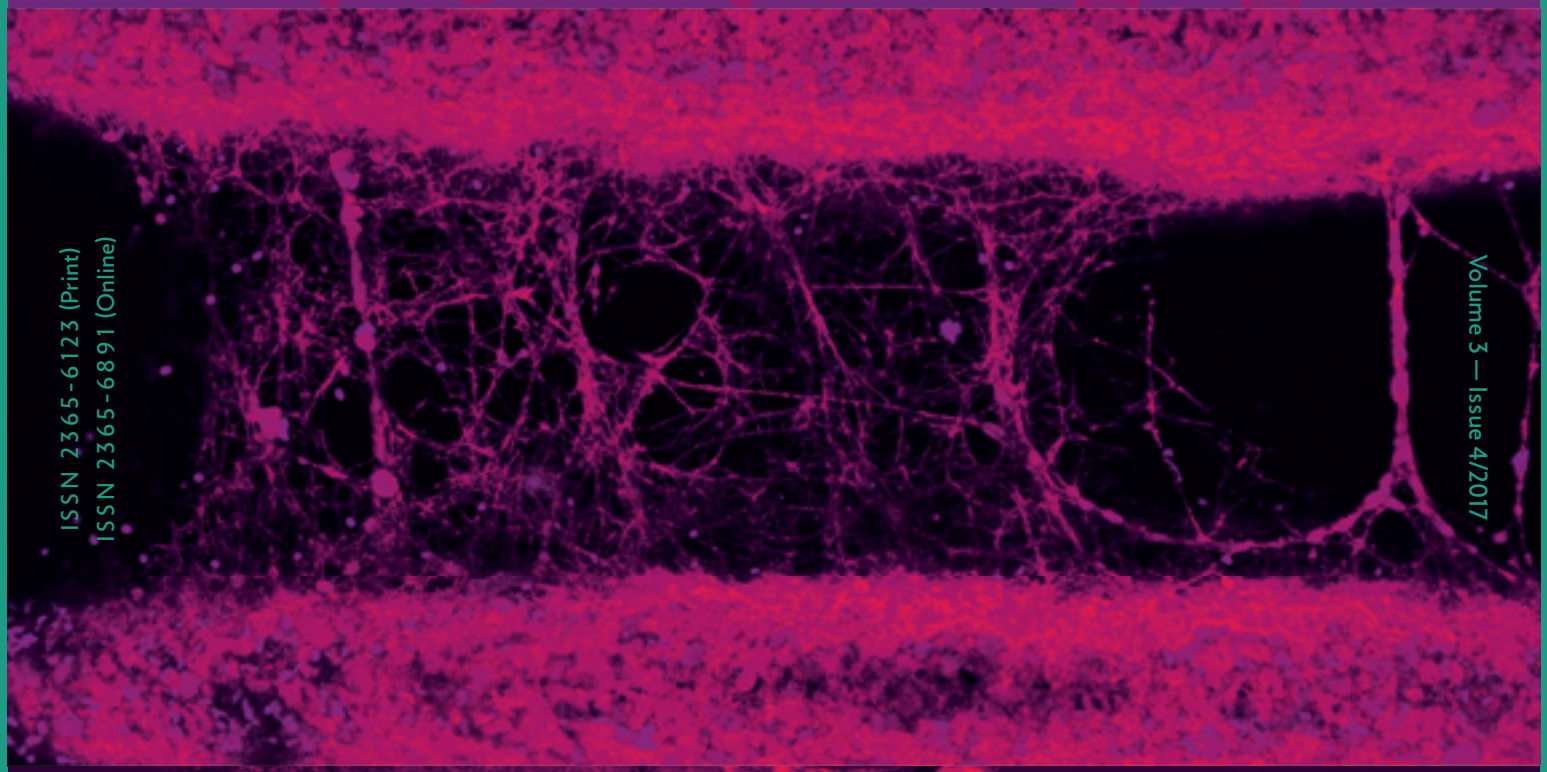
Journal of

Oral Science & Rehabilitation

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



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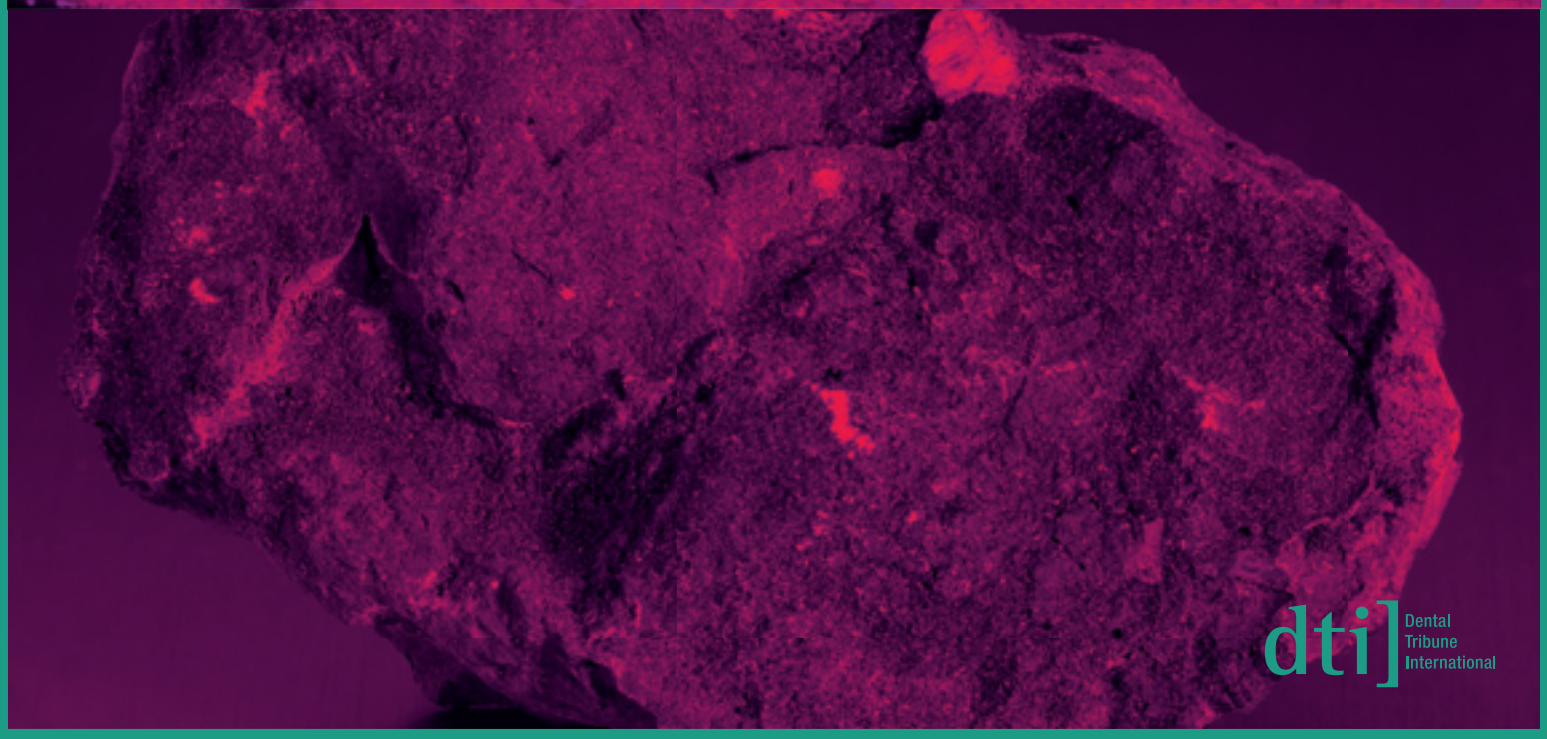

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in alphabetical order as per October 2017.

Editorial

Journal of

Oral Science & Rehabilitation

Clinical and experimental research provides us with the basic knowledge to support the procedures that we apply in our daily practice. We are all aware that we should not use techniques that are not yet supported by scientific evidence or use material that has not been sufficiently tested.

Clinical research gives us the information needed to confirm the validity of new clinical procedures and whether a given device or biomaterial is able to render the expected results. However, to obtain information on healing patterns, experimental research is crucial.

When writing an article or conducting a review for a scientific journal, we should assess materials and methods carefully and whether the conclusions are congruent with the results. In research, to evaluate the phenomenon under study, it is very important to select with accuracy the variables and the methods to measure these variables. In addition, to eliminate possible biases that may lead to incorrect measurements and wrong conclusions, particular attention has to be paid to correct use of randomization and calibration procedures. We need to apply these measures to reduce the risk of bias and improve the quality of our research so that our results and interpretations may be relied on. This improved quality will be useful for systematic reviews that are located at the top of the evidence-based medicine pyramid. However, it should be emphasized that systematic reviews would not exist without the daily work of the researchers. As researchers, it is important that we apply proper procedures to reduce the risk of bias and to improve the quality of our methodology and data collection. If we do not ensure this, systematic reviews will rely on few studies, few patients, low homogeneity regarding population, and poor standardization of methods and data, and the conclusions will thus not be clinically relevant.

Dr. Daniele Botticelli
Co-Editor

Content

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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.

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Buccal plate reconstruction with an intentionally exposed nonresorbable membrane: 1 year after loading results of a prospective study

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Abstract

Objective

The aim of this study was to investigate the barrier effect of a high-density polytetrafluoroethylene (d-PTFE) membrane left intentionally exposed in post-extraction sockets grafted with an allograft biomaterial and removed after 5 weeks.

Materials and methods

Forty-seven hopeless teeth were extracted. Residual sockets were grafted with an allograft biomaterial and covered with a d-PTFE membrane. Six months later, 47 submerged implants were installed. Four months later, implants were uncovered and a temporary restoration was delivered. Outcomes were implant and prosthetic survival rate, complications, alveolar ridge width measurement, marginal bone loss (MBL) and gingival recession. Follow-up ranged from 1 to 3 years. The buccal plate was measured after tooth extraction (BPS), at implant placement (BPW) and at implant uncovering/loading (BBT).

Results

No deviation from the original protocol occurred. All of the implants were osseointegrated. None of the prostheses failed and no complications occurred during the follow-up. The mean BPS at the midpoint was 6.5 ± 1.5 mm (at the time of extraction; T^0). At time of implant placement (T^1), the mean BPW was 6.30 ± 1.30 mm, with a crestal reduction of 0.19 ± 0.34 mm ($P = 0.0006$). At implant uncovering/loading, the mean BBT was 1.7 ± 0.5 mm. One year after loading (T^3), periapical radiographs revealed a mean MBL of 0.62 ± 0.16 mm, compared with T^1. One year after initial loading there was no buccal gingival recession compared with T^0, with a mean soft-tissue creeping of 0.8 ± 0.2 mm.

Conclusion

Buccal plate reconstruction with an intentionally exposed nonresorbable membrane is an effective and easy procedure for regeneration of a resorbed buccal bone plate.

Keywords

Dental implants, biomaterials, guided bone regeneration, dense PTFE.

Introduction

A significant 3-D remodeling of the bone crest, especially horizontally, always occurs after the extraction of a tooth.[1] This makes it difficult to insert an implant, especially in the frontal areas, where residual bone thickness is fundamental for optimal esthetic results. In order to reduce this contraction, a socket preservation technique entailing the insertion of a bone graft and of a resorbable membrane inside the socket, followed after 4–6 months by the positioning of a delayed implant, has usually been proposed.[2, 3] However, such a technique does not always have predictable results, especially when the buccal plate of the alveolar socket is missing after tooth extraction.

Guided bone regeneration (GBR) has been proposed as a possible alternative for patients with severe horizontal bone atrophy, to overcome the drawback of bone block techniques.[4, 5] In order to protect the clot and prevent the invasion of the clot by nonosteogenic cells, maintaining an adequate biological space for the regeneration of bone tissue, the use of either nonresorbable or resorbable membranes has been proposed.[6] Expanded polytetrafluoroethylene (e-PTFE) membranes and resorbable membranes classically require soft-tissue coverage or primary closure to prevent soft-tissue ingrowth, bacterial contamination, infection, membrane migration, early membrane degradation, and graft exposure. The major feature of the e-PTFE membrane is macroporosity, which is believed to enhance regeneration by improving wound stability.[7] Nevertheless, its main drawback is that an early bacterial infection can occur, affecting the outcome of the regeneration.

High-density polytetrafluoroethylene (d-PTFE) membranes offer an alternative to e-PTFE or resorbable membranes.[8–11] A d-PTFE membrane is made of 100% pure medical-grade bio-inert PTFE, which is nonporous, dense, nonexpanded and nonpermeable.[3, 5] The thickness of the various commercially available membranes ranges from 0.13 to 0.25 mm and their low porosity ranges from 0.2 to 0.3 mm; e-PTFE membranes have a similar thickness, but a higher porosity (5–30 nm).[12] The indications for d-PTFE membranes are similar to those for e-PTFE, but the different porosity of the first avoids any inflammation of the surrounding soft tissue in case of accidental exposure.[13] There is limited clinical and histological evidence for the use of d-PTFE membranes at present, with some indications for guided tissue regeneration and GBR, especially in immediate implants and fresh extraction sockets.[7]

The aim of the present prospective study was to investigate the barrier effect of a d-PTFE membrane left intentionally exposed in post-extraction sockets grafted with an allograft biomaterial and removed after 5 weeks. This study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology statement for improving the quality of observational studies.[14]

Materials and methods

This prospective study was conducted in a private dental practice from February 2012 to March 2016. Forty-three patients of both sexes requiring 47 implant-supported single-crown restorations to rehabilitate an esthetic area with a hopeless tooth with an Elian type II socket (facial soft tissue was present, but the buccal plate was partially missing after extraction of the tooth),[15] aged 18 years or older and able to sign an informed consent form, were enrolled and treated consecutively. This was provided that they fulfilled the inclusion criteria and gave their written consent to take part in the study. The buccal plate was defined as partially missing when the distance from the gingival margin to the most coronal part of the buccal plate was greater than 4 mm, even in only 1 of the 3 reference points (mesial, distal and midpoint), while both the mesial, distal and the palatal bony walls were present at a distance of less than 4 mm from the palatal gingival margin.

The exclusion criteria were positive medical findings (such as stroke, recent myocardial infarction, severe bleeding disorder, uncontrolled diabetes, or cancer), psychiatric therapy, pregnancy or nursing, smoking more than 10 cigarettes per day, untreated periodontitis, acute or chronic infections of the adjacent tissue or natural dentition, previous radiotherapy of the oral and maxillofacial region within the last 5 years, absence of teeth in the opposing jaw, severe clenching or bruxism, severe maxillomandibular skeletal discrepancy, and poor oral hygiene (full-mouth bleeding and a full-mouth plaque index of higher than or equal to 25%). Patients were informed about the clinical procedures, the materials to be used, the benefits, potential risks and complications, as well as any follow-up evaluations required for the clinical