Revista Española de
Cirugía Oral y Maxilofacial
www.elsevier.es/recom

Original article

Apical peri-implantitis: A presentation of a series of 11 clinical cases☆

Bogdan Stavaru Marinescu[a,*], *Luis Naval Gías*[b], *Gonzalo Herrera Calvo*[b]

[a] *Servicio de Cirugía Maxilofacial, Hospital Universitario La Princesa, Madrid, Spain*
[b] *Departamento de Cirugía Oral y Maxilofacial, Clínica Universidad de Navarra, Pamplona, Spain*

ARTICLE INFO

Article history:
Received 7 October 2013
Accepted 26 March 2014
Available online 24 August 2015

Keywords:
Apical periimplantitis
Implant failure
Apical surgery

ABSTRACT

Objectives: The purpose of this study was to evaluate the surgical protocol and discuss possible predisposing factors of apical peri-implantitis.
Material and methods: A retrospective study was performed by analyzing a series of cases involving 11 patients, all of whom where diagnosed with, and treated for, apical peri-implantitis at La Princesa Hospital in Madrid and at Navarre University Clinic in Pamplona, Spain, between 2002 and 2013. Symptomatic patients were treated with curettage of the area, which was, in some cases, combined with bone regeneration techniques.
Results: A total of 11 cases of apical periimplantitis were included (4 asymptomatic and 7 symptomatic). The symptoms observed were similar to dental periapical pathology, and the period of time elapsed until the patients were diagnosed with API was variable, but was less than 3 years. Complete resolution of the pathology was observed in 6 of the 7 patients treated with curettage of the periapical implant area. In the remaining case the affected implant was removed.

No surgical treatment was used in asymptomatic cases, as they were self-limiting.
Conclusion: Apical periimplantitis is a condition which may complicate the dental implant treatment. Conservative surgical treatment has shown satisfactory results in symptomatic patients.

Periimplantitis apical – presentación de serie de 11 casos clínicos

Palabras clave:
Periimplantitis apical
Fracaso implantario
Cirugía periapical

RESUMEN

Objetivos: Evaluar el protocolo quirúrgico y discutir los posibles factores predisponentes de la periimplantitis apical.
Material y método: En el presente trabajo, se planteó un estudio descriptivo retrospectivo analizando una serie de 11 casos clínicos de periimplantitis apical diagnosticados

☆ Please cite this article as: Stavaru Marinescu B, Naval Gíasb L, Herrera Calvo G. Periimplantitis apical – presentación de serie de 11 casos clínicos. Rev Esp Cir Oral Maxilofac. 2015;37:188–195.

* *Corresponding author.*
E-mail address: bsmelsevier@gmail.com (B. Stavaru Marinescu).

y tratados en el ámbito del Hospital de La Princesa (Madrid) y la Clínica Universidad de Navarra (Pamplona) entre 2002 y 2013. Los pacientes sintomáticos fueron tratados mediante legrado de la zona con o sin relleno.

Resultados: Se analizaron un número total de 11 casos de periimplantitis apical (4 asintomáticos y 7 con síntomas). La clínica observada fue parecida a la enfermedad dentaria periapical y el tiempo transcurrido hasta el diagnóstico fue variable, inferior a los 3 años. Se observó resolución completa del problema en 6 de los 7 casos tratados con legrado de la zona periapical del implante. En el caso restante se procedió a la explantación del implante afecto.

En los casos asintomáticos no se realizó ningún tipo de tratamiento quirúrgico, presentando una tendencia autolimitada.

Conclusión: La periimplantitis apical es una enfermedad que puede complicar el tratamiento implantológico. La cirugía conservadora ha tenido resultados satisfactorios en los casos sintomáticos.

Introduction

Despite the advances of implantology in oral rehabilitation, the feasibility of an implant may be limited by possible complications, which are of great interest.

One of them is the apical peri-implantitis (API) entity described in the 1990s[1] as an infectious-inflammatory process of the tissues that surround the apex of an integrated dental implant. API has as its core element the lack of osseointegration only in the apical area of the implant.[2] In a bibliographical review in 2011, Romanos et al. state that, in spite of the available diagnostic techniques, it is not currently possible to establish whether the API represents a bone scarring, a new destructive lesion of the alveolar bone or a reactivation of a prior lesion.[3]

Several possible aetiological factors have been suggested: bone overheating,[4,5] prior alveolar or apical lesion,[6] excessive implant loading,[1,7] implant surface contamination,[4,8] presence of radicular remains and foreign bodies,[4,7] etc., although in some cases no outstanding cause is evident and several factors may coincide in some other cases. Currently, API is considered to be likely to have multifactorial aetiology.[3]

If the lesion does not produce symptomatology and appears as a radiological finding, it is classified as inactive and does not need treatment but follow-up, taking into account that this type of lesion represents a bone scarring determined by an excess of apical milling.[7]

Symptomatic API may produce pain, paraesthesia, recurrent suppurative episodes, fistulas, loss of alveolar bone, and it may condition the implant loss.[3]

The first cases were published by Sussman, who described the "*implant to tooth*" (type I) lesion when it is caused in the preparation of the implant bed and the *tooth to implant* (type II) lesion, when it originates from an apical lesion in the teeth adjacent to the implant.[9]

Material and methods

This is a descriptive, retrospective study that presents a series of 11 clinical cases of API diagnosed and treated at the Hospital de La Princesa (Madrid) and the Clínica Universidad de Navarra (Pamplona.) Every case with clinically and radiologically integrated implants and those with radiolucent images at the apical level of the implants between 2002 and 2013 has been included: 4 patients were asymptomatic (there was no intervention except for a root canal of an adjacent tooth in one case) and 7 patients were symptomatic. Symptomatic patients were treated with the standard approach of "apicoectomy" through an incision at oral vestibule level, performing granulation tissue curettage, and 3 of them had an implant apex resection performed to facilitate access to the cavity and eliminate the implant's most contaminated area (Fig. 1a–c). Implant surface detoxification has not been performed. Bone filling (associated with the use of collagen resorbable membranes) was performed in 3 cases: with particulate alveolar bone autograft in 2 cases and with artificial bone of bovine origin in the other case (Fig. 1d). One case also received endodontic treatment in an adjacent tooth due to negative pulp vitality (Table 1).

The anti-inflammatory and antibiotic medical treatment was applied in acute outbreaks, or associated with the surgery for the treatment of the API.

Results

In the series, we have found several API-predisposing factors:

- presence of a prior lesion: apical cyst (in one case) and chronic marginal periodontitis with alveolar osteitis (in one case)
- prior implant failure due to peri-implantitis (in one case)
- "implant to tooth" type mechanism (in 2 cases)
- implant longer than 13 mm (in 8 cases presented) (Table 2).

Symptomatic patients referred a similar symptomatology: local soreness and pain, recurrent inflammations and fistulas. All implants presented conserved stability. We are unaware of the pre-surgical situation in 3 of the cases that came from other institutions. Two implants were performed simultaneously with the dental extraction and loading was performed immediately. The rest were deferred.