Immediate Implant Placement and Loading in Esthetic Zone - The Current Trend

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ABSTRACT:

Immediate implant placement has been the acceptable procedure for the past two decades. Perhaps the most important aspect of any implant surgery in accordance with the successful procedure is implant surgery and bone to implant contact. Esthetic implant therapy in anterior maxilla is dependent on several factors. The shift in the paradigm from FPD's to implants has placed special emphasis on the management of extraction wound and the timing of implant placement. This case report describes a case of immediate implant placement and loading into a fresh extraction socket of maxillary central incisor with immediate provisional restoration placement.

Key words: Dental implants, Immediate implant placement, Immediate loading, Immediate provisionalisation, Esthetics.

INTRODUCTION

Dental implant therapy, as inspired by the work of Bränemark et al, is, however, a rapidly changing field in Dentistry.¹ During the past 40 years, prosthetic rehabilitation of the edentulous patient with implant-supported bridges have been developed into a viable and predictable treatment option.²

Several investigators have suggested the loading of implants at different intervals of time. Mish et al (2004) has classified the implant loading as - immediate occlusal loading, early occlusal loading, non- functional immediate restoration, non- functional early restoration and delayed occlusal loading. Immediate D direct loading: the provisional Ddefinitive prosthetic construction is attached to the implant within 24 hours of the implant being placed. Whereas Early loading D Early functional loading: the provisional Ddefinitive prosthetic construction is attached to the implant within days Dweeks of the implant being placed.²

Figure 1: Preoperative intraoral view of dislodged PFM crown

Figure 2: Intraoral view after extraction of the root stump

Figure 3: Immediate implant placement and loading with the abutment

Figure 4: Postoperative OPG after placement of the implant and the abutment

Figure 5: Post-operative intraoral view after placement of temporary restoration

Planning an implant treatment for a hopeless tooth starts prior to the extraction. The timing and technique of extraction and the timing of implant placement all play an important role in treatment outcome.³ With immediate implant placement becoming increasingly predictable as the parameters for successful treatment outcome with considerably reduced treatment time and increased patient compliance. Here is a case report of an immediate implant placement and loading in maxillary central incisor.

CASE REPORT

A 30 year old patient came up to the Department of Prosthodontics with a chief complaint of loose maxillary right central incisor crown (Figure 1). The patient gave history of crown placement four years back. On examination, the crown in relation to 11 was dislodged. On removal of the crown, a loosened cast post and core was retrieved with the root stump remaining. Various treatment plans were explained to the patient i.e., extraction of the stump followed by either a fixed partial denture after the socket healing, or placement of implant and extraction of the stump and immediate placement of the implant and loading. The patient opted for the later. Radiographic examination and blood examination was carried out. There was no periapical lesion and periodontal bone loss which was appreciable on the X ray.

The patient was scheduled for the surgery and Amoxicillin was prescribed one day pre operatively. Under local anesthesia, the root stump was

extracted without raising a flap (Figure 2) using periostomes as the periotype was assessed to be thick gingival type. Care was taken to ensure that the labial plate was not traumatized. The extraction socket was carefully examined and debrided to wash out the remaining periodontal fibers using a curette.

The osteotomy site was prepared along the palatal wall of the socket and 2mm beyond the apex to ensure palatal orientation of the implant without contacting the labial plate.

An allogeneous graft was placed at the apex of the osteotomy site followed by placement of implant of size 4.2 X 11.8 mm. An insertion torque of 40 Ncm was achieved which is suitable for that of immediate loading (Figure 3). The gap between the implant and the labial plate was filled with a graft (freeze dried bone graft) so that it helps in creating a proper contact of bone with the implant and helps in creating proper emerging profile for the gingiva. Abutment was placed and a provisional restoration was fabricated (Figure 4 and 5). The restoration was provided without any centric and protrusive contacts. After evaluating for 4 months, permanent prosthesis will be fabricated and cemented with implant guided occlusion.

DISCUSSION

After the extraction, the socket had intact walls without any remnant infection. The initial stability achieved after the implant placement was good and hence immediate loading of the implant was carried out. It has been suggested that the implant should be placed into a minimum of 3 mm of solid bone apical to the extraction site. A main factor determining the success of immediate placement is the initial stability of the implant. The extraction site must be evaluated to see whether it is suitable for immediate implant placement. Micromovements between implant and surrounding bone should be avoided to allow successful healing to occur. Hence, the provisional restoration is kept completely out of contact from the opposing teeth.⁴

Immediate loading can be attempted in the edentulous mandible and maxilla, single tooth/multiple teeth situations in extraction sockets. Immediate loading in the edentulous mandible is the most common indication for immediate loading. In single tooth implant cases, immediate restoration

with or without occlusal contact have been advocated according to some studies.^{5, 6}

CONCLUSION

Immediate implants are increasingly predictable and are described in this case report with all parameters being favorable to success and can provide esthetically superior results. Site preservation ultimately provides stability of the hard and soft tissues at the level of the marginal gingiva post extraction by preventing soft tissue collapse.^{7, 8} Various studies have shown that all different approaches to immediate loading can lead to survival rates when compared to conventional loading implants. Immediate loading protocol can be successful in judiciously selected cases where in high implant stability has been achieved in good bone volume quality.^{9, 10}

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