

Immediate Implant Associated with Conjunctive Tissue Graft

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Abstract

The installation of implants immediately after the extraction of dental elements has been used in order to preserve the architecture of the alveolus. As an advantage of this technique, we can consider a shorter cicatrization time, maintenance of the dimensions of the alveolus, elimination of the second surgical stage and, consequently, a shorter treatment time. Thus, the aim of this study is to report the use of the immediate implant installation technique associated with the use of biomaterials and connective tissue graft after extraction of the right upper lateral incisor with discomfort reported by the patient and clinically compromised. The correct planning associated with the careful execution of surgical and prosthetic procedures, favor the installation of immediate implants and the association of biomaterials and connective tissue graft removed from the palate contribute to the maintenance of peri-implant tissues.

Keywords: *Immediate Implants; Biomaterials; Connective Tissue Graft; Immediate Implants; Biomaterials*

Introduction

The osseointegration of the implant, according to Branemark, is determined by several factors that must be respected due to the adequate period of its complete cicatrization, thus obtaining a bone formation without interposition of fibrous tissue. With the execution of several studies, the cicatrization period of the implant was being reevaluated according to bone and tissue conditions [1]. The replacement of a dental element is considered a challenging movement due to the complexity of working with soft and/or hard tissues. In addition to aesthetic, functional, phonetic and occlusal requirements. The loss of the dental element often causes tissue and bone loss, making it difficult to install the implant in an appropriate three-dimensional position. Thus, surgical and prosthetic concepts are included in the prior planning for a better result [2].

Clinical and histological studies have analyzed bone and tissue cicatrization after extraction and it was observed that there was a greater reduction in the first 24 months. And a greater loss occurs in the buccal rather than lingual sense of the extracted site, thus influencing the positioning of the implant and the effectiveness of the prosthesis esthetics. The more apical and lingual position of the implant has been suggested for better positioning, thus causing less contact between the alveolus wall and the implant surface, resulting in an adjacent defect called the gap where it will be filled by biomaterials (bone grafting and membranes) providing an improvement in the alveolar contour and bone cicatrization [3].

The diagnosis and planning are fundamental steps to define which surgical technique is suitable, leading to satisfactory results obtained after the implant installation and the prosthetic stage [3,4]. The modification of tissue contours has been widely discussed throughout the literature, due to tissue recessions given at the time of surgery and future bone losses after extraction. The prevention or compensation of this loss can be achieved through surgical techniques without flaps, as well as tissue manipulation during surgery or previously [5].

The search for the aesthetics of Peri-implant tissues has evolved considerably, the association of immediate implant followed by soft tissue and hard tissue grafting has been growing a lot and becoming a fundamental requirement to achieve aesthetic and functional success. The immediate tissue regeneration or prior to surgery has become indispensable for an improvement in both height and thickness, helping in the remodeling process. The use of a free connective tissue graft that is removed from the palate or tuberosity has been gaining space in implantology. Its immediate effect is the protection of the alveolus, the increase in the vestibular volume in addition to correct the position of the margin in cases with recession [4,6].

The tissue conditioning can be achieved through the immediate installation of a provisional (free of occlusal contact and without tissue ischemia) screwed, having as function: aesthetics, tissue conditioning and effect plug. In this way, the level of the gingival margin is maintained and the bone structure is preserved, preventing its recession as much as possible [7,8]. The immediate provisionalization when performed with the facet of the remaining dental element presents satisfactory clinical and aesthetic results, through a minimally invasive extraction [5,9,10].

Description of the Clinical Case

The patient A. A. P., 37 years old, female, attended the private clinic reporting discomfort in the region of tooth 12, as well as aesthetic dissatisfaction. After detailed anamnesis, it was found that the patient did not have any systemic involvement. On clinical examination, the presence of a metal-ceramic crown with root exposure on the buccal surface was observed, causing esthetic impairment (Image 1). On tomographic examination, it is possible to verify the presence of a fused metallic pin with a large diameter. No root canal filling was observed (Image 2a and 2b).



Image 1: Initial aspect showing esthetic impairment and root exposure of the tooth 12.

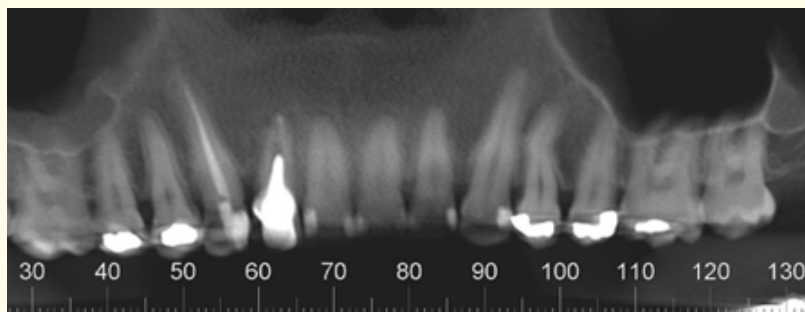


Image 2a: Note the presence of a large diameter molten metal pin and the absence of root canal filling material.



Image 2b

Once the removal of the metal-ceramic crown, there was an intense fragility of the root remnant, opting for the installation of a titanium dental implant immediately after the extraction of the said element, as well as an association of connective tissue graft and the making of a temporary crown for the technique of immediate aesthetics.

After consenting to carry out the entire proposed treatment plan, an intra-succulent incision was made around the root remnant of tooth 12, followed by minimally traumatic tooth extraction (Image 3).



Image 3: Alveolus after extraction of the root remnant of tooth 12. Note the preservation of the surrounding tissues.

Subsequently, the alveolus was carefully cured and irrigated with saline solution. Then, the necessary milling was performed for the implant installation (Cortical Master Flash, Internal Hexagon Actives NP 3.5 x 13 mm, Prosthetic Systems Connection®), in the palatal region, using the cutters of the implant manufacturer itself. The palatal portion of the alveolus was used as a reference, obtaining primary stability of 45 N/cm (Image 4 and 5).

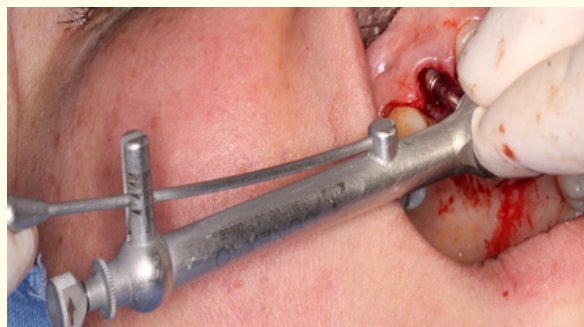


Image 4: Primary locking of the implant 45 N/cm.



Image 5: Final positioning of the implant.

After the implant was installed, a connective tissue graft was removed from the palate close to teeth 14, 15 and 16, which was inserted in the vestibular portion of the alveolus of tooth 12 (Image 6).

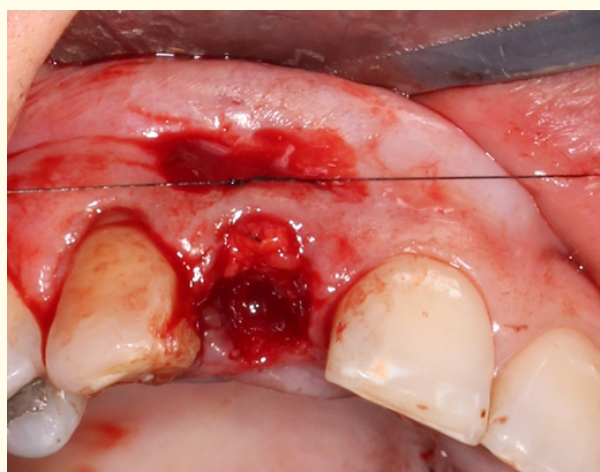


Image 6: Stabilization of the connective tissue graft in the vestibular portion of the alveolus.

An absorbable membrane was used (Geistlich Bio-Gade®) (Image 7) interposed between the previously stabilized connective tissue graft and the implant, leaving a space (GAP) between them, which was filled with biomaterial (Geistlich Bio-Oss® Collage) (Image 8).

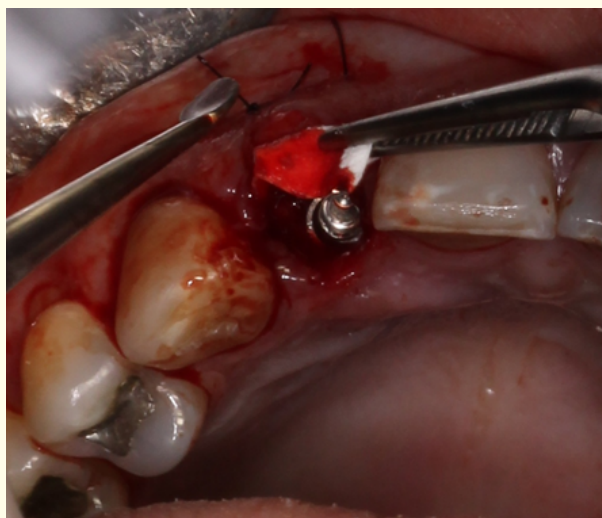


Image 7: Positioning of the absorbable membrane.

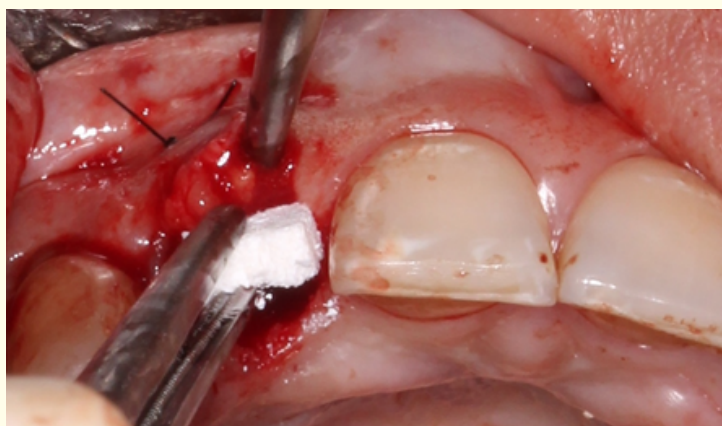


Image 8: Filling in the remaining space (GAP).

Subsequently, a titanium cylinder was placed to make a temporary crown in photopolymerizable acrylic resin. (Image 9a-9c). After the installation of the provisional crown, in infra-occlusion, it was prescribed amoxicillin (500 mg) for seven days, three times a day and an analgesic based on Ibuprofen (600 mg) in case of pain and mild mouthwash with the chlorhexidine solution at 0,12% three times a day for 7 days.

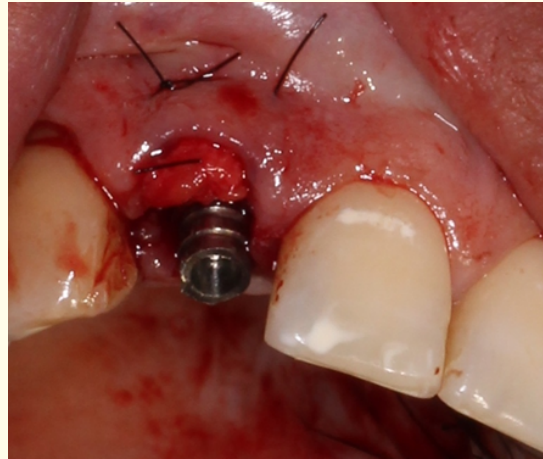


Image 9a: Positioning of the titanium cylinder.

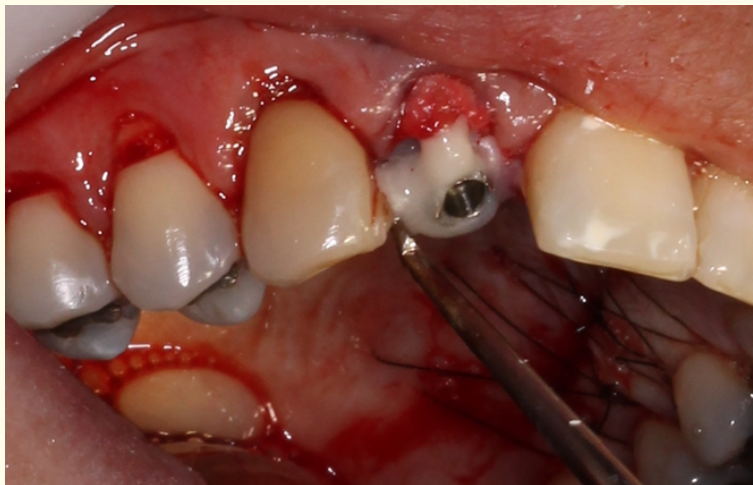


Image 9b: Making the provisional crown.



Image 9c: Immediate post-operative. Note partial exposure of the connective tissue graft.

The clinical accompanying was performed 48 hours, 21 days and 4 months after the implant installation (Image 10a-10c).



Image 10a: Post-operative 48 hours after implant installation.



Image 10b: Post-operative with 21 days of implant installation.



Image 10c: Post-operative with 4 months of implant installation.

After 4 months, a tomographic examination was performed, showing a good three-dimensional position of the implant, as well as the integrity of the buccal and palatal bone boards (Image 10). Then, a definitive metal-ceramic crown was made and installed, satisfying the patient's initial aesthetic complaint (Image 11).

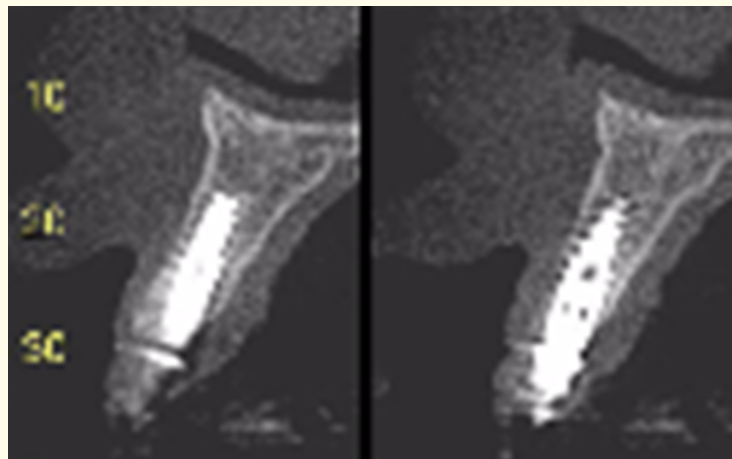


Image 10: Tomographic examination 4 months after implant installation. Note the three-dimensional positioning of the implant and the integrity of the buccal and palatal bone boards.



Image 11: Definitive installed metal-ceramic crown.

Final Considerations

In this clinical case, after evaluating the region to be worked, it was found that the bone volume in this region was sufficient for the implant installation to be performed immediately after the extraction of tooth 12. Our main concerns were focused on the three-dimensional positioning implantation and in the maintenance of the tissues around the alveolus, which was also favored by the immediate provisiona-

lization. In addition, the use of biomaterials, as well as connective tissue grafts, contributed to the absence of loss of the buccal and palatal bone walls (Image 10). The correct planning associated with the careful execution of surgical and prosthetic procedures, promote the installation of immediate implants and the association of biomaterials and connective tissue graft removed from the palate contribute to the maintenance of peri-implant tissues.

Competing Interests

Vilton Zimmermann de Souza, Emily Schoerenberger, Renan de Souza Anesi, Fábio Luiz da Silva, JoséEudes Protásio, Fábio Castanha Figueiredo, Rafael Manfro, Gislaïne Garcia state that they have no conflicts of interest.

Author Contributions

VZS, FCF and FLS interpreted and analyzed the data collected, contributed to the drafting of the paper and revised it critically, and were major contributors in writing the manuscript. VZS and ES contributed to the concept/design of the study and the final manuscript. VZS, RM, GG, JEP and ES critically revised and contributed to the final manuscript. All authors read and approved the final version to be published.

Bibliography

1. Pimentel ACM., *et al.* "Carga imediata em implantes unitários – relato de dois casos clínicos". *Implant News* 4.4 (2007): 434-436.
2. Misch CE. "Implantes Dentais Contemporâneos". 3rd edition. Rio de Janeiro: Elsevier (2008).
3. Mandetta CMR., *et al.* "Considerações clínicas no planejamento e instalação de implantes imediatos". *Implant News* 10.6 (2013): 159-168.
4. Joly JC., *et al.* "Perioimplantododia Estética". 1st edition. São Paulo: Quintessence (2015).
5. Macedo LGS., *et al.* "Implante imediato sem retalho utilizando faceta de dentes extraídos em prótese provisória e carga imediata não funcional para otimização estética". *Implant News* 6.3 (2009): 261-267.
6. Queiroz SIML., *et al.* "Implante dentário e temporização imediata em área estética com enxerto conjuntivo subepitelial e biomaterial xenogênico". *In Perio* 1.4 (2016): 690-699.
7. Fontoura RA. "Atualidades em Implantodontia". 1st edition. Nova Odessa: Napoleão (2013).
8. Hiramatsu DA., *et al.* "Exodontia e instalação imediata de implante na região estética com enxerto de bloco xenogênico colagênico – acompanhamento clínico e tomográfico de dez meses". *Implant News* 12.2 (2015): 207-216.
9. Jarry CR., *et al.* "Implante imediato com provisionalização e utilização da coroa natural do elemento extraído". *Implant News* 11.4 (2014): 489-494.
10. Rosa JCM., *et al.* "Restauração de toalveolar imediata pos - exodontia com implante plataforma switching e enxertia". *Implant News* 6.4 (2009a): 381-385.

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