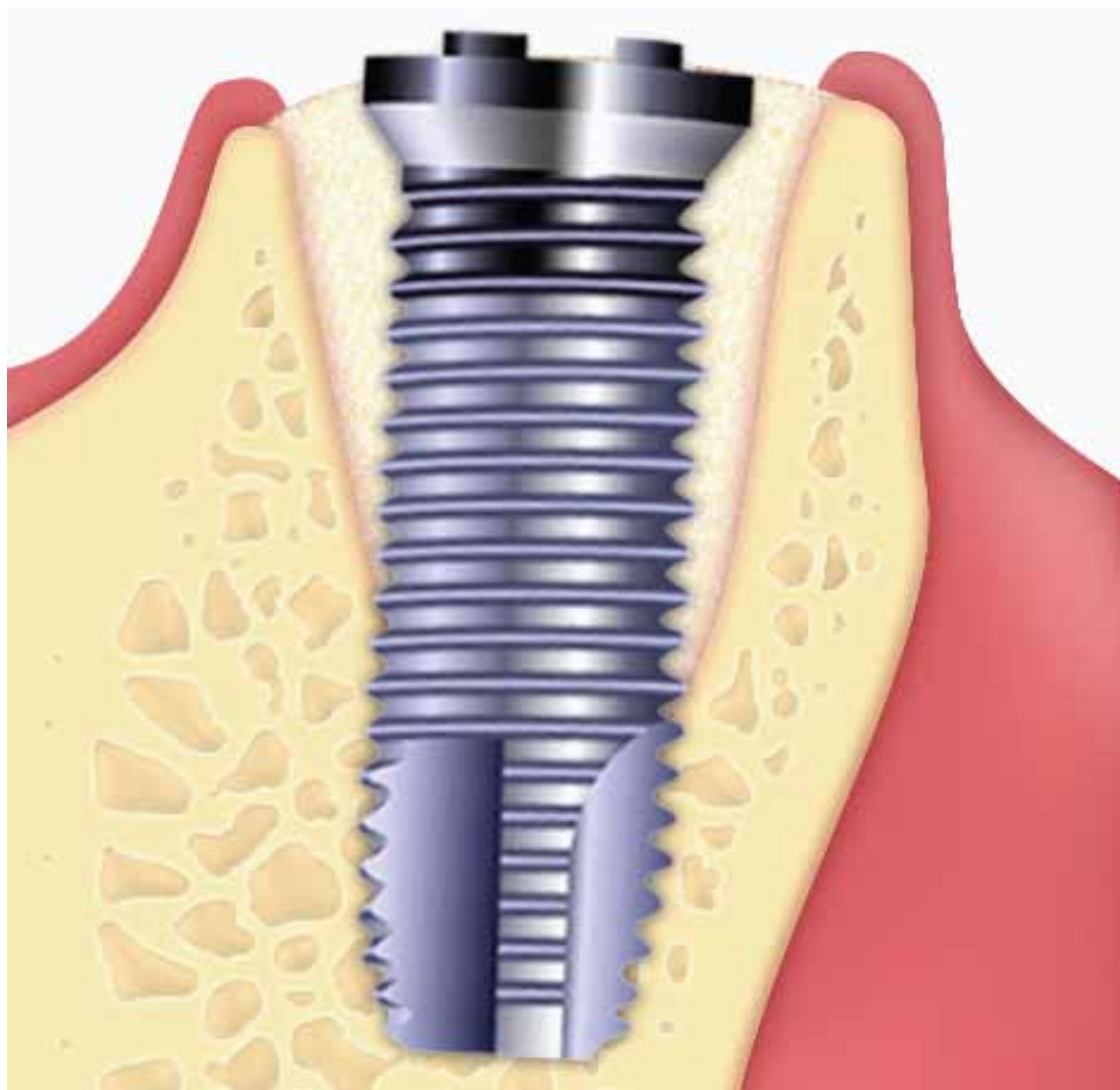




Dehiscences and fenestrations



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DEHISCENCES AND FENESTRATIONS

008

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Clinical outcome of implants placed immediately after implant removal

ABSTRACT

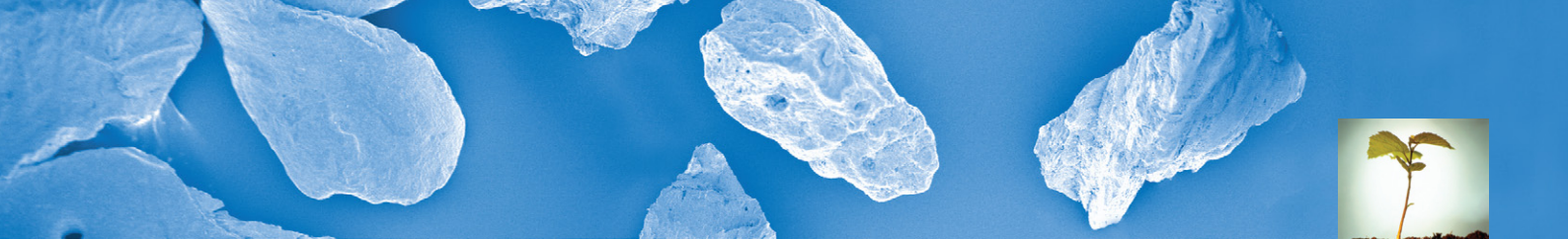
The purpose of this study was to evaluate the clinical success of implants placed immediately after the explantation of failed implants due to fracture at 12 months. 9 patients (3 males and 6 females) aged 35 to 63 years were included in this study in a period ranging from 1999 to 2004. All of the patients selected for this study required the extraction of failed implants and were scheduled for immediate implant replacement.

As the placement of an immediate implant is often associated with a residual bone defect between the outer surface of the implants and the residual bone walls, the Authors considered to apply a GBR protocol only in case of a large bone defect. Consequently, 5 experimental implants which showed the absence of fenestrations or dehiscences of the bone walls and a residual gap between implant surface and surrounding bone walls <2mm, were not treated with any regenerative procedures. The remaining 4 experimental immediate implants, which exhibited bone fenestrations or dehiscences and/or peri-implant bone defects >2mm, were grafted with cortico-cancellous porcine bone particles (OsteoBiol® Gen-Os®, Tecnos®, Giaveno, Italy) and covered with bioabsorbable membranes (OsteoBiol® Evolution, Tecnos®). The membranes were used for the treatment of large bone defects and where a large portion of the bone recipient site around the implant was missing. A bioabsorbable barrier membrane was used in all instances when necessary. Due to insufficient stiffness of the membrane, cortico-cancellous porcine bone particles were grafted into the defect to prevent the collapse of the membrane and maintain a space beneath the membrane for bone regeneration.

All implants were then restored with fixed prostheses. After 12 months, all the implants were successful and no residual bone defects were observed or probed around any implant. Analogously, the follow-up x-rays showed no significant bone loss pattern.

CONCLUSIONS

Considering the findings of this study, the Authors suggest that it is possible to place implants immediately after a fractured implant explantation, with results that are similar to results obtained with implants placed immediately after tooth extraction.



Buccal bone augmentation around immediate implants with and without flap elevation: a modified approach

ABSTRACT

In literature, there is evidence of the fact that implants placed in fresh extraction sockets reduce not only morbidity rates in patients, but also the total time between tooth removal and the final prosthetic restoration. The aim of this study was to compare the clinical success and bone healing of implants placed in fresh extraction sockets using a flapless procedure compared to those placed with flap elevation. 20 patients (8 male and 12 female) aged 30 to 67 years were included in the study. All the patients selected for this study required the extraction of a natural tooth and were scheduled for immediate implant replacement.

10 implants were placed with flap elevation (control group), and 10 implants were placed without flap elevation (test group). All the sites selected showed a complete bone defect at the facial wall, which required bone augmentation. Bone augmentation was performed with a mixture of collagen gel and cortico-cancellous porcine bone (OsteoBiol® Gel 40, Tecnos®, Giaveno, Italy). The surgical sites were protected at the level of gingival wound with a collagen membrane (OsteoBiol® Evolution, Tecnos®). All grafting procedures were successfully carried out as planned without any complications. All the implants included in this study were 2-stage implants placed at the level of palatal/lingual bone in augmented bone. 6 months after placement, both control and test implants underwent a second-stage surgery and a clinical examination to determine the implant stability quotient (ISQ), the distance between the implant shoulder and the first bone-implant contact (DIB) and the distance between implant shoulder and the crestal bone at the midbuccal aspect (DIC). One implant failed in the test group. Only one implant (test group) showed bone growth over the implant neck at the re-entry procedure. ISQ and DIB did not show any significant differences between the control and test group; however, a higher DIC was found in the test sites compared to the control sites.

CONCLUSIONS

The present study showed that implants placed immediately after tooth extraction in presence of vertical bone defects can be successfully treated either with or without flap elevation, even in the presence of bone defects requiring augmentation procedures. It was also noted that the bone regenerated reached a higher coronal level in the group with flap elevation than in the group without flap elevation. These findings suggest more favorable outcomes in terms of regenerated bone for the flap elevation group.

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Clinical outcome of implants placed immediately after implant removal

ABSTRACT

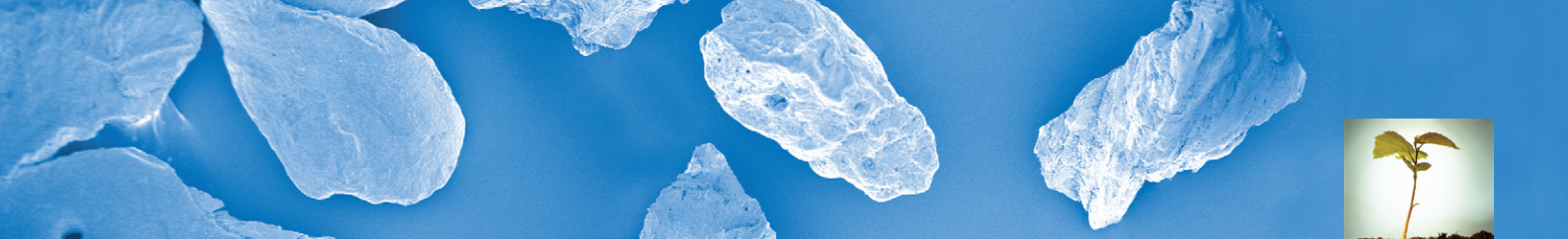
This article reports the clinical success of an implant placed immediately after the explantation of a fractured blade implant due to a fracture caused by biomechanical complications. A healthy 58-year-old male nonsmoker presented with a fractured blade implant that had been subjected to biomechanical overload. A gentle explantation was performed, and a new implant of the same shape was immediately placed. The peri-implant bone defect was grafted with a mixture of collagen gel and cortico-cancellous porcine bone (OsteoBiol® mp3®, Tecnos®, Giaveno, Italy) and covered with a bioabsorbable membrane (OsteoBiol® Evolution, Tecnos®).

Radiographic evaluation at 6 months after the treatment showed complete bone healing. No residual bone defect was observed or probed during the uncovering phase; moreover, no mobility, pain, suppuration, or presence of peri-implant radiolucency were observed at the second-stage surgery.

CONCLUSIONS

When an implant fails, it must be immediately removed. In case of a new implant placed in a fresh extraction socket, if the contact implant-bone is not ideal or portion of the implant wall is exposed because of a dehiscence in the bone, guided tissue regeneration techniques can be employed using barrier membranes with or without bone graft materials.

The present case report demonstrated the successful immediate replacement of a failed blade implant with a new implant of the same shape in the same location in combination with a graft material and a membrane.



The clinical outcomes of immediate versus delayed restoration procedures on immediate implants: a comparative cohort study for single-tooth replacement

ABSTRACT

In recent years, the placement of implants into fresh extraction sockets has become a more and more used procedure because immediate implant placement reduces surgery and treatment time, morbidity, and costs for the patient. As it has been demonstrated that bone remodeling occurs after tooth extraction and simultaneous implant placement, augmentation procedures have been developed for treatment of the peri-implant bone defects linked to the placement of implants into fresh extraction sockets.

Comparing the immediate and conventional restoration procedures for implants placed in fresh extraction sockets, the aim of this study was to evaluate the overall clinical outcomes and total costs and clinical treatment periods between the two above mentioned procedures. Implants were placed in fresh extraction sockets by means of a flapless technique and the peri-implant bone defect, between the implant surface and bone wall, was augmented with cortico-cancellous porcine bone particles (OsteoBiol® Apatos, Tecnos®, Giaveno, Italy). Subsequently, a resorbable membrane (OsteoBiol® Evolution, Tecnos®) was used to stabilize the graft.

The study aimed to evaluate the changes of marginal bone level, facial soft tissue (Δ FST), width of keratinized gingiva (Δ WKG), and the papilla index.

With reference to bone loss, the two procedures showed similar results, but in delayed restoration procedure a negative remodelling occurred from 4 to 12 months after implant placement. Moreover, for the delayed group a loss of the papillary soft tissues before restoration, followed by a reestablishment after restoration, was recorded.

CONCLUSIONS

As the results showed that the immediate restoration procedure seems to be more promising in terms of healing times and costs, the Authors concluded that *"immediate restoration of implants installed in fresh extraction sockets was at least as effective and safe as delayed restoration"*.

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Clinical outcomes of implants placed in extraction sockets and immediately restored: a 7-year single-cohort prospective study

ABSTRACT

It has been widely demonstrated that after tooth extraction an irreversible process of alveolar ridge volume loss takes place, with horizontal and vertical dimensional changes in both arches. Even if it has proven to be a predictable treatment strategy with a very high success rate, implant placement into fresh alveolar socket does not seem to alter the resorption changes that naturally occur after tooth extraction. Therefore, the aim of the present 7-year prospective single cohort study was to evaluate the success rate, marginal bone level (MBL), soft tissue stability of implants placed in fresh extraction sockets and immediately restored. A total of 32 patients (19 women and 13 men) with at least one tooth in need of extraction and of immediate implant restoration were enrolled in this study. The mean age of the present cohort group was 40.1 ± 13.3 with a range between 23 and 63 years.

Patients received immediate implants and immediate single restorations. The peri-implant bone defects between the implant surface and bone walls were grafted with cortico-cancellous porcine bone particles (OsteoBiol® mp3®, Tecness®, Giaveno, Italy) and the graft was stabilized by means of a resorbable membrane (OsteoBiol® Evolution, Tecness®). The parameters of the evaluation were: implant failures, complications, MBL, width of keratinized gingiva, facial soft tissue (FST) levels, modified Plaque Index and modified Bleeding Index.

CONCLUSIONS

The purpose of the present 7-year prospective single cohort study was to evaluate the success rate and the hard and soft tissues stability of implants placed immediately after tooth extraction and immediately restored. A total of 37 immediate implants were placed with a total cumulative survival rate of 94.6%. All clinical cases were treated with tooth extraction, flapless immediate implant placement, peri-implant gap filling with the use of a cortico-cancellous porcine bone and immediate restoration. Based on these results, the Authors concluded that *“long-term data from the present study suggested that implants placed immediately after tooth extraction and immediately restored had favourable clinical outcomes and stable tissues conditions”*.



Implant stability in the posterior maxilla: a controlled clinical trial

ABSTRACT

Implant stability plays a fundamental role in the clinical success. Primary stability comes from the mechanical engagement of the fixture with cortical bone and is determined by the quantity and quality of the available bone at implant placement, the surgical procedure and the dimension and design of the fixture. Secondary stability comes from regeneration and remodelling of the bone and tissue around the implant after its insertion and is related to primary stability. The purpose of this controlled clinical trial was to investigate the evolution from primary to secondary stability of dental implants, placed in the human posterior maxilla, in three different groups: patients with native bone, patients with partially regenerated bone, and patients with nearly totally regenerated bone. In all procedures, the grafting heterologous materials used were particulate prehydrated bone (OsteoBiol® mp3®, TecnoSS®, Giaveno, Italy) and collagen membranes (OsteoBiol® Evolution, TecnoSS®). 133 (Anyridge®, Megagen) implants were installed in 59 patients in the posterior areas of the maxilla. The primary implant stability was measured at placement, by means of insertion torque (IT) and implant stability quotient (ISQ). The evolution from primary to secondary implant stability was studied, by means of ISQ, at different times (15, 30, 45, and 60 days). 52 implants had satisfactory high primary stability (IT \geq 45 N/cm; ISQ \geq 60). Significant differences were found for IT and ISQ between the groups (A, B, and C) but no differences between Groups B and C were found. However, no drops were reported in the median ISQ values during the healing period.

CONCLUSIONS

Further, long-term controlled studies are needed to confirm the outcomes emerging from the present work as it presents limitations, such as the limited number of patients treated and fixtures inserted; in particular, only a few implants were inserted in Group C (nearly totally regenerated bone), and this is a major limitation of the present work, since Group C was probably the most interesting to investigate, and it would have been appropriate to have inside it a higher number of fixtures. Anyway, the evaluation of the primary and secondary implant stability may contribute to higher implant survival/success rates in critical areas, such as the regenerated posterior maxilla.

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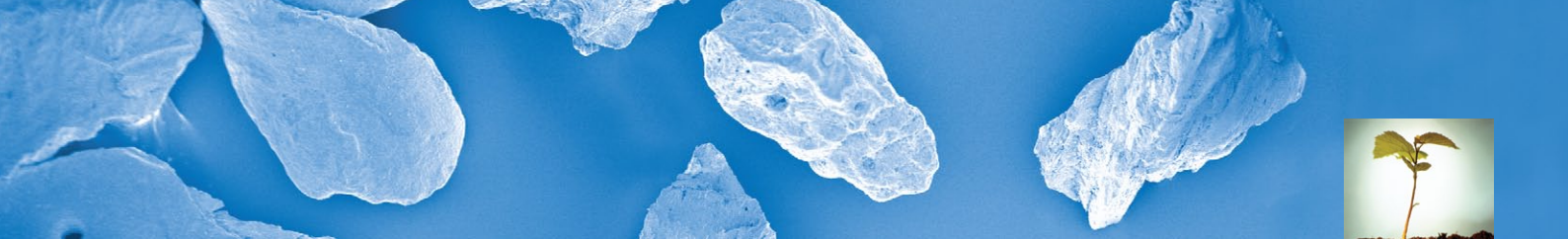
Tissue stability of implants placed in fresh extraction sockets: a 5-year prospective single-cohort study

ABSTRACT

The aim of this 5-year prospective single-cohort study is to evaluate implants success rate, marginal bone level (MBL), soft tissue stability, and the patients' satisfaction up to 5 years after tooth extraction and immediate implant placement. Implants were inserted in fresh extraction sockets, the gap between the residual bone walls and the implant surfaces were grafted with a xenograft (OsteoBiol® Apatos, Tecness®, Giaveno, Italy) and covered by a collagen membrane (OsteoBiol® Evolution, Tecness®) left exposed to the oral cavity (flapless technique). A total of forty-seven patients was evaluated. At the re-entry, 4 months after grafting, clinical parameters (width of keratinized gingiva [WKG], facial soft tissue level [FST], papilla index, plaque index, and bleeding on probing) were measured; periapical radiographs were taken at the time of implant placement (baseline) and after 1, 3, and 5 years. An image analysis software was used to measure changes in the marginal bone level (DMBL). Moreover, the clinicians evaluated patients' satisfaction after 1, 3 and 5 years. After 5 years, the implant survival rate was 95.7%. DMBL showed statistically significant differences: mean values were -0.68 ± 0.39 , -0.94 ± 0.44 , and -1.08 ± 0.43 mm at the 1, 3, and 5-year follow-up, respectively. Changes in WKG (DWKG) and FST (DFST) decreased from the 1-year point of the survey (0.80 ± 0.79 and 0.71 ± 0.73 mm for DWKG and DFST, respectively) to the last follow-up check at 5 years (0.67 ± 0.74 and 0.56 ± 0.69 mm for DWKG and DFST, respectively), with no significant differences. Regarding patients' satisfaction, $74\% \pm 11.8\%$ of patients were satisfied by the overall implant treatment, $73.0\% \pm 11.1\%$ were satisfied with the appearance of the peri-implant soft tissues, and $80.5\% \pm 11.3\%$ gave their positive opinion on the aesthetic outcome of the definitive implant crown.

CONCLUSIONS

The outcomes of this study confirm that implants inserted immediately after tooth extraction and grafted with a cortico-cancellous porcine bone using a flapless procedure result in stable bone levels and soft tissue parameters. The aesthetic outcomes of the surgical procedure used in this study were considered satisfactory by the patients.



Postextractive implants in aesthetic areas: evaluation of perimplant bone remodeling over time

ABSTRACT

As some Authors have indicated that the immediate placement could offer many advantages, including time saving, the aim of this research was the evaluation of the peri-implant bone remodelling of post-extractive implants over two years. Thirty patients, requiring teeth extractions due to root fractures, destructive caries or endodontic failures, were enrolled for the study. All patients were treated with the same surgical technique, with atraumatic extraction, curettage of extraction socket and implant insertion. Implants (Sweden Martina, Due Carrare, Padova, Italy) were inserted placing the shoulder edge 1 mm deeper the cortical margin of palatal plate and the residual gaps were filled and slightly condensed with collagenated cortico-cancellous porcine bone (OsteoBiol® mp3®, TecnoSS®, Giaveno, Italy). A trimmed collagen membrane (OsteoBiol® Evolution, TecnoSS®) was used to completely cover the socket. A temporary adhesive bridge, with an adequate profile, was bonded to the adjacent teeth and three months after surgery the final prosthetic restoration was delivered. No complications were recorded during the healing period. Bone loss was measured using the radiographs taken at 0, 12 and 24 months after implant insertion and bone changes were measured at the mesial and distal peri-implant sites, and their average values were calculated using the distance between cortical edge and the fixture abutment junction. The values obtained at time 0 and at 2 years were compared by test t-student.

CONCLUSIONS

The results showed that after one year 73% of patient had 0 mm of bone reabsorption, 20% of patient had $0\text{mm} \leq x \leq 0.5\text{mm}$, 7% of patient had $0.5\text{mm} \leq x \leq 2\text{mm}$ of bone reabsorption. After two years 62% of patient had 0 mm of bone reabsorption, 24% had $0\text{mm} \leq x \leq 0.5\text{mm}$, 14% had $0.5\text{mm} \leq x \leq 2\text{mm}$. Within the limits of this study, the results showed no significant differences in bone reabsorption in most patients over 2 years.

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