10.5005/jp-journals-10024-1852

CLINICAL TECHNIQUE

Creating Esthetic Harmony with Nonloading, Fixed Provisional Restoration using Extracted Teeth after Immediate Implant Placement

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ABSTRACT

Aim: To make use of fiber-reinforced composite and the patient's own extracted teeth in fabricating a provisional restoration following immediate implant placement.

Background: Fiber-reinforced composites offer various possibilities in temporization of osseointegrating implants in the esthetic zone.

Technique: In this chairside technique, the patient's own extracted teeth with fiber-reinforced composite were used to fabricate a provisional restoration after immediate implant placement.

Conclusion: A putty index was made before extracting the teeth and placing the implants as planned. The index and crowns of the extracted teeth were used to make a nonloading, esthetic, chairside provisional restoration after immediate implant placement.

Clinical significance: By using the patient's own teeth for provisionalization immediately after implant placement, acceptance is greatly enhanced.

Keywords: Fiber-reinforced composites, Immediate implants, Temporization over osseointegrating implants.

How to cite this article: Satwalekar P, Satwalekar T, Bondugula V, Bhuvaneshwari B, Harshavardhan KV, Pasula K. Creating Esthetic Harmony with Nonloading, Fixed Provisional Restoration using Extracted Teeth after Immediate Implant Placement. J Contemp Dent Pract 2016;17(4):344-346.

Source of support: Nil

Conflict of interest: None

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BACKGROUND

As studies having started showing positive clinical outcomes, immediate placement of a dental implant and provisional restoration after tooth extraction are gaining popularity.[1,2] Immediate placement of implants has shown significant reduction in augmentation procedures and significant improvement in maintaining hard and soft tissue contours around the implants.[3,4]

However, for implants to osseointegrate, a period of 3 to 4 months of bone healing is recommended in the mandible.[5,6] Micromovement of implants during this healing period is a major cause for implant failure.[7] These days, it is generally accepted that for titanium implants the critical micromovement threshold lies somewhere between 50 and 150 µm. Movement exceeding this range increases the risk of implant failure, but forces causing micromovement within this range can improve the osseointegration.[8] However, measuring this micromovement in patients with varying dietary, oral, and paraoral habits is difficult.

Hence, the two-stage implant surgical protocol where the implants are submerged at stage 1 and allowed to osseointegrate and loaded at stage 2 after a specified period of healing time still remains the treatment of choice among most practitioners. But this leaves the practitioner with an esthetic dilemma when it comes to temporizing implants replacing anterior teeth. He's left with an acrylic removable partial denture, which is not readily accepted by the patient, or the conventional fixed partial denture, which requires the preparation of the adjacent teeth or a resin bonded bridge that has several limitations. More so, none of them are chairside procedures leading to increased clinical appointments and expense.

This article describes a simple, nonsurgical, cost-effective, chairside technique for the fabrication of a nonloading, fixed, provisional restoration using the patient's own extracted teeth.

TECHNIQUE

- Make a putty (Aquasil; Dentsply, Konstanz, Germany) index of the teeth that have been planned for extraction – in this case all the four mandibular incisor teeth, keeping in mind that one tooth on either side of the planned extraction site is also registered in the index (Figs 1 and 2).
- Extract the teeth as atraumatically as possible and place the implants as planned (Figs 3 and 4).
- Suture back the surgical site or allow it to heal under the temporary restoration.
- Cut out the roots of the teeth at the cemento–enamel junction (CEJ) maintaining the contour of the CEJ and then bore out the coronal pulp with a diamond bur.
- Fill the bored-out coronal pulp with glass ionomer cement (GC Universal Restorative; GC Corporation, Tokyo, Japan).
- Slice the putty index vertically and horizontally to aid visualization and placement of the extracted natural crowns back in the putty index (Fig. 5).
- Once the crowns have been seated back in their respective positions in the index, use the fiber-reinforced composite (Interlig; Angelus, Londrina, Brazil) to splint them together from the lingual side (Fig. 5).
- Also use composite resin (Z100 Restorative; 3M ESPE, St. Paul, MN, USA) to fill up the gingival embrasures between teeth to aid oral hygiene procedures (Fig. 5).
- Align the splinted bridge of four mandibular incisor teeth in the mouth using the putty index and splint it to the adjacent canine teeth using the same fiber-reinforced composite (Fig. 6).
- Check for any interceptive occlusal contacts and correct if any (Fig. 7).

Fig. 1: Four mandibular incisors planned for extraction and immediate implant placement

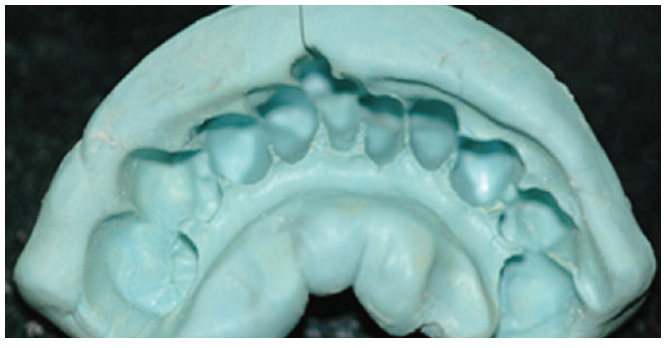

Fig. 2: Putty index of the four mandibular incisor teeth and one tooth on either side of the planned extraction site

Fig. 3: Atraumatic extractions

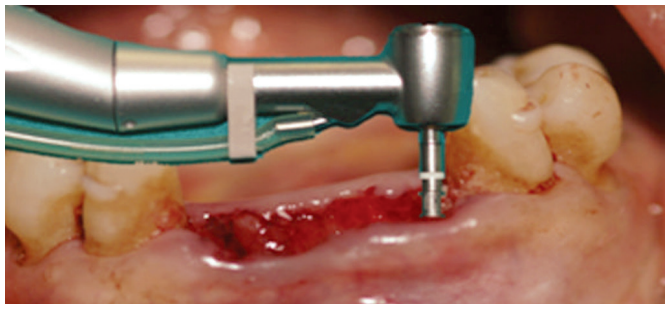

Fig. 4: Implant placement in extraction socket

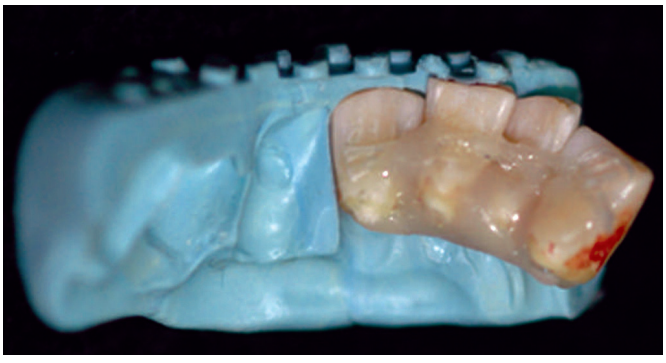

Fig. 5: Seating the extracted crowns back in their respective position in the index, splinting them with fiber-reinforced composite from the lingual side and filling the gingival embrasures with composite resin

Fig. 6: Splinting the bridge of four mandibular incisor teeth to the adjacent canine teeth using the same fiber-reinforced composite

Fig. 7: Checking interceptive occlusal contacts

DISCUSSION

The biggest advantage of this technique is that you have a nonloading fixed temporary restoration. The other advantages are that it is a chairside procedure, good esthetics as it uses the patient's own teeth that are aligned in their original position and using fiber-reinforced composite, which is less expensive than making a removable or fixed temporary prosthesis in a laboratory.

In patients in whom the extracted teeth are grossly damaged or have large diastemas and when the vertical overlap is severe, this technique is contraindicated.

CONCLUSION

A putty index was made before extracting the teeth and placing the implants as planned. The index and crowns of the extracted teeth were used to make anon loading, esthetic, chairside provisional restoration after immediate implant placement.

CLINICAL SIGNIFICANCE

By using the patient's own teeth for provisionalization immediately after implant placement, acceptance is greatly enhanced.

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