

A CASE OF IMMEDIATE IMPLANT PLACEMENT AND PROVISIONALIZATION WITH NATURAL TEETH: A 3 YEAR FOLLOW-UP

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ABSTRACT

Research demonstrated positive esthetic outcomes for replacing a tooth in the esthetic zone by an immediate implant placement and provisionalization (IIPP). This case report presents a clinical case of an immediate implant placement post-extraction with provisionalization where, in order to maintain the esthetics and preserve the soft tissue profile as close to natural as possible, the same extracted tooth was used for temporization along with abutment. The patient gave a history of trauma few days before his visit. Clinical examination was done followed by a radiographic interpretation which revealed a vertical fracture in relation to tooth number 15. A poor prognosis was expected of the fractured tooth and therefore extraction followed by replacement

was planned. Extraction was done in the manner so as to not disfigure the labial aspect of the tooth which was intended to be used for provisionalization. The soft tissue profile or *emergence* of natural tooth contour was well preserved and restored by using the same extracted natural tooth as a provisional for the placed implant to achieve improved esthetics and save time. The primary purpose of provisionalization was to avoid social embarrassment and to create an emergence profile as replacement was to be done in the esthetic zone. The patient was followed up for 3 years at regular intervals before giving a permanent crown. By employing immediate implant treatment protocol along with using the same extracted tooth for preparing a provisional, advantages such as emergence profile, shorter operating period, improved aesthetics, immediate loading and faster healing were achieved which resulted in complete patient satisfaction.

INTRODUCTION

Dental implants are the most complex and modern kind of permanent tooth replacement choices. In today's world, the use of implant supported crowns and bridges has become a well-established and favoured method of restoring missing teeth.^[1,2] Traditional treatment guidelines while placing implants advocates a three month waiting period following tooth extraction to allow for soft and hard tissue healing prior to placing an implant, which was followed by an additional three to six month load-free period following implant placement to achieve Osseointegration.^[3,4]

However, the outcome of placing implants into tooth sockets immediately following extraction has been reported to be as predictable as placing implants into healed sites.^[5] Research demonstrated positive esthetic outcomes for replacing a tooth in the esthetic zone by an immediate implant placement and provisionalization (IIPP).^[6-8] This technique is increasingly being applied to the replacement of teeth in the maxillary anterior region where esthetic outcomes are important.^[9-14]

Implant placement in fresh extraction sockets in conjunction with appropriate guided bone regeneration is well documented.^[15,16] Animal and human studies have demonstrated attainment of osseointegration of implants following such therapy at a light microscopic level.^[17-20] Immediate implant placement techniques report survival rates of 94 to 100% over a varying healing period of 3 months to 7 years.^[14]

The purpose of this case report is to present a clinical case of an immediate implant placement post-extraction with provisionalization where, in order to maintain the esthetics and preserve the soft tissue profile as close to natural as possible, the same extracted teeth was used for temporization along with abutment.

CASE PRESENTATION

A 36 year old healthy male patient was presented to our clinic, with a chief complaint of pain in right upper front tooth region. The patient gave a history of trauma few days before his visit. Clinical examination was done followed by a radiographic interpretation which revealed a vertical fracture in relation to tooth number 14.

A poor prognosis was expected of the fractured tooth and therefore extraction followed by replacement was planned. The patient desired for a fixed and permanent replacement for

extracted tooth which would be esthetically pleasing and long-lasting. On that account, immediate implant placement with immediate loading was planned. In order to maintain the esthetics and preserve the soft tissue profile as close to natural as possible the same extracted tooth was used for temporization along with abutment.

Before the treatment, patient consent form and a thorough history of all the medical conditions was taken systematically, and various medical tests were advised. The patient showed no medical history relevant to his chief complaint and upcoming treatment plan.

At the same visit, extraction of the fractured tooth was done which was uneventful (Figure 1). Radiographic examination, pre-operatively, revealed a fracture line that extended from the central groove to the centre of the two roots and resulted in separation of the lingual cusp of the crown from the remaining tooth structure during the procedure. Extraction was done in the manner so as to not disfigure the labial aspect of the tooth which was intended to be used for provisionalization (Figure 2).

Subsequently, the intact part of the extracted tooth was prepared to adapt to the abutment and immediate implant placement with immediate loading was done in the following steps (Figures 3 and 4). The cervical line was marked on the tooth using a carbon marker both on buccal and lingual sides prior to extraction. The tooth was extracted atraumatically without disturbing the soft tissue and implant of required size was immediately placed in the socket achieving primary stability and the depth of implant subcrestally was confirmed on a RVG. Abutment was placed over the fixture with sufficient collar height and trimmed for occlusal clearance extraorally using a lab micromotor. Once the abutment was trimmed, it was resealed. The abutment screw was hand tightened and the screw access channel was closed using teflon tape. In the present case, as the tooth was vertically fractured, the labial half of tooth was sectioned using disc, resin cement was flowed on the labial surface and placed on the abutment in the same angulation of teeth to match the cervical line with the gingival margin and cured to keep the tooth segment in place. Subsequently, the resin cement was gently flowed into the space surrounding the abutment both labially and lingually, until the soft tissue profile was filled and the cement cured. The screw access was opened removing the teflon, the abutment was unscrewed and the abutment along with teeth was retrieved. Following this, the excess cement was removed below the finish line, labially and lingually and highly polished to ensure minimal plaque accumulation. The abutment with natural teeth was resealed over the fixture with a torque of 20Ncm. The soft tissue profile or *emergence* of

natural tooth contour was well preserved and restored using the same natural teeth for better esthetics and time saving (Figures 5-7).



Figure 1: Extraction of fractured tooth-14.



Figure 2: Extracted 14.



Figure 3: Extracted tooth prepared to mimic the final restoration.



Figure 4: Extracted tooth prepared to mimic the final restoration.



Figure 5: Abutment with natural teeth resealed.



Figure 6: Abutment with natural teeth resealed.



Figure 7: Radiographic evaluation of the implant

DISCUSSION

Many factors influence the decision to extract teeth and replace them with immediate implants. When extraction is planned and adjacent natural teeth are selected as abutments for fixed partial dentures, this selection becomes crucial. Periapical infections, fractured teeth, advanced periodontal attachment loss, crown-restored teeth, weakened endodontic posts, grossly decayed teeth, unsatisfactory crown-to-root ratios and a variety of other variables all contribute to the decision to extract teeth. These variables have an impact on the overall treatment approach. Treatment plan for above conditions doesn't end with extracting the affected teeth but subsequently replacing the extracted teeth.

Implants have become a preferred approach in replacing missing teeth especially in cases where patients desire for a fixed and a permanent replacement.^[1] Placing immediate implants following extraction into the extracted sockets is now being practised widely due to its advantages unlike the previously practised traditional implant dentistry. According to the traditional Branemark protocols, a 12-month healing period after tooth extraction is recommended before implant placement. In addition, a subsequent healing period of 3 to 6 months is indicated after implant fixture placement. In most instances, this translates to 1-2 years from the start of treatment to completion of the restoration. This often leaves the patient with a missing tooth or teeth for an extended period of time.^[17] This has led to the treatment protocol called *Immediate implants*. The advantages include: shortened implant placement, immediate loading and faster healing. Immediate implant placement postextraction has resulted in the initiation of prosthetic treatment in as little as 3 to 6 months, with the additional benefit of reducing alveolar bone resorption.

Considering these parameters, the present case was planned where an immediate implant was placed following the extraction of a fractured tooth. Additionally, the soft tissue profile or emergence of natural tooth contour was well preserved and restored by using the same extracted natural tooth as a provisional for the placed implant to achieve improved esthetics and save time. The primary purpose of provisionalization was to avoid social embarrassment and to create an emergence profile as replacement was to be done in the esthetic zone.

The patient was followed up for 3 years at regular intervals before giving a permanent crown (Figures 8 and 9). By employing immediate implant treatment protocol along with using the same extracted tooth for preparing an abutment, advantages such as emergence profile, shorter operating period, improved aesthetics, immediate loading and faster healing were achieved which resulted in complete patient satisfaction.



Figure 8: Clinical evaluation of the implant after 3 years.



Figure 9: Radiographic evaluation of the implant after 3 years.

CONCLUSIONS

The greatest advantage of employing immediate implant protocol is that it offers an enormous psychological benefit to the patients as tooth loss can be emotionally challenging to many. The related social embarrassment makes them more conscious to approach the dentist for a replacement. In such cases, immediate implant treatment is advisable as the patient's loss is simultaneously replaced with little or no need for additional surgery and a long-term functional and esthetic restoration can be completed in just a few months. Using the same extracted tooth for preparing a provisional acts by withdrawing the thought of normal functioning in society with a missing tooth or poor replacement as the extracted tooth takes its usual place post operatively.

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