Atraumatic extraction and immediate implant installation: The importance of maintaining the contour gingival tissues

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ABSTRACT

There is an accelerated resorption in the first six months after the extraction of the dental element, both horizontally and vertically. These clinical changes normally undertake the aesthetic result of prosthetic rehabilitation, and implant installation after the extraction can be a resource to decrease resorption. The clinical case described in this paper demonstrates a sequence of clinical atraumatic extraction, and then the Immediate installation provisionalization. It is concluded that when carefully indicated and planned, this technique can provide an immediate result promising with maintaining the tooth gingival contour.

Key Words: Atraumatic extraction, immediate implant, prostheses and implants.

How to cite this article: Tavarez RR, Machado dos Reis WL, Rocha AT, Firoozmand LM, Bandéca MC, Tonetto MR, Malheiros AS. Atraumatic extraction and immediate implant installation: The importance of maintaining the contour gingival tissues. *J Int Oral Health 2013; 5(6):113-8.*

Source of Support: Nil **Conflict of Interest:** None Declared

Received: **7th August 2013** Reviewed: **15th September 2013** Accepted: **27th October 2013**

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Introduction

Tooth loss by caries, periodontal diseases or fractures are common in daily practice. Given the dental loss is critical that the professional acts with the intention of providing information to patients about different treatment options for replacement of tooth loss.[1] In anterior teeth, the esthetic involvement is increased, where a careful planning is required to maintain the contour of the gingival tissue, especially when the implants are used.[2,3]

The tooth removal brings as a consequence, a rapid resorption of the alveolar ridge in the first months after the extraction, both in vertical and horizontal.[4-6] In anterior teeth, decreased tissue promotes aesthetic changes that hinder the prosthetic rehabilitation. The decrease in the thickness of the edge, change gingival contour and loss of dental papilla with the appearance of black spaces are found in these cases.[7] The atraumatic extractions,[8] implant installation in the alveoli of the extracted tooth[9] and immediate provisionalization have been proposed as alternatives to maintain the volume and contour tissue, decrease costs and time treatment.[10]

Preservation of bone margins during the extraction, the establishment of the primary stability of the implant in the apical portion of the socket, the careful control of the flap tissue, adaptation and polishing of the provisional in the implant and peri-implant tissues are factors of great importance for the longevity of the

treatment and clinical results.[11,12] The careful control of biofilm by the patient during the healing period is also considered a major factor for the positive outcomes of implants placed in the alveoli immediately after atraumatic extraction.[13]

Thus, this paper aims to present a clinical case where the extraction was performed using atraumatic extractor with implant placement and immediate provisionalization in a maxillary lateral incisor.

Clinical Case Report

A male patient, 40, complained of the left maxillary lateral incisor with horizontal fracture at the level of the marginal gingiva. When clinical and radiographic examination, it was observed that the root canal had to narrow with little remaining tooth and unfavorable prognosis for prosthetic rehabilitation (Figure 1).

Figure 1: Initial clinical case where one observes amount of remaining reduced tooth

Figure 2: Initial radiograph

After thorough analysis of the case study, it was evaluated the different treatment alternatives, opting for root extraction and installation of dental implant and immediate provisionalization. It was verified the systemic condition of the patient and planned atraumatic extraction of the root with the aid of dental extractor Neodent (Neodent, Curitiba, Paraná, Brazil) (Figure 2).

The atraumatic dental extraction technique was initiated by sindesmotomia (Figure 3) and subsequently the root canal has been prepared for fixation of the pin tractor, selected according to the diameter of the root canal (Figure 4). A digital key was

Figure 3: Sindesmotomia with minimal trauma

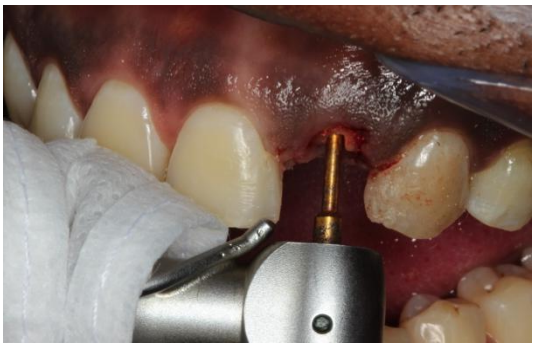


Figure 4: Preparation of conduct for fixing pin tractor

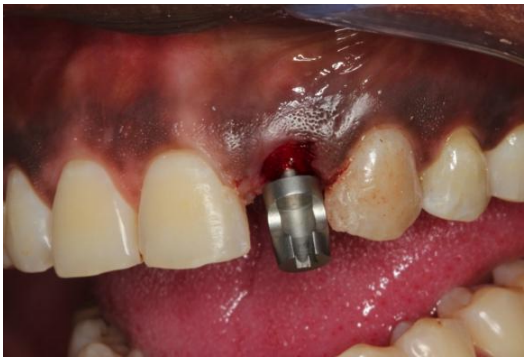


Figure 5: Pin tractor fixed in the root canal

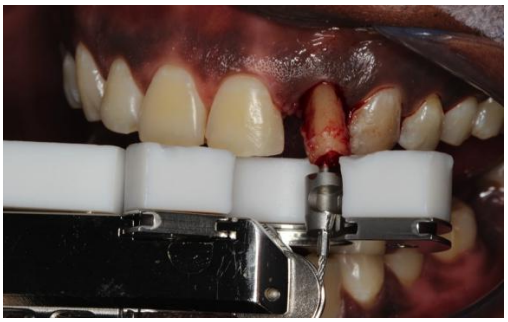
used to position the pin tractor inside the root (Figure 5).

Subsequently, the conical tips of the steel cable was seated in the tractor pin. The cable was stretched until

Figure 6: Extractor dental positioned and fixed to the pin tractor

tooth (Figure 6). The traction was done according to the direction of the long axis of the tooth. With this, there was obtained the periodontal ligament rupture and extracting roots (Figures 7 and 8) with maximum preservation of the alveolar bone and surrounding soft tissues (Figure 9).

Hobbing was performed and immediate implant installation Alvin Morse Taper (Neodent, Curitiba, Paraná, Brazil) 3.75 x 11.5mm with torque above 50 Ncm (Figures 10 and 11). Implant was placed in a trunnion universal (Figure 12) titanium (Neodent, Neodent, Curitiba, Paraná, Brazil) and immediately



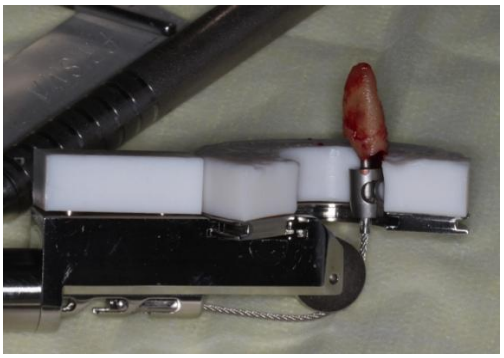


Figure 7 and 8: Extrusion root extractor

Figure 9: alveolus after extraction with minimal trauma

they fit into one of the hooks of the drive axle puller

made a temporary crown (Figures 13, 14 and 15).

Discussion

The achievement extraction atraumatic is a surgical technique that can present major clinical advantages in the final outcome of prosthetic rehabilitation, it provides greater tissue preservation alveolar bone and adjacent soft tissue.[6,9] This has resulted in a lower possibility of changing the volume and contour of the tissues and, consequently, satisfactory aesthetic results. The method used for extraction and the manner in which the alveolus after the extraction is treated can influence the degree of preservation of the alveolar

Figure 10 and 11: Milling and post extraction implant installation Neodent morse taper 3.75 x 11.5

Figure 12: trunnion universal Neodent

In the same way, implant placement immediately after tooth extraction has been proposed in order to avoid reabsorption and breakdown of tissues after extraction,[12,18] and decrease time to treatment.[19] The determination of the prognosis of the tooth to be implanted, the causes of tooth loss, length and width alveolar beyond the area to be implanted, should be evaluated for the indication of the technique.

In the case of immediate implants in aesthetic areas, ideally there should be a minimum distance of 5mm from the bone crest to contact point for obtaining

Figure 13 and 14: Preparation of immediate provisional

Figure 15: Radiographs after implant installation

bone.[14] Various techniques have been proposed for this purpose,[8,15-17] with the use of dental extractor is a method which allows in a simple way and with a minimum of trauma to extract the tooth while maintaining the integrity alveolar. The literature shows that the atraumatic extraction may be indicated especially when there is a thin thickness of bone tissue.

papillae that fill the interproximal space.[20] The platform of the implant should be placed a minimum of three millimeters apical line cemento-enamel of the adjacent teeth and the apical crystal interproximal bone. These maneuvers will ensure an adequate emergence profile and facilitate the acquisition of aesthetics.

Another aspect of great importance, after immediate implant placement, consists in proper preparation and installation of the temporary restoration. The immediate provisionalization, has also been reported as an important procedure for the stability of peri-implant tissues and the aesthetic result of isolated implants in the maxilla.[7,10,18,21,22]

Thus, in order to obtain successful treatment of atraumatic extraction, installation and provisionalization immediate, it must be made an appropriate choice of the case, surgical and prosthetic planning, not neglecting the postoperative care.[2]

Conclusion

From the clinical case presented and the literature reviewed is posssivel conclude that with an adequate

surgical-prosthetic planning associated with an accurate selection of the case, it is observed that the atraumatic extraction associated with immediate implant installation that presents clinical results that allow maintaining harmony and aesthetics of the gum line.

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