

Treatment of Peri-Implantitis and the Failing Implant

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KEYWORDS

• Peri-implantitis • Peri-implant mucositis • Implant failure • CIST

KEY POINTS

- Appropriate supportive treatment of implants is becoming increasingly important for the general dentist as the number of implants placed per year continues to increase.
- Early diagnosis of peri-implantitis is imperative, and initiating the correct treatment protocol depends on a proper diagnosis.
- Several risk factors exist for the development of peri-implantitis, which can guide patient selection and treatment planning.
- Treatment of peri-implantitis should be tailored to the severity of the lesion (as outlined by the cumulative interceptive supportive treatment protocol), which ranges from mechanical debridement to explantation.
- Several surgical and nonsurgical treatment alternatives exist, and there is little consensus on superior treatment methods.

INTRODUCTION

Dental implants have revolutionized the treatment of tooth loss to the extent that they are now considered the standard of care in many circumstances. Although implants are now a very predictable treatment option, occasionally they fail for a variety of reasons. Peri-implantitis is a late complication of dental implants and is the primary process that leads to late failure. This article reviews definitions, risk factors, diagnosis, and therapy for peri-implantitis.

Since the first dental implants were placed by Brånemark in 1965, they have experienced enormous success and growth. The number of implants placed in the United States increased more than 10-fold from 1983 to 2002 and increased another 10-fold

The authors have nothing to disclose.

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Dent Clin N Am 59 (2015) 329–343

<http://dx.doi.org/10.1016/j.cden.2014.10.007>

0011-8532/15/\$ – see front matter Published by Elsevier Inc.

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from 2000 to 2010. The number of dental implants placed in the United States per year is roughly 5 million, and this number is projected to sustain yearly growth at 12% to 15% for the next several years.¹ With the ever-increasing number of implants, management of attendant complications (such as peri-implantitis) will become increasingly important for all clinicians involved in the patient's care.

DEFINITION OF TERMS

To discuss peri-implantitis, it is important to briefly differentiate it from other forms of bone loss around implants. These other forms of bone loss include those that could be primarily biomechanical in nature (eg, implant fracture, occlusal overload, and marginal bone loss) as well as those that are primarily inflammatory in nature (eg, peri-implant mucositis and retrograde peri-implantitis). Although bone loss is a shared end result, there are distinctions of probable cause, probable course, and current treatments. The ongoing process of reaching consensus is important,²⁻⁵ because it will affect reporting of prevalence, as well as the inclusion of studies in systematic reviews and the use of data in meta-analyses.

Marginal Bone Loss

As originally described in 1986 by Albrektsson and colleagues,⁶ marginal bone loss allowed for 1.2 mm of bone loss the first year following abutment connection and 0.2 mm per year thereafter, later to be modified as 1.5 mm of bone loss in the first year followed by 0.2 mm per year thereafter.² This bone loss occurs in the absence of clinical symptoms, and, as is the case with peri-implant mucositis and peri-implantitis, has multiple potential contributing factors.⁷

Retrograde Peri-Implantitis

First described by McAllister and colleagues,⁸ retrograde peri-implantitis is a radiographically diagnosed, periapical, lucent lesion that is symptomatic and that develops shortly after implant placement. The coronal portion of the implant appears to have a normal relationship to bone.^{9,10} In some cases, a fistula may develop. It is likely related to microbiological conditions at the implant site and has been shown to be related to distance from site and time since endodontic therapy.¹¹

Peri-Implant Mucositis

Peri-implant mucositis is an inflammatory process around a functioning implant characterized by bleeding on probing (BOP), with depths of 4 mm or more. There is no indication of bone loss other than that which would normally be expected with marginal bone loss and it may or may not be accompanied by suppuration. It is considered to be reversible without procedural intervention, other than perhaps scaling and root planing. Although it is generally considered to be the precursor to peri-implantitis, it is not necessarily true that it will progress to peri-implantitis.³

Peri-Implantitis

Similar to peri-implant mucositis, peri-implantitis is inflammatory in nature, but is considered distinct in that it is not considered to be reversible without surgical intervention and has bone loss around a functioning implant beyond that which would be expected by normal bone remodeling.^{3,12} The bone loss threshold used to make that distinction lacks consensus, as reflected by the fact that prevalence can vary as much as 47% to 11%, depending on where the threshold is set (Table 1).¹³

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