Two-year prospective clinical comparison of immediate replacement vs. immediate restoration of single tooth in the esthetic zone.

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Abstract

AIM: To compare the immediate restoration of single implants in the esthetic zones performed on implants placed immediately after tooth extraction or 8 weeks later (immediate replacement vs. immediate restoration).

METHODS: Sixteen patients (10 women and 6 men) with a mean age of 35 years (ranging from 21 to 49 years old) were treated from 2004 to 2005 for single-tooth replacement in the upper arch. The patients were randomly divided into two groups: in the test group patients received implants placed and restored (non-occlusal loading) at the time of tooth extraction; in the control group implants were placed 8 weeks after tooth extraction and immediately restored. All the patients received tapered effect (TE) implants from the Straumann Dental Implant System. The following parameters were evaluated at the moment of provisional restoration (within 48 h after implant placement) and at the 2 years follow-up visit: marginal bone resorption, papilla index, position of the mucosal margin. The implant stability quotient was measured at the moment of implant placement and at the moment of the delivery of the definitive restoration.

RESULTS: No statistically significant differences were found in any of the studied parameters between the test and the control groups (P>0.05). The implant stability quotient values between the test and control groups were significant (P<0.05) at the moment of implant placement but were no more significant at the loading of the definitive restoration (P>0.05).

CONCLUSION: The results of the present study suggest that immediate replacement without functional loading may be considered a valuable therapeutic option for selected cases of single-tooth replacement in the esthetic area when TE implants are used. Implant stability at the moment of implant placement is slightly inferior in the immediate replacement group, but it does not affect the treatment result.
Implant design and intraosseous stability of immediately placed implants: a human cadaver study.

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Abstract

OBJECTIVE: The objective of this study was to explore effects of implant macrodesign and diameter on initial intraosseous stability and interface mechanical properties of immediately placed implants.

MATERIAL AND METHOD: Mandibular premolars of four fresh-frozen human cadavers were extracted. Ø 4.1/4.8 mm ITI TE, Ø 4.1 and 4.8 mm solid screw synOcta ITI implants were placed into freshly prepared extraction sockets. Resonance frequency analysis was conducted to quantify primary implant stability quotient (ISQ). Installation torque value (ITV) and removal torque value (RTV) of the implants were measured using a custom-made strain-gauged torque wrench connected to a data acquisition system at a sample rate of 10,000 Hz. The vertical defect depth around the collar of each implant was measured directly by an endodontic spreader. The bone-implant contact was determined in digitalized images of periapical radiographs and expressed as percentage bone contact.

RESULTS: The ISQ values of the TE implant was higher than the Ø 4.1 mm implant (P<0.01), and comparable with the Ø 4.8 mm implants (P>0.05). ITVs and RTVs of TE and Ø 4.8 mm implants were higher than the Ø 4.1 mm implant, although the differences between groups were statistically insignificant (P>0.05). The vertical defect depths around all types of implants were similar. In the radiographic analyses, percentage bone-implant contact of the TE and Ø 4.8 mm implants were comparable at the marginal bone region and both were higher than that of the Ø 4.1 mm ITI implant. Nonparametric correlations between groups revealed a significant correlation between ITV and RTV (r=0.838; P<0.001), but not between ISQ values and ITVs and RTVs (P>0.05).

CONCLUSION: Immediately placed ITI TE implant leads to initial intraosseous stability and interface mechanical properties comparable with a wide diameter implant.

Implant placement at the time of maxillary molar extraction: technique and report of preliminary results of 83 sites.

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Abstract

BACKGROUND: The purpose of this study was to evaluate the predictability of implant placement at the time of maxillary molar extraction using a modified insertion technique and implant design.
METHODS: At the time of maxillary molar extraction, 83 tapered-end implants with an apical diameter of 4.1 mm and a neck diameter of 6.5 mm were placed in maxillary first or second molar sites, following manipulation of the remaining interradicular bone with osteotomes. Regenerative materials, consisting of demineralized freeze-dried bone allograft (DFDBA) and/or osseous coagulum, and bioabsorbable or non-resorbable membranes were placed, and passive soft-tissue primary closure was attained in all cases.

RESULTS: Soft-tissue closure was maintained until the time of clinical reentry 6 months after implant insertion in 81 of 83 sites. Loss of primary soft-tissue closure in the other two areas did not result in complete uncovering of the cover screw and implant top. All implants were clinically immobile at the time of implant uncovery 6 months after insertion and were restored with single crowns. All implants were functioning successfully for up to 18 months (mean: 12.4 months).

CONCLUSION: The combination of atraumatic removal of hopeless maxillary molars, controlled manipulation of the residual interradicular bone, insertion of implants of the aforementioned design, and use of appropriate regenerative materials at the time of implant insertion predictably afforded a stable implant for restoration with a single crown.

Implant placement at the time of maxillary molar extraction: treatment protocols and report of results.

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Abstract

BACKGROUND: Implant placement at the time of maxillary molar extraction presents a number of potential benefits to patients. A technique to predictably attain implant placement in ideal positions was reported previously.

METHODS: A total of 391 rough-surface implants were placed in 386 patients at the time of maxillary molar extraction. Concomitant regenerative therapy was performed as necessary. Implants were followed for up to 75 months with a mean follow-up of 40.3 months.

RESULTS: A total of 389 of 391 implants were functioning successfully for up to 75 months with a cumulative survival rate of 99.5%. Criteria for determining implant morphology and dimension are presented.

CONCLUSION: Implant placement at the time of maxillary molar extraction with concomitant regenerative therapy as needed and subsequent restoration is a predictable treatment modality.
Implant placement at the time of mandibular molar extraction: description of technique and preliminary results of 341 cases.

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Abstract

BACKGROUND: Theoretically, the ability to place implants in ideal positions at the time of mandibular molar extraction with concomitant regenerative therapy would simplify and shorten the course of therapy for patients.

METHODS: A total of 341 implants were placed in 320 individuals at the time of mandibular molar hemisection and extraction. Concomitant regenerative therapy was performed around 332 of the placed implants. No regenerative therapy was performed around the remaining nine implants. Eleven additional sites, in which simultaneous implant placement was planned, were treated instead with regenerative therapy alone using graft material and a covering membrane. Implants were placed in these sites in subsequent surgical visits.

RESULTS: One implant was mobile 3 weeks postinsertion. A second implant was lost after 30 months in function. All other implants were stable at the time of uncovering 3 to 7 months postinsertion. A total of 339 implants have been in function for up to 6 years, with a mean time in function of 30.8 months, yielding a cumulative survival rate of 99.1%.

CONCLUSION: Implants may be placed in ideal restorative positions at the time of mandibular molar extraction with or without concomitant regenerative therapy.

Dental implants placed in expanded narrow edentulous ridges with the Extension Crest device. A 1-3-year multicenter follow-up study.

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Abstract

OBJECTIVE: This study has been designed to evaluate the capability of a new surgical device (Extension Crest) to widen narrow edentulous alveolar ridges and to allow a correct placement of endosseous implants in horizontally atrophied sites.

MATERIAL AND METHODS: Forty-five patients, 20 males and 25 females, aged 20-66 years, affected by edentulism associated to horizontal resorption of the ridges, were treated by means of a sagittal osteotomy and expansion of the ridge with a new surgical device (Extension Crest) to obtain a wider bony base for ideal implant placement. In the same procedure in 33 patients, and 1 week afterwards in 12 patients, 110 endosseous titanium
implants (ITI TE) were placed. Three to four months later, the patients were rehabilitated with implant-supported prostheses.

RESULTS: The success rate of the expansion technique was 97.8%. A total of 110 implants were inserted in the expanded ridges. The mean follow-up after the start of prosthetic loading was 20.4 months. Three implants were removed before the start of prosthetic loading, because of non-integration, while no other implants failed after the completion of the prosthetic rehabilitation. Three implants, although integrated and in function, did not fulfill success criteria: cumulative success and survival rates at the end of the observation period were 95.4% and 97.3%, respectively.

CONCLUSION: Within the limits of this study, this technique appeared to be reliable and simple, with reduction of morbidity and times of dental rehabilitation as compared with other techniques such as autogenous bone grafts and guided bone regeneration. Survival and success rates of implants placed in the treated areas are consistent with those placed in native bone.

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**Abstract**

Implant rehabilitation of the edentulous maxilla may be somewhat problematic because of anatomic situations involving insufficient bone thickness. One approach in this situation is localized ridge augmentation with the split crest technique. This surgical approach allows the external cortical plate of the maxilla to be moved in a labial direction to gain an increase in width to introduce implants of appropriate diameter. This ongoing prospective study evaluated: (i) the surgical advantages that the new ITI TE implants have showed compared with the ITI standard solid-screw implants when placed in conjunction with the split crest technique and (ii) the implant success rate associated with 42 ITI TE implants and 40 ITI standard solid-screw implants placed in 40 patients in conjunction with the split crest technique. ITI TE implants have shown direct and indirect advantages in reducing the risk of fracture of the labial cortical plate during all the three fundamental surgical steps of this technique: (a) the ridge expansion with osteotomes; (b) implant site preparation with drills and (c) implant insertion. The overall success rates of ITI TE implants and standard screw implants were 100% and 95%, respectively. Based on the preliminary results of the present study, it can be concluded that ITI TE implants inserted in conjunction with split crest technique seem to be a promising surgical procedure to treat selected anatomic situations involving insufficient maxillary bone thickness.