Peri-implant diseases: Risk indicators and preventive measures

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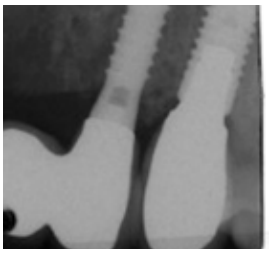
DEFINITIONS

Peri-implant health and peri-implant diseases were recently defined at the World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions[1].

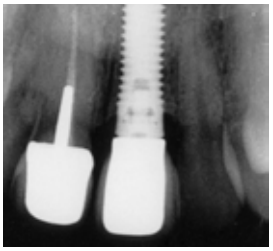
PERI-IMPLANT HEALTH

Peri-implant health was characterized at the clinical level by the absence of signs of soft tissue inflammation, e.g. absence of bleeding on gentle probing (BoP) and suppuration[1].



PERI-IMPLANT MUCOSITIS

Peri-implant mucositis was defined as presence of BoP and/or suppuration with or without increased probing depth compared to previous examinations in conjunction with the absence of bone loss beyond crestal bone level changes resulting from initial bone remodelling[5]. Visual signs of inflammation may vary and peri-implant mucositis may be diagnosed around implants with variable levels of bone support.



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PERI-IMPLANTITIS

Peri-implantitis was defined by the presence of BoP and/or suppuration, increased probing depths compared to previous examinations and presence of bone loss beyond crestal bone level changes resulting from initial bone remodelling[5].



PREVALENCE OF PERI-IMPLANT DISEASES

The prevalence of peri-implant diseases has been widely investigated. Outcomes of a systematic review reported a weighted mean prevalence of peri-implant mucositis of 43 % (range: 19 - 65 %) and peri-implantitis of 22 % (range: 1-47 %)[10]. Results from cross-sectional studies indicated that the frequency of peri-implantitis ranges between 13 and 26 %[2]. However, based on the wide range of reported prevalences reflecting the high heterogeneity of the applied clinical and radiographic thresholds for disease definition, an adequate estimate of peri-implant diseases seems difficult[10].

RISK INDICATORS FOR PERI-IMPLANT DISEASES

A number of risk indicators have been identified that may lead to the establishment and progression of peri-implant mucositis and peri-implantitis.

The following risk indicators and their corresponding preventive measures are presented.

RISK FACTORS AND PREVENTIVE MEASURES

INSUFFICIENT SELF-PERFORMED PLAQUE CONTROL

Poor self-performed plaque control increases the risk for peri-implant diseases[11].

PREVENTION

High levels of self-performed plaque control are critical for the maintenance of peri-implant soft tissues without inflammation.

CLEANABLE IMPLANT-SUPPORTED RESTORATION

Implant-supported restorations with inadequate access for plaque control exhibit an increased risk for peri-implantitis compared with those with good access for plaque control[22].

PREVENTION

Implant-supported restorations should provide unrestricted access for plaque control.

EXCESS CEMENT

Presence of cement excess is associated with peri-implant mucositis and peri-implantitis[15, 26].

PREVENTION

Attention should be paid to cementation in order to avoid excess cement. Alternatively, screw-retained restorations may be considered.

TOBACCO USE

Tobacco consumption leads to an increase in peri-implant soft tissue complications and to elevated peri-implant bone loss or implant loss[3, 25, 13, 16].

PREVENTION

Smoking cessation protocols increase implant survival rates[4].

LACK OF KERATINIZED AND ATTACHED PERI-IMPLANT MUCOSA

Implants not surrounded by attached and keratinized mucosa are more prone to plaque accumulation and recession, even in patients with sufficient oral hygiene and enrolled in maintenance therapy[20].

PREVENTION

Care should be taken before, during or after implant placement to ensure that keratinized and attached mucosa is present around dental implants.

LACK OF ADHERENCE TO MAINTENANCE CARE

Implant survival and success rates are lower in patients not adhering to regular maintenance care programs[17, 19].

PREVENTION

A recall interval tailored to a patient's risk profile (i.e. every 3 - 6 months) is recommended[14, 21].

UNTREATED PERI-IMPLANT MUCOSITIS

Patients diagnosed with peri-implant mucositis that remains untreated for a period of 5 years are more likely to develop peri-implantitis compared with those receiving a yearly treatment for peri-implant mucositis[7].

PREVENTION

Early diagnosis and treatment of peri-implant mucositis reduces the risk for the development of peri-implantitis.

HISTORY OF TREATED PERIODONTITIS

The survival and success rates of implants placed in patients with treated periodontitis are lower compared with those in patients without a history of periodontitis[23].

PREVENTION

High-quality treatment of periodontitis prior to implant placement is recommended. Deep residual pockets with BoP jeopardize long-term implant success rates[6, 18].

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