State of the art and clinical recommendations in periapical implant lesions.  
9th Mozo-Grau Ticare Conference in Quintanilla, Spain

Miguel Peñarrocha-Diago, María Peñarrocha-Diago, Juan-Antonio Blaya-Tárraga

1 MD, MDM, PhD, Professor and Chairman of Oral Surgery, Stomatology Department, Faculty of Medicine and Dentistry, University of Valencia, Spain 
2 MD, DMD, PhD, Assistant Professor of Oral Surgery, Stomatology Department, Faculty of Medicine and Dentistry, University of Valencia, Spain 
3 DDS, MSc. Master in Oral Surgery and Implantology. Faculty of Medicine and Dentistry, University of Valencia, Spain

On behalf of all the participants and authors: [1] Miguel Peñarrocha-Diago, University of Valencia, Spain; [2] María Peñarrocha-Diago, University of Valencia, Spain; [3] Juan Antonio Blaya-Tárraga, University of Valencia, Spain; Regino Zaragozo-Alonso, University of Valencia, Spain; David Soto-Peñaloza, University of Valencia, Spain; Abel García-Garcia, University of Santiago de Compostela, A Coruña, Spain; Agustín Ripoll, Specialist Technician in Prosthodontics, Valencia, Spain; Alberto Fernández-Ayora, Private practice, Almería, Spain; Alberto Fernández-Sánchez, Private practice, Almería, Spain; Ana Orozco-Varo, University of Seville, Spain; Antonio Juan Flichy-Fernández, University of Valencia, Spain; Arturo Sánchez-Pérez, University of Murcia, Spain; Carlos Bonilla-Mejías, University of Seville, Spain; Carlos Larrucea-Verdugo, University of Talca, Chile; Carlos Sáenz-Ramirez, University of Seville, Spain; Daniel Robles-Cantero, CEPUME, University of Alcalá de Henares, Madrid, Spain; Florencio Monje-Gil, University of Badajoz, Spain; Angels Pujol-García, International University of Catalonia, Spain; Javier Ortolá-Dinnbier, Specialist Technician in Prosthodontics, Valencia, Spain; Javier Valladares-Relaño, Specialist Technician in Prosthodontics, Salamanca, Spain; Luis Miguel Vera-Fernandez, Specialist Technician in Prosthodontics, Seville, Spain; María Isabel Gonzalez-Martin, University of Seville, Spain; Pablo Dominguez-Cardoso, University of Seville, Spain; Raúl Fernández-Encinas, Private practice, Valladolid, Spain; Alberto González-García, University of Seville, Spain.

Correspondence:  
Unidad de Cirugía Bucal  
Facultat de Medicina i Odontologia  
Universitat de València  
C/ Gasóli Oliag 1  
46010 - València, Spain  
miguel.penarrocha@uv.es

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Abstract  
This manuscript summarizes the statements and clinical recommendations in periapical implant lesions, as per the state of the art and expert opinion agreement among the participants in the 9th Mozo-Grau Conference 2016 held in Quintanilla (Valladolid, Spain). The current status of the concept, frequency, etiology, diagnosis, clinical classification, surgical procedure and prognosis are described. If following implant placement localized pain develops in the periapical area, with or without radiographic changes, the diagnosis of periapical implant lesion should be suspected. It is important to monitor the condition in order to identify any change in its evolution. Radiological changes in the periapical radiographs are not always manifest in the early stages, and in this regard small-volume cone beam computed tomography can help us visualize such peri-implant changes. The early diagnosis of periapical implant lesions during the osseointegration phase and the provision of early treatment result in increased implant survival rates, thereby avoiding the need for implant extraction.

Key words:  
Apical peri-implantitis, retrograde peri-implantitis, inflammatory peri-implantitis lesion.
Introduction

Periapical implant lesions, also referred to as apical peri-implantitis or retrograde peri-implantitis, were first described by McAllister in 1992 (1) as injuries in the apical portion of implants, causing osseointegration failure. Sussman & Moss (2) defined the disorder as an infectious-inflammatory process of the tissues surrounding the implant apex, while Quirynen et al. (3) described it as a clinically symptomatic periapical lesion that develops shortly after implant insertion while the coronal portion of the implant achieves a normal bone-to-implant interface.

This report summarizes the statements and clinical recommendations in periapical implant lesions, as per the state of the art and expert opinion agreement among the participants in the 9th Mozo-Grau Conference 2016 held in Quintanilla (Valladolid, Spain).

The etiology of the lesion is not yet clear; however, several factors have been proposed that could be related to the onset of the disorder. According to some authors, the most likely cause is endodontic disease of the tooth replaced by the implant or of the adjacent tooth (4-8). Other described factors are contamination of the implant surface (9,10), bone overheating during milling or preparation exceeding that required for the implant (9,11,12), pre-existing bone disease, and the presence of root fragments or foreign bodies (5,9,12).

The present report assesses the literature to describe the concept, frequency, etiology, diagnosis, clinical classification, surgical procedure and prognosis of the disorder. Early diagnosis and treatment result in increased implant survival rates, thereby avoiding the need for implant extraction.

Periapical implant lesions: A systematic review

- Focus question (PEO)

“In patients with periapical implant lesions during osseointegration, what symptoms, signs, and changes in complementary examination develop recommending appropriate management in this stage?”

- Consensus statements: State of the art and clinical recommendations.

- Concept

Different nomenclatures have been proposed: apical / periapical implant lesion, retrograde peri-implantitis or early peri-implantitis. A difficulty in the systematic review was to differentiate between articles describing coronal or apical peri-implantitis.

Therefore, the consensus group proposes the definition of this condition as a periapical implant lesion of inflammatory and infectious nature, developing in the axial axis of the implant during osseointegration, with the maintenance of normal coronal bone in early stages.

- Frequency

The frequency of periapical implant lesions shows considerable discrepancies between studies, ranging from 0.26% to 2.7%. In implants with adjacent teeth subjected to endodontic treatment, the incidence can reach 7.8%. The frequency of this condition is low - a fact that may be attributed to lack of knowledge and insufficient study of disorder. Studies involving larger patient samples are needed to provide more data on the frequency of periapical implant lesions.

- Etiology

The cause of early loss of well placed implants is not clear. Different etiological factors for periapical implant lesions have been suggested, though the evidence is very limited. The factors can be grouped according to the source of contamination as follows:

a) Contamination of the surgical bed: implant surface contamination (saliva, epithelial cells or lubricant oil from rotary instruments), the surgical bed itself, the presence of remnants of milling or overheating of bone during drilling.

b) Pre-existing disease: immediate post-extraction placement, endodontic pathology associated to the extracted tooth or adjacent teeth (there is no evidence referred to the distance between teeth and implants, though this factor is important for the development of such infections), pre-existing bone disease, and the presence of root fragments or foreign bodies.

All factors derived from surgery and the patient are important for controlling tissue healing, and although oral surgery constitutes non-aseptic surgery, it is important to follow aseptic protocols at all times.

- Diagnosis

The diagnosis of periapical implant lesions involves clinical and radiographic assessments. The symptoms (pain and puffiness) and signs (swelling, fistula and drainage) may appear with variable intensity depending on the stage of the lesion. Radiographically, a radiolucency around the implant apex may be observed. Peri-implant radiolucencies due to over-drilling may be casual findings during routine radiographic assessments. The implementation of new imaging technologies such as small-volume cone beam computed tomography (CBCT) is of help in establishing an early diagnosis, showing a clear clinical image of periapical implant bone loss. As a complement to periapical radiographs, small-volume CBCT, in addition to exploratory radiographs, can be used in cases of difficult diagnosis. In order to establish a correct diagnosis of this type of lesion, radiographic protocol-based monitoring is recommended from the time of implant placement.

Regarding the time at which this condition is detected, the radiological findings usually appear between 7 and 16 days after surgery, and until three months after implant placement.

The surgeon is that which has the perception of not having fenestration during surgery, prior consideration of the integrity of all bony walls is advised. Discarded con-
Clinical recommendations in periapical implant lesions

The authors declare that they have no conflict of interest.

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Conflict of Interest
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