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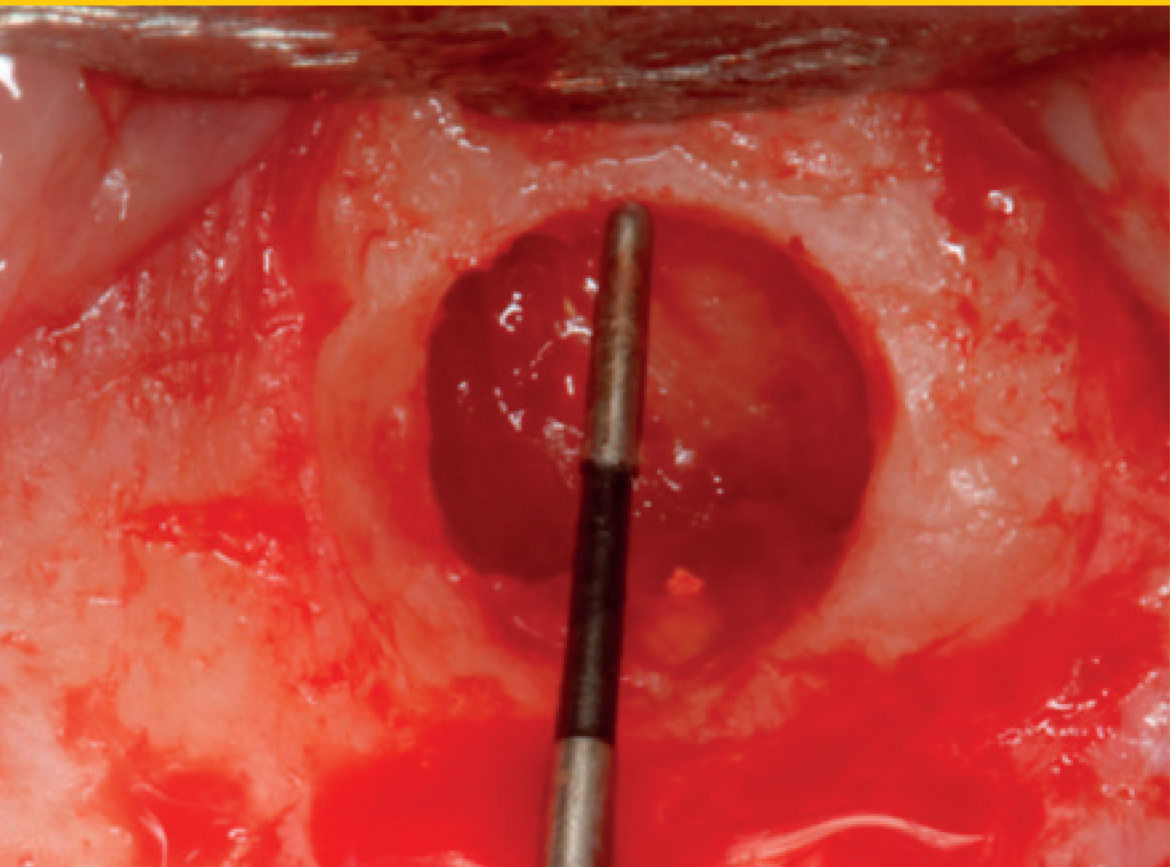
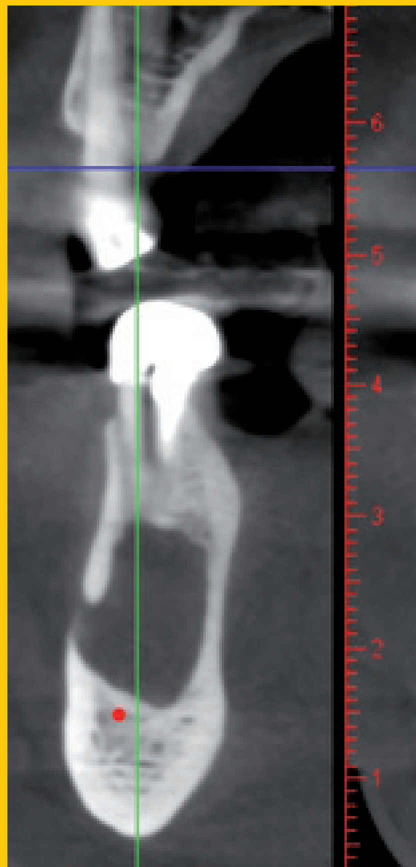

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Success in treatment with dental implants

Success in treatment with dental implants is determined not only by osseointegration, but also by the stability of the soft tissue around the restoration, giving it a natural appearance. The stability of this tissue is important for preventing periimplant bone resorption. The presence of a healthy periimplant mucosal interface has been associated with long-term implant success and protection against marginal bone loss. The soft tissue around implants plays a role in the protection and maintenance of the periimplant bone; in the crestal zone, it prevents bacterial invasion through different mechanisms in each of their components, provides resistance to frictional forces and limits the entry of foreign bodies.

The biological seal around the oral implant consists of two main layers: the epithelial junction and the underlying adhesion of the connective tissue. The main function of the epithelial junction is to form a physical barrier. The connective tissue function is much more complex, serving for defense, support and nutrition. The connective tissue is organized around the pillar in circular fibers, achieving stabilization of the pink tissue and helping to reduce bone resorption.

The connective tissue is of crucial importance in stabilizing epithelial apical migration and in preventing bone resorption. The discrepancy between the diameter of the implant and the abutment can establish a point at which circular connective fibers can be retained. The connective tissue surrounding the dental implant is in direct contact with the surface of the titanium dioxide and contains a dense network of collagen fibers that originate in the periosteum of the alveolar bone crest and extend to the mucosal margin.

The quality of this mucosa is determined in part by the prosthetic accessory materials in contact with it and the topography of the implant. The development of new dental implants, prosthetic abutments and crowns offers novel surfaces and designs capable of improving soft-tissue insertion, with a view to avoiding microbial contamination of vital bone.

The biologically oriented preparation technique (BOPT) concept has been described as affording an adaptive profile of the soft tissue, invading the sulcus in a controlled manner. With this technique, the collagen fiber distribution appears to increase mucosal fixation around the teeth (and implants) and increase soft-tissue stability over the long term, with the aim of maintaining periimplant bone protection. The convergent conical portion of the implant–abutment assembly, together with the BOPT design crowns, offers positive outcomes, such as the prevention of bone remodeling and preservation of the alveolar ridge, adequate periimplant tissue stability, and improved periimplant function and esthetics, without the need for more invasive and costly bone or soft-tissue regeneration techniques.

New histological studies and larger samples are recommended to evaluate histologically and histomorphometrically the disposition of connective tissue fibers around implants and, thereby, demonstrate that adequate tissue stability and coronal migration of periimplant soft tissue are necessary for a successful outcome in implant treatment.

Prof. Miguel Peñarrocha Diago
Editor-in-Chief

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New perspectives in periapical surgery: Ostectomy and osteotomy

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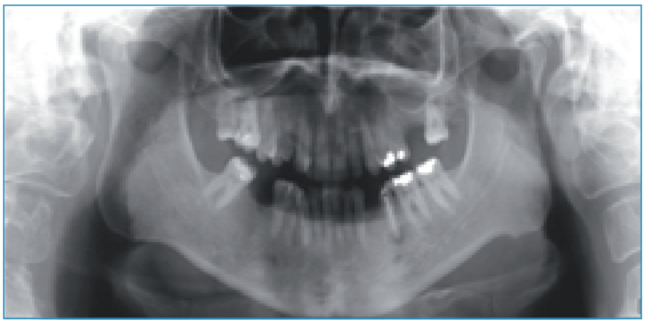

Fig. 1a

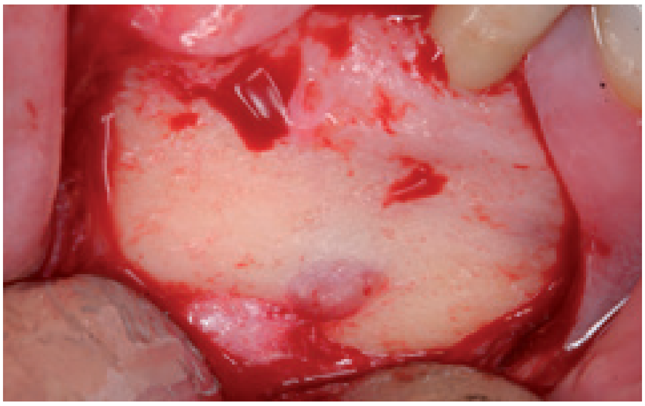

Fig. 1b

Abstract

Objective
The aim of this investigation was to review the surgical factors related to ostectomy in periapical surgery and their relationship to prognosis.

Method
An update was made of different techniques to achieve adequate access to the periapical lesion. Visual control of the affected roots is important for a successful result in periapical surgery; for this reason, the bone tissue from the vestibular cortical bone must be removed through an ostectomy or osteotomy.

Results
The technique used and the amount of bone removed must be analyzed preoperatively, since it will have a direct relationship to the surrounding anatomical structures, the healing time and the need to perform bone regeneration techniques.

Conclusion
With the use of microsurgical techniques, the size of the ostectomy should not exceed 5 mm in order to reduce the healing time and thus improve the prognosis of periapical surgery. Osteotomy is an alternative technique that allows preservation of the external cortical bone, but has been little studied.

Fig. 1c

Fig. 1d

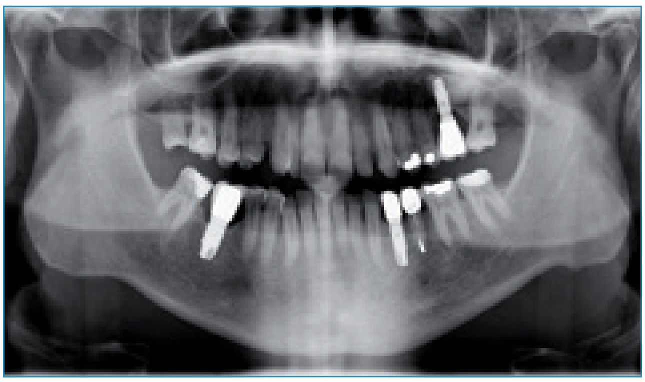

Fig. 1e

Keywords
Ostectomy; osteotomy; periapical surgery; endodontic surgery; prognosis.

Introduction

Periapical surgery entails 3 procedures: root end resection, root end cavity preparation and bacteria-tight sealing of the root canal system at the cut root end with a retrograde filling. For this, it is necessary to remove the periapical inflammatory pathological tissue to reach the dental apex.[1] Many years ago, in 1845, Hullinhen proposed surgical trephination through the soft tissue and bone and into the pulp to alleviate a pathological pulp process.[2] At present, to access the periapical lesion and obtain visual control of the affected roots, the soft tissue has to be raised and bone tissue from the vestibular cortical bone must be removed through an ostectomy or osteotomy.[3] In some cases, the pathological periapical lesion has already perforated the cortical bone, providing direct access to the apex and allowing the removal of the pathological tissue with only a remodeling of the peripheral bone.

Before surgery, it is important to calculate on a parallel radiograph the length and number of roots, the curvature of these, and the position of the apices and the important anatomical structures, such as the foramen, inferior dental nerve and maxillary sinus.[4] At present, the incorporation of cone beam computed tomography (CBCT) as a complementary radiographic technique has greatly simplified the diagnosis and detection of all these characteristics. Ahn et al. proposed introducing a CAD/CAM-guided surgical template in periapical surgery to minimize the extent of ostectomy for locating the root apex in cases with a thick and intact buccal bone plate and to facilitate surgery on teeth close to problematic anatomical structures.[5]

The aim of this investigation was to review the surgical factors related to ostectomy in periapical surgery and their relationship to prognosis.

Surgical technique

Ostectomy entails the removal of bone tissue from the cortical bone to reach the dental apex. How large an ostectomy should be is predicated on the native size of the lesion, adequate armamentarium access, and proximity to vital structures, such as the mental nerve, mandibular canal and maxillary sinus.[6] In conclusion,