetiology, clinical features and treatment modalities available for managing patients with peri- implantitis.
Key words: Aetiology, Peri-Implantitis, Treatment

Corresponding author: Dr. Divya Jyoti, PG student, Department of Periodontics, Desh Bhagat Dental College and Hospital, Punjab

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INTRODUCTION

In analogy to gingivitis and periodontitis affecting the periodontium of natural teeth, an inflammation and destruction of soft and hard tissues surrounding dental implants is termed as mucositis and peri-implantitis. Thereby, transitions are often fluent and not clinically clearly separable.[1- 3]

AETIOLOGY

Zitzmann et al. quantified the incidence of the development of peri-implantitis in patients with a history of periodontitis almost six times higher than in patients with no history of periodontal inflammation. After 10 years, 10% to 50% of the dental implants showed signs of peri-implantitis.[4, 5] Frequently, a spectrum of pathogenic germs can be detected such as Prevotella intermedia, Prevotella nigrescens, Streptococcus constellatus, Aggregatibacter actinomycetemcomitans, Porphyromonas gingivalis, Treponema denticola and Tannerella forsythia. Rams et al. revealed 71.7% resistance to at least one antimicrobial substance in a group of 120 patients. Peri-implantitis is a poly-microbial anaerobic infection. However, in contrast to periodontitis, peri-implantitis lesions harbor bacteria that are not part of the typical periodontopathic microbiota.[6- 9]

CLINICAL FEATURES

The following signs and symptoms are typical for peri-implantitis lesions: radiological evidence for vertical destruction of the crestal bone. The defect is usually saucer shaped and there is osseointegration of the apical part of the fixture; vertical bone destruction associated with the formation of a peri-implant pocket; bleeding and suppuration on probing; possible swelling of the peri-implant tissues, and hyperplasia. Pain is an unusual feature, which, if present, is usually associated with an acute infection. The diagnosis of peri-implantitis needs careful differentiation from peri-implant mucositis, primary failures to achieve tissue integration, and problems lacking an inflammatory component. The diagnostic parameters used for assessing peri-implantitis include clinical indices, peri-implant probing using a rigid plastic probe, bleeding on probing (BOP), suppuration, mobility, peri-implant radiography, and microbiology.[10- 13]

TREATMENT

The treatment of peri-implant infections comprises conservative (non-surgical) and surgical approaches. Depending on the severity of the peri-implant disease (mucositis, moderate or severe peri-implantitis) a non-surgical therapy alone might be sufficient or a step-wise approach with a non-surgical therapy followed by a surgical treatment may be necessary.[14]

Several approaches for implant decontamination are available, with the ideal one still remaining to be determined. Mechanical debridement, disinfection with chemotherapeutic agents, smoothing implant surface and surgeries aimed to eliminate bacteria and laser therapy should be noted. Mechanical debridement can be done with carbon, plastic or titanium currets, ultrasonic scaling or powder air abrasion. Chlorhexidine digluconate, tetracycline fibers and minocycline microspheres seem to have strong disinfecting and bactericidal potential.[15- 17] Efficacy of mechanical or chemical modalities seems to be limited due to resistant bacterial strains, limited access to inflamed area and pharmacologic limitations like in site drug dosage or insufficient anti bacterial effect. Also mechanical strategies like metallic curetts, ultrasonic metal tip scalers and air powder abrasion may develop a roughened implant surface, which itself increases bacterial colonization and biofilm formation.[18]

Surgical treatment of peri-implantitis lesions may be performed in cases with considerable pocket formation (larger than 5 mm) and bone loss. Surgical techniques can be divided into resective and regenerative surgery. These techniques is used depending upon the type of bony defects whereas previous researchers have demonstrated that combined surgical procedure is effective in controlling advanced peri-implantitis lesion.[18- 22]

LASER TREATMENT OF PERI-IMPLANTITIS

The non-surgical treatment of peri-implantitis lesions using an erbium-doped:yttrium, aluminum, and garnet (Er:YAG) laser showed lower counts of F. nucleatum 1 month after therapy. The Er:YAG laser and the combination of mechanical debridement/chlorhexidine are equally efficacious at 6 months after therapy in significantly improving peri-implant probing pocket depth and clinical attachment level, but the use of the Er:YAG laser provides a significantly higher reduction of bleeding on probing compared with the adjunctive application of chlorhexidine. However, in a subsequent study, the efficacy of the Er:YAG laser appeared to be limited to a 6-month period, particularly for advanced peri-implantitis lesions. It was further suggested that a single course of treatment with the Er:YAG laser may not be adequate for achieving a stable therapy of peri-implantitis and that additional therapeutic measures, such as supplementary use of the Er:YAG laser and/or subsequent osseous regenerative procedures, might be required.[23- 25]

CONCLUSION

Early detection and treatment of peri-implant mucositis and peri-implantitis affects the prognosis of the affected implant. Even though the studies dealing with different treatment modalities of peri-implantitis are not comparable, an overall picture of some clinical improvement emerges with the use of anti-infective therapies, in terms of resolution of inflammation and bone healing. Hence; future studies should be done for improvement of the prognosis of the patients affected from peri-implantitis.

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