Case Report

Immediate Implant Placement and Restoration in Maxillary Aesthetic Zone: A Case Report

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Abstract

This case report describes extraction of a retained maxillary right deciduous canine followed by immediate placement of a dental implant in extraction socket with immediate nonfunctional restoration. The tooth was extracted atraumatically and without flap reflection. The socket was prepared to the required depth and Implant was inserted. Nonfunctional removabe early prosthesis was given to promote soft tissue profile and aesthetics. The atraumatic operating technique and the immediate placement of Implant resulted in faster treatment time with much higher patient satisfaction and acceptance.

Keywords: *Immediate implant, immediate placement, Nonfunctional immediate restoration*

Introduction

Dental Implants has long been a study of interest in global dentistry. Access to advanced materials and emerging technologies have set a newer avenue for implant dentistry in Nepal in the past two decades. Following extraction, a healing period of four to six months is mandatory before implant placement[1]the recommended time between placement and functional loading of machined-surface dental implants has been 3 months for the mandible and 6 months for the maxilla. However, such recommendations are a result of evaluating randomly chosen healing times during the initial phase of implant development and are based on the subsequent clinical outcome of either implant integration or mobility. In recent years, histologic and experimental studies have shown that specifically designed micro-topographic implant surfaces can result in increased bone-to-implant contact at earlier healing times than obtained with machined-surface implants. Histologic and clinical studies investigating early and immediate implant loading support the premise that implants can be placed into function earlier than previously recommended. With the development of specifically designed implant surfaces and the utilization of time-saving surgical (one-stage surgical protocol, however newer concept of immediate placement of implants and immediate restoration or loading set an interesting approach to conventional implant therapy. Immediate placement with immediate restoration has gained attention as this approach instantly restores the lost teeth avoiding the possible period of edentulism in the patients. Also there are reduced number of surgical procedures and shortened overall treatment times as compared to delayed placement.[2] The short-term survival rate of implant placement seems similar between immediate, early, and delayed placement.[3] However, there is higher risk for implant failure, unpredictable future hard and soft tissue levels, and difficulty to achieve implant stability.

Case Report

A 33-year-old female patient reported to the Department of Prosthodontics, BPKIHS seeking prosthetic treatment for a mobile tooth in front region of upper jaw. On clinical and radiographic examination, a retained deciduous canine on the right maxilla was found (fig.1) The root length was very minimal, due to which the tooth was grade II mobile. There was no any presenting complains of pain. The patient wanted to go for extraction with same day replacement options. The gingival architecture of patient was found to be satisfactory with thick gingival biotype. Therefore, final treatment planning was formulated after Cone Beam Computed Tomography reported (fig.2) adequate bone dimensions as: Immediate Placement with Immediate Restoration (ITI Type1A protocol)

Figure 1: Preoperative photograph showing retained deciduous canine on the right maxilla

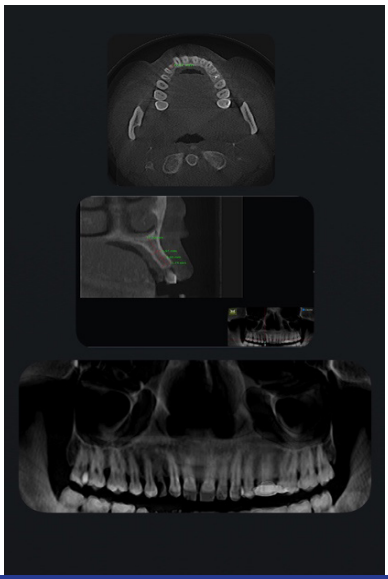

Figure 2: CBCT images with bone dimensions

Atraumatic extraction using periotome under local infiltration was done. After extraction, the site was thoroughly debrided using curettes, followed by irrigation of the socket with Povidone Iodine. After this, the extraction socket was carefully examined to ascertain that the socket walls were intact. The osteotomy site was prepared with standard drills, using the socket walls as guides, with maximum use of bone apical to the extraction sockets, to achieve initial stability. Sequential drilling was carried out with speed ranging from 500 to 1200 rpm under copious irrigation. One Titanium Implant 13mm X 3mm (AB Implant System). Confirmatory IOPA was taken (fig.3). This was followed by cover screw placement (fig.4) and suturing done using 3-0 silk sutures. A removable temporary prosthesis with no pressure over the implant site was used in order promote an esthetic soft tissue profile (fig.5). For this soft liner was used to ensure pressure less contact of early provisional restoration with soft tissue. The prosthesis was held completely out of occlusion in centric and lateral excursions.

Figure 3: IOPA with implant

Figure 4: implant placement in extraction socket

Figure 5: after placement of nonfunctional immediate prosthesis

Discussion

Immediate implants placed in fresh extraction sockets are proven, predictable and evidence-based treatment modality that offers certain benefits to patients. Ribeiro et al[4] reported immediate nonfunctional loading of immediate placed implants having a relatively high success rate (93.5%) but was lower than immediate nonfunctional loading of delayed placement (100%). There needs to be more comparison data and more research comparing immediate placement With early or late placement. Werbitt and Goldberg[5] reported implants immediately placed in ex- traction sockets could facilitate ridge contour preservation; however, this was based mainly on limited human case reports. To guarantee an aesthetically successful result is not always possible, due to the dimensional changes that occur in hard and soft tissues after loss of a tooth[6]. For this reason, this type of case is considered as a "Complex SAC" from the surgical and prosthetic point of view according to the International Team for Implantology (ITI). Primary stability, Resonance Frequency Analysis, and insertion torque are often the most commonly used criteria to select loading protocols. In this case report, an insertion torque of 35 N-cm was obtained with the placement of a 13 mm long implant. Therefore, immediate loading was possible, and an emergence profile with adequate dimensions was obtained.

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