



## Single Tooth Immediate Implant Placement in Anterior Maxilla: Case Report

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### KEYWORDS

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### ABSTRACT:

The concept of dental implant for rehabilitation of edentulous patient has become one of the predominant treatment modality in modern dentistry. Successful treatment outcome of restored oral implants depends on the placement and architecture of surrounding hard and soft tissues. The importance of timing or the fourth dimension of tooth extraction and implant placement was described by Funato et al.<sup>1</sup> It is classified as:

- Class I: Immediate – extraction, immediate implant placement flapless or with a flap and osseous augmentation with GBR and ct graft.
- Class II: Early implant placement (6-8 weeks) – GBR can be performed at the moment of the extraction or when the implant will be placed
- Class III: Delayed Implant placement 4 to 6 months after the extraction with the preservation of the alveolar ridge with GBR as well soft tissue augmentation.

### INTRODUCTION

The concept of dental implant for rehabilitation of edentulous patient has become one of the predominant treatment modality in modern dentistry. Successful treatment outcome of restored oral implants depends on the placement and architecture of surrounding hard and soft tissues. The importance of timing or the fourth dimension of tooth extraction and implant placement was described by Funato et al.<sup>1</sup> It is classified as:

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preservation of the alveolar ridge with GBR as well soft tissue augmentation.

Survival rate of implant restoration depends on 5 key as stated by Jovanovic<sup>2</sup>:

1. Bone preservation / regeneration
2. Implant surface / design /position
3. Soft tissue thickness support
4. Prosthetic tissue support
5. Restorative emergence and material

Implants immediately placed after tooth extraction in fresh sockets are called as immediate implant which shortened treatment time, maintain bone height and enhances esthetic.

## CASE REPORT

A 25 yr old male patient reported to the department of Prosthodontics and Crown &bridge, SMBT dental college and Sangamner Ahmadnager. Patients chief complaint was fractured right maxillary tooth in front region resulting from trauma due to fall from staircase. Various treatment options such as removable, fixed or implant supported prosthesis were given.

Written consent was taken and further procedure was carried out. Patients detailed intraoral and extra oral examination was done. After proper history and blood investigation no abnormalities were detected. Preoperative R.V.G.R.S with respect to 11 (figure3), diagnostic impression using alginate impression material recorded and study cast model was fabricated (figure2).

Surgical procedure was carried out with atraumatic extraction of root piece w.r.t 11 under local anesthesia using root piece forcep (figure 4 and figure 5) and the freshly extracted socket was evaluated for any remnants. Mucogingival flap surgery was performed after the controlled bleeding from the freshly extracted socket by reflecting full thickness mucoperiosteal flap

using paracrestal incision for immediate placement of implant. Following the manufacturer's protocol for implant placement an osteotomy was drilled initially by using small 1.5 mm diameter cutting drill for bone preparation. A parallel pin was placed in the osteotomy to check the angulation in the labiolingual direction and in mesiodistal direction (figure 6). Drilling was done in a sequential manner with 2.0mm, 2.5mm, and 3mm drills respectively for placing implant of 3.75×13mm into the socket with proper torque of 40newton centimetre to gain primary stability (figure 7). Dentium implant system was used in the present case.

B-OSTIN alloplastic graft was placed (combination of 60% hydroxy appetite and 40% tricalcium phosphate) and stabilised by using the guided bone regeneration (GBR) membrane (Healiguide) (figure 8). Cover screw was placed and sutured. Postoperative medication and instructions were given. Postoperative digital radiovisiography was taken to evaluate the implant placement with respect to 11 (figure 9).

After 10 days implant site was assessed for healing of wound and sture removal. Patient was recalled for replacing the cover screw with straight abutment with temporary crown (figure10, 11).The temporary crown was placed out of occlusion using noneugenol based temporary cement. This procedure was carried out for patients urgent aesthetic need.

After 16 weeks of healing since implant placement the temporary crown was removed and abutment level impression was recorded using poly vinyl siloxane for final restoration (figure 12). Final restoration was cemented using resin modified glass ionomer cement after 20 weeks of implant placement by removing the temporary crown and cleaning the abutment with copious amount of water (figure 13, 14).Before cementing the final restoration it was checked for proper proximal contact and occlusion. The patient was very happy with final aesthetic and functional outcome. Oral hygiene instruction were given to patient and recalled after 3 months for regular check up.



Figure 1: Preoperative condition



Figure 2: Diagnostic maxillary cast

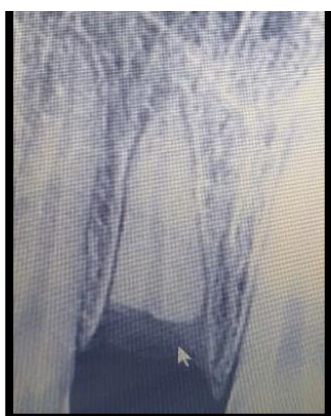


Figure 3: Preoperative R.V.G.R.S with respect to 11



Figure 4: Extracted root piece with respect to 11



Figure 5: Extraction socket with respect to 11

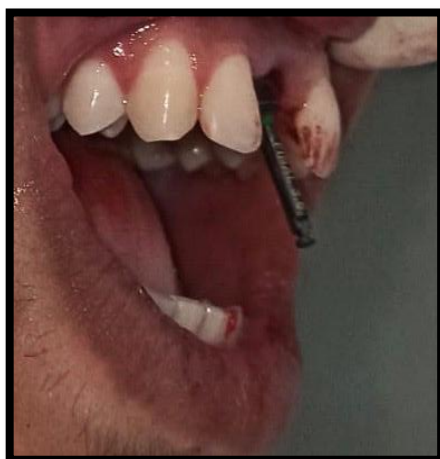


Figure 6: Pilot drill w.r.t 11



Figure 7: Implant placement w.r.t.11



Figure 8: Bone graft w.r.t.11



Figure 9: Post Operative R.V.G. w.r.t 11



Figure 10: Abutment placement w.r.t 11



Figure 11: Temporary w.r.t. 11



Figure 12: Final impression

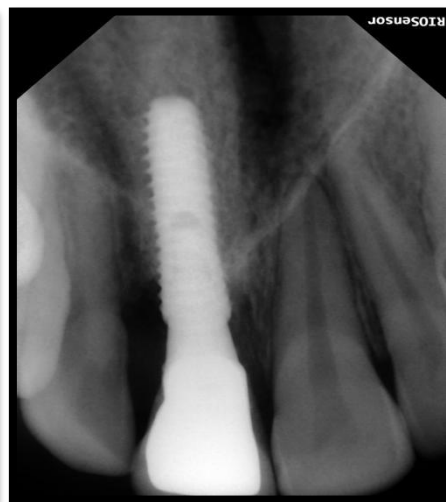


Figure 13: R.V.G. with prosthetic crown cemented



Figure 14: Intra oral anterior aspect with permanent restoration w.r.t 11

## DISCUSSION

The present case report was carried out to replace the missing tooth in maxillary anterior region to achieve aesthetic success based on important concept of immediate implant placement. Amongst various treatment modalities implant supported prosthesis have various benefits over conventional crown and bridge and removable prosthesis.

In the modern dentistry the goal of restoring missing tooth is to maintain the oral hygiene, natural contour, residual bone, functions and comfort of the patient. Using implants they can achieve this goal unlike conventional crown and bridge or removable prosthesis

which require support from the adjacent hard and soft tissues.

Lazzara in 1989 first placed immediate implant at an extraction socket.<sup>3</sup> the survival rate is high ranging between 93.9 and 100% on immediate loading according to Schwartz-Arad after reviewing the relevant literature.<sup>4</sup> Schropp et al. stated that formation of new bone occurs in extraction socket with immediate placed implants.<sup>5</sup>

Schwartz-Arad,<sup>4</sup> Schropp<sup>5</sup> and younis<sup>6</sup> concluded that immediate implant placement was found to have superior results over delayed implant placement. Placing immediate implants reduces treatment time,



healing of soft tissue is excellent and may result in bone regeneration as combination with graft materials.

Proper diagnosis and treatment planning are considered as utmost important for the success of an implant.<sup>7</sup> This immediate implant placement method has become a predictable, successful, and alternative treatment modality.<sup>8</sup>

Proper prosthetic concept must be followed to maximise aesthetic and function. The clinician must consider proper treatment planning for final prosthesis. Unless the position of the final prosthesis is visualised prior to surgery, the placement of the dental implants may not allow the desired end results to be achieved.

## CONCLUSION

Amongst various treatment modalities for restoring single missing tooth oral implants have become the primary treatment modality as it full fill both esthetics and functional requirement of patients. Immediate implant placement can be a treatment of choice as it reduces the working time and resorption of the ridge.

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