

Case Report

Atraumatic Extraction and Immediate Implant Installation

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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 implant installation. It is concluded that when carefully indicated and planned, this technique can provide an immediate result promising with maintaining the tooth gingival contour.

Keywords: Atraumatic extraction; Immediate implant; Prosthesis and implants

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 and posterior 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] 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 in a mandibular first premolar.

Case Report

A male patient, 48, complained of the left mandibular 1st premolar 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). After thorough analysis of the case study, it was evaluated the different treatment

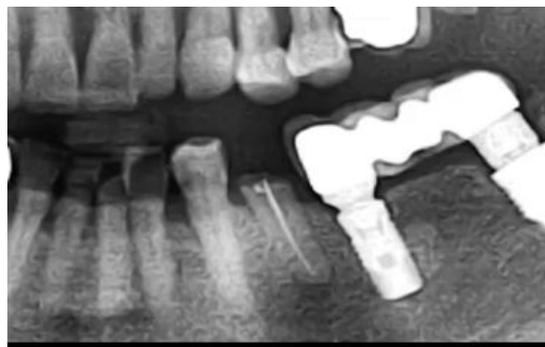


Figure 1: Initial clinical case where one observes amount of remaining reduced tooth.

alternatives, opting for root extraction and installation of dental implant. It was verified the systemic condition of the patient and planned atraumatic extraction of the root with Atraumatic Extraction Kit (Cowelmedi) (Figure 2). Atraumatic Extraction Kit is used for the immediate and effortless extraction of a tooth with simple procedures according to the type of tooth (e.g., root, apex and molar) and its position (e.g., mesial and distal). This can also be applied to various cases. A tooth extraction without the risk of directly damaging the tooth is possible by using the rest plate, elevator, etc. A very simple and convenient tooth extraction is possible, as compared to the existing methods (Figure 3).

1) All the coronal structure of tooth is removed by grinding the tooth and is smoothened A hole is created on the tooth to be extracted by using the extraction drill. The Extraction Drill must follow the root canal during drilling. It is drilled down to at least 10mm because extraction is possible even if the drill and screw penetrate the root.

After connecting the extraction screw to the post driver, it is turned clockwise in order to fix it to the hole that was created. (Recommended torque: 30 N/cm or more) The extraction screw is fastened into the hole that was created by the extraction drill *via* the screw method and it is stably fixed to the remaining tooth. The

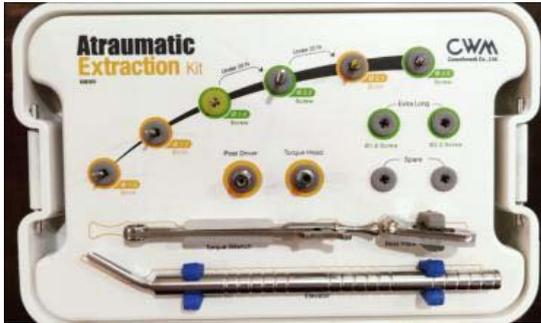


Figure 2: Atraumatic Extraction Kit.



Figure 3: Hole is drilled into root.

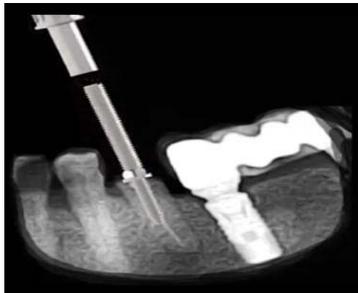


Figure 4: Extraction screw is connected to screw driver.

extraction screw position can be set according to the distal and mesial directions of the adjacent teeth and the position of the tooth to be extracted (Figure 4).

2) Torque Head is connected to Screw Extraction Root After considering the adjacent teeth; extraction screw is inserted into the rest position hole (Figure 5).

3) After connecting the post driver to the extraction screw, turn the torque wrench in a clockwise direction in order to fix it to the hole that was created by the extraction drill.

4) The rest plate is connected between the extraction screw and the torque head. It protects the part with silicon that comes into direct contact with the adjacent teeth in order to prevent tooth damage. It also serves as a support for the elevator and torque wrench. One side is inclined at a 30-degree angle, so that it can act as a support depending on the removal direction. The holes are created at a 5mm interval in order to adjust the position of the extraction screw according to the position and distance of the adjacent tooth.



Figure 5: Torque head is placed on the Rest plate.



Figure 6: Extraction of root.



Figure 7: Rotation of Torque head with wrench cause extraction of root.



Figure 8: Implant installation-Cowelmedi inno Taper 3.75x11.5.



Figure 9: Post-operative X-Ray.

5) Then elevator is used by connecting it with the torque head and extracting the tooth by applying force toward a distal or mesial direction. When extracting a tooth by supporting the distal or mesial

tooth.

6) Alternatively Torque head can be rotated clockwise by using torque wrench to extract the root (Figure 7).

Implant installation-Cowelmedi Inno Taper 3.75x11.5.

Discussion

The atraumatic extraction 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 [6,7]. 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 bone. Various techniques have been proposed for this purpose [8,15,17], with the use of atraumatic extraction kit is a method which allows in a simple way and with a minimum of trauma to extract the tooth while maintaining the integrity of alveolar bone. The literature shows that the atraumatic extraction may be indicated especially when there is a thin thickness of bone tissue. 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 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. Thus, in order to obtain successful treatment of atraumatic extraction and immediate implant installation [21], it must be made an appropriate choice of the case, surgical and prosthetic planning, not neglecting the postoperative care [22].

Conclusion

From the clinical case presented and the literature reviewed it is concluded 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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