

Journal of

# Oral Science Rehabilitation &

Journal for periodontology, implant dentistry,  
dental prosthodontics and maxillofacial surgery

ISSN 2365-6891

Volume 1 — Issue 1/2015



**dti** Dental  
Tribune  
International



Co-sponsored by:



# ICOI WORLD CONGRESS XXXII



For more information contact the ICOI Central Office at (973) 783-6300 or visit our website at [www.icoi.org](http://www.icoi.org)

## OCTOBER 15-17, 2015

### Maritim Hotel Berlin, Germany

*The Young Implantologists Program and Pre-Congress Courses on October 15, 2015*

**ADA CERP®** Continuing Education Recognition Program

ICOI is an ADA CERP Recognized Provider. ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of credit hours by boards of dentistry. Concerns or complaints about CE provider may be directed to the provider or to ADA CERP at [www.ada.org/cerp](http://www.ada.org/cerp).

ICOI is designated as an Approved PACE Program Provider by the Academy of General Dentistry. The formal continuing education programs of this program provider are accepted by AGD for Fellowship, Mastership and membership maintenance credit. Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement. The current term of approval extends from April 1, 2014 to March 31, 2018. Provider ID# 217378.

Photos courtesy of Berlin Tourismus & Kongress GmbH





Journal of

# Oral Science Rehabilitation &

Dear reader,

Launching a new journal is never easy, especially in times in which a multitude of them are being published. The *Journal of Oral Science & Rehabilitation* originated from the efforts of a large group of researchers involved in the development of implant dentistry. Since the mid-1980s, the concept of osseointegration has had a profound influence on treatment planning in dentistry, markedly changing it. It is my view that implant dentistry has been developed to the point that it should be considered an independent dental specialty.

Even though implant dentistry is characterized by surgical aspects that fundamentally involve basic oral science, it should be considered the cornerstone of oral rehabilitation. In fact, while in the past oral rehabilitation aimed to replace missing crowns, implant dentistry has evolved to the restoration of the entire crown–root complex. This, in turn, means that this discipline not only addresses prosthetic issues, but also takes into consideration the biology of the soft and hard tissue.

The title of the journal, which refers to basic scientific knowledge and oral rehabilitation, conveys our attempts to illustrate the complexity of implant dentistry and our wish to develop a platform for researchers and clinicians so that implant dentistry may be considered an all-inclusive discipline that addresses all biological, clinical and aesthetic issues related to patients. The journal will encourage clinicians to play an active role as coordinators of oral rehabilitation, replacing their traditional view of themselves as primarily surgeons. Consequently, this will require a deeper understanding of oral surgery, oral biology, oral rehabilitation and stomatology, and we hope with this journal to contribute to the improvement of knowledge in these fields.

Prof. Ugo Covani  
Editor-in-Chief

**Prof. Ugo Covani**  
**Editor-in-Chief**

Professor of Implant Dentistry,  
University of Pisa, Italy  
Chairman of the Istituto  
Stomatologico Toscano,  
Versilia general hospital,  
Camaione, Italy

**3**

**Editorial**

Ugo Covani

**6**

**About the *Journal of Oral Science & Rehabilitation***

**8**

**Eduardo Anitua et al.**

Immediate replacement of failed dental implants owing to periimplantitis

**16**

**José Luis Calvo Guirado et al.**

Comparison of new bone formation between biphasic  $\beta$ -TCP bovine vs.  $\beta$ -TCP bovine doped with silicon biomaterials in small and large defects: Experimental study in dogs

**26**

**Yasuhiro Nosaka et al.**

Complications of postoperative swelling of the maxillary sinus membrane after sinus floor augmentation

**34**

**Luigi Canullo et al.**

The prevalence and quantitative analysis of the Epstein–Barr virus in healthy implants and implants affected by periimplantitis: A preliminary report

**42**

**Pablo Galindo-Moreno et al.**

Immunohistochemical osteopontin expression in bone xenograft in clinical series of maxillary sinus lift

**52**

**Anne-Sofie Pipkorn et al.**

Evaluation of the effect of supervised plaque control after surgical removal of partially erupted mandibular third molars on the periodontal condition distal to second molars affected by localized periodontal disease: A randomized blind clinical study

**62**

**Isacco Szathvary et al.**

A volumetric 3-D digital analysis of dimensional changes to the alveolar process at implants placed immediately into extraction sockets

**70**

**Luis Martorell Calatayud et al.**

Influence of smoking and oral hygiene on success of implants placed after direct sinus lift

**76**

**Guidelines for authors**

**78**

**Imprint — about the publisher**

# DDS WORLD

DIGITAL, IMPLANT & ESTHETIC DENTISTRY SHOWS



Moscow



Budapest



Istanbul



New York

Exhibition   Live Product Presentations   Hands-on Workshops  
Printed Reference Guide   Coffee With the Experts



## About the *Journal of Oral Science & Rehabilitation*

The aim of the *Journal of Oral Science & Rehabilitation* is to promote rapid communication of scientific information between academia, industry and dental practitioners, thereby influencing the decision-making in clinical practice on an international level.

The *Journal of Oral Science & Rehabilitation* publishes original and high-quality research and clinical papers in the fields of periodontology, implant dentistry, prosthodontics and maxillofacial surgery. Priority is given to papers focusing on clinical techniques and with a direct impact on clinical decision-making and outcomes in the above-mentioned fields. Furthermore, book reviews, summaries and abstracts of scientific meetings are published in the journal.

Papers submitted to the *Journal of Oral Science & Rehabilitation* are subject to rigorous double-blind peer review. Papers are initially screened for relevance to the scope of the journal, as well as for scientific content and quality. Once accepted, the manuscript is sent to the relevant associate editors and reviewers of the journal for peer review. It is then returned to the author for revision and thereafter submitted for copy editing. The decision of the editor-in-chief is made after the review process and is considered final.

## About Dental Tribune Science

Dental Tribune Science (DT Science) is an online open-access publishing platform ([www.dtscience.com](http://www.dtscience.com)) on which the *Journal of Oral Science & Rehabilitation* is hosted and published.

DT Science is a project of the Dental Tribune International Publishing Group (DTI). DTI is composed of the leading dental trade publishers around the world. For more, visit:

[www.dental-tribune.com](http://www.dental-tribune.com)



## **Benefits of publishing in the journal for authors**

There are numerous advantages of publishing in the *Journal of Oral Science & Rehabilitation*:

- Accepted papers are published in print and as e-papers on [www.dtscience.com](http://www.dtscience.com).
- Authors' work is granted exposure to a wide readership, ensuring increased impact of their research through open-access publishing on [www.dtscience.com](http://www.dtscience.com).
- Authors have the opportunity to present and promote their research by way of interviews and articles published on both [www.dtscience.com](http://www.dtscience.com) and [www.dental-tribune.com](http://www.dental-tribune.com).
- Authors can also post videos relating to their research, present a webinar and blog on the DT Science website.

## **Subscription price**

€50.00 per issue, including VAT and shipping costs

## **Information for subscribers**

The journal is published quarterly. Each issue is published as both a print version and an e-paper on [www.dtscience.com](http://www.dtscience.com).

## **Terms of delivery**

The subscription price includes delivery of print journals to the recipient's address. The terms of delivery are delivered at place (DAP); the recipient is responsible for any import duty or taxes.

Copyright © 2015 Dental Tribune International GmbH. Published by Dental Tribune International GmbH. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without prior permission in writing from the copyright holder.

# Immediate replacement of failed dental implants owing to periimplantitis

## Abstract

### Objective

This work aimed at determining whether immediate implant placement to replace infected implants can be a treatment method for periimplantitis.

### Materials and methods

Immediate replacement of failed dental implants requires a conservative implant extraction technique capable of preserving as much viable soft and hard tissue as possible. An implant extraction kit was employed to extract safely dental implants failed owing to periimplantitis. The explantation socket was curetted and decontaminated before the immediate placement of new implants. The implants were then followed clinically and radiographically to assess their survival rate.

### Results

Seven patients were treated to remove nine implants. The failed dental implants were extracted at a torque of  $162 \pm 41$  N cm. The presence of dental plaque and metallic contamination due to surface cleaning was detected under a scanning electron microscope. The implants were followed for  $50 \pm 2$  months after placement and  $43 \pm 3$  months after loading. No implant failure was registered during this period. The mesial bone loss was  $1.0 \pm 0.8$  mm and the distal bone loss was  $1.0 \pm 0.8$  mm.

### Conclusion

The survival of all implants and the minimal marginal bone loss would support this procedure for the immediate replacement of dental implants in sockets affected by periimplantitis.

### Keywords

Periimplantitis, implant removal, immediate implant placement, implant survival.

## Introduction

The high predictability of dental implants makes them the first choice for replacing missing teeth.<sup>1-3</sup> This, in addition to the long-term success of implant-supported fixed prostheses,<sup>4</sup> results in the wide acceptance of implant therapy among the general population.

New improvements in clinical protocols can increase the predictability of implant therapy further and reduce rehabilitation time and cost. One such improvement is the graftless rehabilitation of missing teeth. Lazzara et al. have introduced the concept of immediate implant placement after tooth extraction.<sup>5</sup> This procedure results in a reduction in the number of surgical procedures and in the time required to complete oral rehabilitation.<sup>5,6</sup> Also, immediate implant placement is one of the surgical procedures by which to achieve alveolar ridge preservation.<sup>4</sup>

Published data document the high success rate of immediate implant placement and support the predictability of the technique in the absence of periapical lesions.<sup>4,7-10</sup> Even in the presence of periapical infection, recent research has shown that immediate placement of dental implants is possible provided there is adequate socket cleaning and decontamination.<sup>10-12</sup> In a recent randomized clinical trial, Montoya-Salazar et al. studied the influence of periapical infection on the success rate of immediately placed dental implants after tooth extraction.<sup>10</sup> The infected sockets were curetted and decontaminated before implant placement.<sup>10</sup> In the group of infected sockets, all implants placed were successfully osseointegrated and loaded. The three-year survival rate was 94.44% with no significant differences when compared with the noninfected socket group.<sup>10</sup>

Periimplant mucositis and periimplantitis are inflammatory diseases of bacterial origin, but bone loss only occurs in the case of peri-



Fig. 1

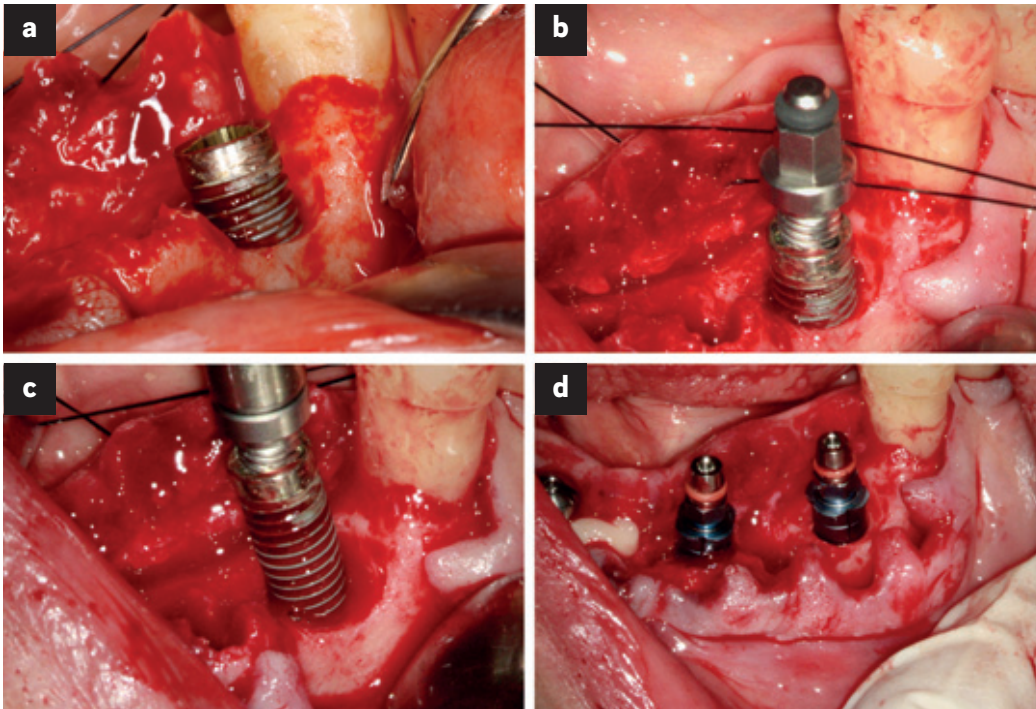


Fig. 1

(a) A nonmobile implant with advanced bone loss due to periimplantitis. (b) An extraction ratchet placed into the implant connection. (c) Implant removal by application of counterclockwise torque. (d) The dental implant placed after careful curettage of the socket.

implantitis.<sup>13</sup> The prevalence of periimplantitis varies between different studies and a prevalence (implant based) of 6.6–36.6% has been reported.<sup>14–18</sup> Dental implant extraction may be indicated in cases of advanced bone loss around the implant. In these cases, could immediate implant replacement be considered?

No study has reported on immediate implant placement after the extraction of infected dental implants. This dearth could be related to the need for a predictable technique that permits conservative implant extraction that preserves most of the viable soft and hard tissue. At the same time, the technique should not damage the bony walls of the socket and thereby compromise the osseointegration of the new dental implant. A kit for implant extraction has been developed to fulfill the above-mentioned requirements and to enhance the possibility of achieving adequate implant stability.<sup>1,19</sup>

A clinical protocol that aims to decrease the bacterial load by curetting and decontamination of the socket, maintain the regenerative capacity of the surrounding alveolar walls, and achieve primary stability would result in favorable outcomes for immediate replacement of failed dental implants. In this article, we analyze the outcomes of this clinical protocol. To that end, failed, nonmobile, infected dental implants were extracted using an implant extraction kit and new

implants were immediately placed in replacement of these. Plasma rich in growth factors was placed in the explantation socket before implant placement. The extracted dental implants were analyzed under a scanning electron microscope and the patients were followed for four years.

## Materials & methods

### Outcome criteria

In order to achieve the objectives of the study, demographic and anamnesis data were obtained from the patients' records. Implant failure was defined as any implant lost owing to failure to achieve osseointegration or to loss of acquired osseointegration. The patient was the statistical unit for the description of demographic data. The implant was the statistical unit for the statistical description of implant location and removal torque. For the new implants, data on insertion torque, failure and marginal bone loss were collected. Implant length was used as a reference to calibrate the linear measurements on the digital panoramic radiograph. Implant survival rate was analyzed using the Kaplan–Meier method. All the statistical analyses were performed using the SPSS for Windows statistical software package (Version 15.0; SPSS, Chicago, Ill., U.S.).