

**IMMEDIATE CHARGE
AFTER EXODONCY IN
AESTHETIC REGION:
CLINICAL CASE REPORT**

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Abstract: Reducing treatment time with osseointegrated implants, as well as reducing the complexity of the treatment plan and optimizing minimally invasive protocols, is one of the current aspects of implant rehabilitation. The immediate installation of implants in post-extraction sites has been reported in the literature as a predictable technique, both in terms of osseointegration and from an aesthetic point of view, allowing for a reduction in the time and number of procedures for prosthetic rehabilitation. This article aims to report a successful clinical case, where we used a surgical technique established in the literature, we used immediate loading after extraction in the esthetic region of element 21, associated with bone regeneration with bio oss and connective graft, seeking with these procedures to maintain the health and esthetics of periodontal tissues, in addition to the masticatory function and patient comfort.

Keywords: Extraction, implant after extraction, surgery with implants.

INTRODUCTION

In current implant dentistry, a practice that has been used to replace missing teeth is the use of osseointegrated implants, surgically implanted in the alveolar bone immediately after the surgical removal of the tooth element. The use of these fixations in specific areas constitutes an efficient restorative tool and a growing number of professionals have used this form of treatment (CORRÊA 2014).

Bone is a specialized, vascularized and dynamic connective tissue that changes throughout the body's life. When injured, it has a unique capacity for regeneration and repair without the presence of scars, but in some situations, due to the size of the defect, the bone tissue does not regenerate completely (FARDIN AC et al, 2010).

Placing the implant in an alveolus after tooth extraction is a complex procedure that

involves many important aspects. In fact, for a successful clinical result, the immediate installation of the implant must take into account several aspects, such as alveolar healing process, implant characteristics, anatomical characteristics of the alveolar process, such as: width, height, thickness of the anterior wall, amount of apical remnant, space between the implant surface and the inner portion of the alveolus walls, the need for regenerative procedures and improved surgical techniques (ARAÚJO MG, 2019).

The act of immediate placement of the implant offers advantages, such as minimizing the number of surgical interventions, reducing treatment time. However, the immediate placement of the implant, when not well indicated, was shown to be associated with a risk of aesthetic complications (BASSIR SH, 2019). For this reason, a multidisciplinary approach is necessary in most cases, as the entire responsibility for the decision to maintain or extract teeth considered compromised lies with the dentist (MATIELLO CN, 2015).

In the conventional protocol for applying late loading to implants, a certain repair period without disturbances is suggested as an essential factor for an uneventful osseointegration. Although this approach has high functional predictability and longitudinal success, the extended treatment period is an important inconvenience for patients who have a high priority in replacing lost tooth elements, especially in esthetic regions, and these, when approached, require accurate techniques and materials to achieve the results. Thus, a trend towards the use of protocols with immediate load has been observed, due to the significant reduction in the time between tooth extraction and rehabilitation (PESSOA RS, et al 2010).

It is important to point out that in addition to the search for a shorter treatment time, the aesthetic demand has also increased a lot,

and to achieve aesthetic excellence in implant dentistry, we have to make use of bone and gingival regeneration at different times, and perhaps one of the points most important for us to achieve good results, is the correct choice of which technique and when we can perform it (MEDEIROS MS, 2020).

It is important to carry out an evaluation of the periodontium in the region before extraction, analyzing the type of smile of each patient (low, medium, high), periodontal biotype (fine, medium, thick), presence of interproximal black triangles, contour asymmetry gingival, presence of periodontal pockets, teeth with rotation or malposition (interdental and interocclusal space), midline deviation, relationship of the upper anterior teeth with the lower lip and finally the degree of aesthetic demand of the patient (PEREDO-PAZ, L. G 2008).

The literature reports the importance of evaluating the periodontium, where we have four types of periodontium, which vary according to the thickness of the keratinized mucosa and alveolar bone (PEREDO-PAZ, L. G 2008 and FERNANDES JÚNIOR, R de C, 2014).

PERIODONTAL BIOTYPE

Type 1 periodontium. Keratinized mucosal band of 3 to 5 mm and thick bone architecture.

Periodontal type2. Keratinized mucosal band less than 2mm and thick bone.

Type 3 periodontium. Keratinized mucosal band of 3mm or more and thin bone.

Type 4 periodontium. Keratinized mucosal band less than 2mm and thin bone.

Another very important factor for the immediate loading procedure is the mapping of the alveolus made with a periodontal probe, which is essential to determine the presence of dehiscence and fenestration that could compromise the aesthetic result of the implant (CAPLANIS N. 2005).

CHARACTERISTICS OF POST-EXODONTICS ALVEOLI

Type 1 alveolus - Intact alveolar walls and thick periodontium. Distance from gingival margin to bone 3mm. Immediate loading indicated, without changing the soft tissue.

Type 2 alveolus - 2 mm bone loss and thin or thick periodontium. Distance from gingival margin to bone 3 to 5 mm. Immediate charge indicated, but aesthetic result is not predictable.

Type 3 alveolus - Moderate, vertical or transverse bone loss from 3 to 5 mm at a distance from the gingival margin to the bone of 6 to 8 mm. Immediate loading not recommended, implant installation 4-6 months later.

Type 4 alveolus - Bone loss greater than or equal to 6 mm and compromised soft tissue. Recommended bone and soft tissue regeneration and implant placement in a second surgery, with a compromised or unpredictable esthetic result.

1. The temporary and definitive prosthetic rehabilitation is as important as the surgical act, as its preparation must be careful so that a peri-implant soft tissue can be maintained with its appropriate emergency profile, thus giving a predictable result and a more natural aesthetic (GONZÁLEZ-MARTÍN O. et al., 2020).
2. With this brief review, the main objective of this work is based, which is to present an alternative treatment for the anterior region, when we need to remove a tooth that could compromise aesthetics. In the clinical case presented, we used a surgical technique established in the literature, we used immediate loading after extraction of element 21, associated with bone regeneration with bio oss and connective graft, seeking with these procedures to maintain the health and aesthetics of periodontal tissues, in addition to masticatory function and patient comfort.

GOALS

The objective of the present work is to present an alternative treatment technique for compromised teeth in the esthetic region, through a brief literature review and the presentation of a clinical case where we chose the immediate loading technique after tooth extraction, with joint tissue graft removed from the patient's palate and Geistlich Bio-Oss bone (Geistlich Pharma AG, Wolhusen, Switzerland) for filling the GAP.

MATERIALS AND METHODS

It is a clinical case report study carried out in the specialization course in Implantology. For the development of this work, a bibliographic survey was carried out, using the BVS, SCIELO, BIREME and PUBMED databases, from which articles published from 2000 to 2020 available online in full text were selected.

The inclusion criteria were articles of studies written in both English and Portuguese and abstracts that were available in the databases. The exclusion criteria were articles that did not present complete and consistent information on the subject.

All articles were analyzed and discussed for the best use and exploration of them. In this step, an analytical reading was carried out in order to organize the information contained in the sources, enabling the understanding of the case presented.

CLINICAL CASE REPORT (ALVEOLUM TYPE)

Patient R.C.L.S, female, 56 years old, without health complications or underlying diseases or allergies, came to the private clinic reporting pain in the upper central incisor after the presence of fistula in the vestibular alveolar ridge.

Clinical examination and assessment of tomographic examination performed for a

correct diagnosis closure. The element in question already had previous endodontic treatment, with prosthetic rehabilitation (pin and crown).

The patient presented an important fistula in the vestibular element 21, in addition to facets recently performed by another professional in regions 13 to 23, which presented an important biological distance invasion.

INITIAL RADIOGRAPHIC EXAMS

Tomography performed confirmed root fracture in element 21, in addition to an important infection with severe bone loss in the region (Figure 5).

Note the loss of the proximal bone crest of element 22, which in the future would be an aesthetic challenge for the region (SOARES NP, 2013) (Figure 6).

Tomographic image showing the crack on the buccal surface (Figure 7).

INITIAL PHOTOS AND DURING THE SURGICAL PROCEDURE

Initial photograph with visible image of fistula on the buccal aspect of element 21 (Figure 8).

Atraumatic extraction was performed in an attempt to preserve the alveolar tissues, avoiding total flap detachment. Careful curettage of the infected alveolus and soft tissues and installation of the INFT BIOMET 3i CERTAIN 4.1X13mm implant, with a torque of 50N (Figure 9).

Proper three-dimensional position. There is an important vestibular bone GAP generated in addition to bone loss in the mesial crest of the 22 (Figure 10).

Connective tissue graft removed from the donor region of the palate (Figure 11).

Placed conjunctive graft and filling the GAP with 0.5mm GEISTLICH BIO OSS, after implant installation (Figure 12).



Figure 5



Figure 6

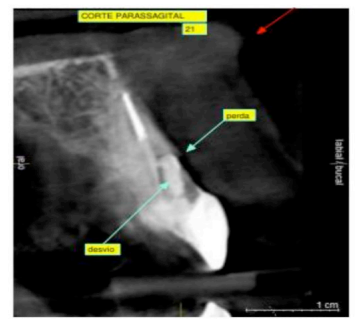


Figure 7



Figure 8

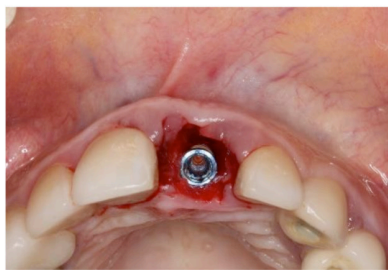


Figure 9

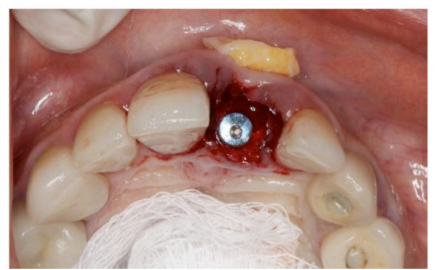


Figure 10

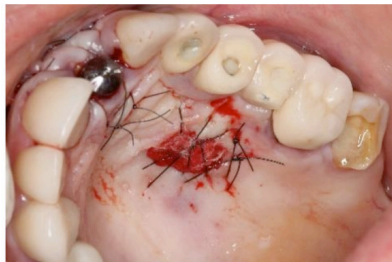


Figure 11

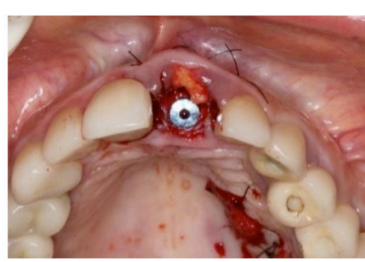


Figure 12

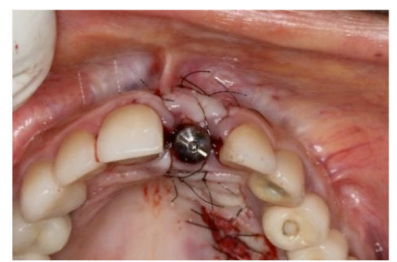


Figure 13

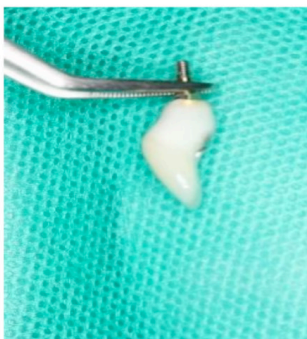


Figure 14

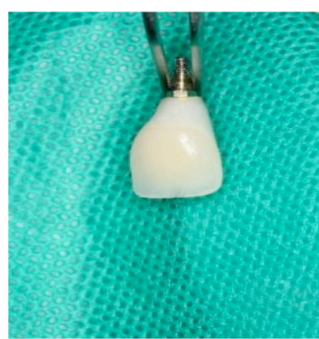


Figure 15



Figure 16



Figure 17



Figure 18

Suture with Nylon 6.0 thread (Figure 13).

The connective graft removed from the palate in order to improve the gingival phenotype and also increase the ridge volume, consequently improving the aesthetics. After the stabilization of the conjunctive, the bone gap was filled with Geistlich Bio-Oss® (Geistlich Pharma AG, Wolhusen, Switzerland). Suture of the donor region with fibrin sponge and suture of the recipient and implanted region.

Making the provisional obeying the anatomy of our future tooth, keeping space for our connective graft and establishing the appropriate gingival zenith for the region.

Making the provisional with stock tooth obeying the critical and subcritical zone (Figure 14).

View of the shape and color of the provisional (Figure 15).

Temporary installed. (Figure 16).

Immediate periapical radiography was performed showing the adaptation of the provisional and correct positioning of the implant.

After 3 months of control, we observed a very acceptable clinical situation with excellent gingival contour. At that moment, the periapical radiograph was taken and released to perform the final crown.

Photo of the temporary crown (Figure 17).

Photo of the final crown (Figure 18).

After 12 months, a new clinical and radiographic control was performed. We note maintenance of soft and hard tissue, as well as the aesthetics and function of rehabilitation.

DISCUSSION

The benefits of immediate implant placement after extraction, associated with hard and soft tissue reconstructions, are related to improved preservation of the soft tissue flap and bone architecture and reduced treatment time with fewer surgical sessions. Aiming at the patient's well-being, the immediate loading procedure was chosen (De Castro, Coelho, Barros, Ferreira & De Paula, 2019).

Among the main advantages of immediate loading are those related to the need for patients to receive their prostheses on the same day as the implants are installed, especially those patients who have never used any type of prosthesis and have to use a removable provisional during the period of osseointegration (psychological and functional difficulty) (Peredo-Paz LG, 2008).

The literature reports the importance of evaluating the periodontium, where we have four types of periodontium, which vary according to the thickness of the keratinized mucosa and alveolar bone (PEREDO-PAZ, L. G 2008 and FERNANDES JÚNIOR, R de C, 2014).

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Another very important factor for the immediate loading procedure is the mapping of the alveolus made with a periodontal probe, which is essential to determine the presence of dehiscence and fenestration that could compromise the aesthetic result of the implant and that in the table above and representing each type and its prognosis (CAPLANIS N. 2005).

In addition to immediate loading, another procedure often used in rehabilitation with implants is rehabilitation in two stages, or also called late loading. In late loading, it is

necessary to wait for a period of 4 to 6 months after extraction to perform surgery for implant placement.

In this case above, only the installation of the implant and bone graft could be done and wait for the correct period recommended by the literature, which is 4 to 6 even. This will depend on the implant locking, bone and gingival condition, being the correct design and a quality implant surface also important but not essential.

However, as the patient had sufficient bone height, thick gingival tissue, the atraumatic surgery kept the alveolus in condition to receive the implant, it obtained a lock recommended in the literature and an aesthetic area was being addressed, he defined the a certain thinking about the patient, in order to carry out the immediate charge.

Correct three-dimensional positioning of the implant, being closely linked to the success of the aesthetic result of implant-supported

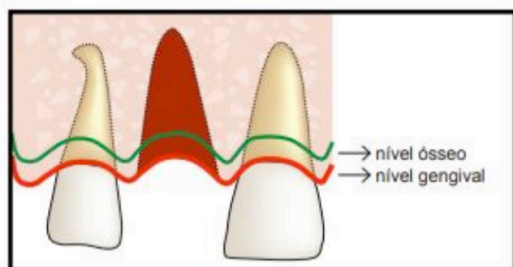


Figure 1 - Type 1 alveolus

>bone level
>gingival level

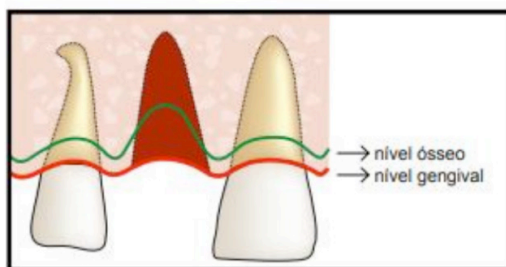


Figure 2 - type 2 alveolus

>bone level
>gingival level

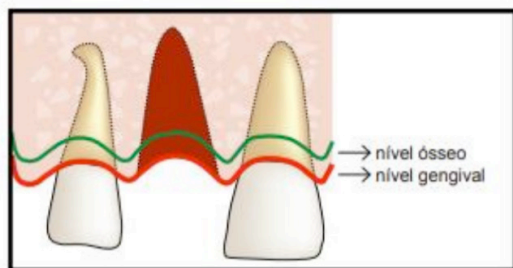


Figure 3: Alveolus type 3

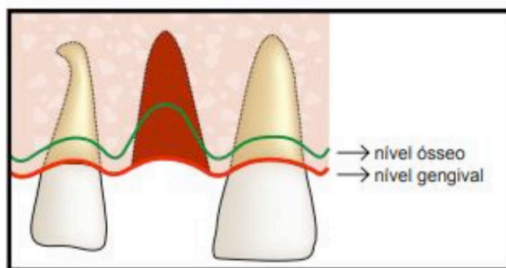


Figure 4: Alveolus type 4

Source: PEREDO-PAZ, L. G; FRANCISCHONE, C. E; FERREIRA, E. SIDNEY, R. 2008.

rehabilitations. Among the criteria considered for success is the establishment of soft tissues with adequate contour, the gingival profile and the presence of interproximal papillae (Tabuse, Corrêa, & Vaz, 2014). Respect for the distance from the bone walls guarantees the absolute fit of the crown, avoiding occlusion problems and esthetic damage, as well as damage to the alveolus walls.

With this, in this case there was also tunneling with connective tissue graft in the vestibular gingiva, without detachment of the papillae, an advantageous technique when it comes to periodontal tissue graft being used for alveolar sealing, ridge volume increase, increase in volume. keratinized gingiva and surgical change of the gingival phenotype since the thick gingival profile has greater aesthetic predictability after restorative procedures (TSUDA H, 2011).

The use of bone grafts had great impetus in the early 1980s, when the biological principles of their clinical applications were defined (SOBREIRA; MAIA; PALITÓ et al, 2011). The best results are obtained with autogenous bone, but there are several aspects that make its application difficult, such as the intra- or extra-oral donor region, the amount of bone, postoperative morbidity, procedure time and vascular-nervous lesions (KOPP G, 2012; HAWTHORNE AC, 2010). Several materials were developed, including: allogeneic grafts, xenogeneic grafts, biological membranes, bioactive glasses and hydroxyapatite derivatives (particulate bone graft applied to implantology);

With the great likeness with the human bone, the GeistlichBioOss® is incorporated into the natural process of modeling and remodeling. The highly porous structure of the GeistlichBioOss® it offers plenty of room for blood vessel formation (angiogenesis) and the deposition of newly formed bone (osteogenesis). The microstructure of the

surface of the GeistlichBioOss® helps the excellent growth of the osteoblasts which are responsible for bone formation. This way, the particles of GeistlichBioOss® become an integral part of the structure of the new bone in formation. The low speed of conversion into own bone (refurbished) of the GeistlichBioOss®, It stabilizes the structure and allows the graft volume to be maintained over the long term. (MAJORANA C. et al, 2011).

In the case presented, the bone GAP was filled with the hydrated bio bone in the patient's blood, and stabilized with the appropriate pressure in order to improve healing.

However, after the surgical procedure comes the prosthetic rehabilitation, where for the patient who is going through the trauma of losing a tooth, having this replacement right away is very important. However, in order to achieve a satisfactory result in rehabilitation, we must respect some important criteria so that the prosthesis and gingival tissue have their spaces delimited for the success of the treatment.

Properly contoured implant rehabilitations need to transition from the circumferential design of the implant head to correct cervical dental anatomy. The implant abutment can be used to effect this transition as long as there is enough running room. Two distinct zones within the implant abutment and crowns are defined as critical contour and subcritical contour. Any critical or subcritical contour change can modify the soft tissue profile.

Based on tissue response, two general areas were identified. The first is called critical contour, which is the area of the implant abutment and crown located immediately apical of the marginal gingiva. Where it follows the 360 degree circumference of the restoration and was considered significant within a 1 mm variation apicocoronally. In a retained cement, implant restoration,

the critical contour may be at the crown, abutment, or both, depending on the location of the finish line (Su H. Gonzalez-Martin O. Weisgold A. Lee E, 2010).

Screw-retained prosthesis was chosen because of the adequate three-dimensional position of the implant and ease of replacement and preservation.

CONCLUSION

In the case presented, a choice of technique based on a correct diagnosis that observed the magnitude of the bone and gingival defect is noted.

Given the excellent aesthetic and functional result presented, it is concluded that the technique was selected and performed correctly.

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