Immediate implantation and loading in the aesthetic zone: case reports

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Abstract

Dental implant placement with immediate provisionalization is a well-established protocol with excellent success rates. This case report series describes the use of CAD/CAM and conventional technologies to facilitate the fabrication of provisional and definitive restorations in the aesthetic zone.

The aim of this approach is to preserve anterior aesthetic and function after the tooth extraction by immediately placing single implant followed by placement of provisional restoration.

Bredent Blue SKY implants were placed into the fresh extraction socket using a flapless approach, and SKY uni.fit Ti-Base for CEREC abutment or SKY uni.fit CAD were used. All cases were digitally scanned with intraoral camera and CAD/CAM is used for fabrication of the crowns. 3M Lava Ultimate was the choice of material for temporary crowns and Ivoclar e-max for definitive ones.

All restoration provided the patient with immediate aesthetics, function and comfort without any complications during the healing period. Placement of temporary crown immediately after implant placement reduced overall treatment time and helped to preserve original gingival tissue contour.

Flapless implant placement helps to preserve site morphology by protecting and supporting existing hard and soft tissues while minimizing surgical trauma to the adjacent tissues. Abutment customization helps to improve aesthetic in critical anterior zone.

Background and Aim

Prosthetic techniques to enhance soft tissue contour by using custom abutments and provisional crowns to support the periimplant mucosa during healing have been described in case reports and retrospective and prospective cohort studies. It was concluded that immediate or immediate-delayed placement of implants is a viable treatment option and may be associated with better outcomes in terms of esthetics and patient satisfaction compared with conventionally placed implants (2,3,5).

Immediate provisionalization provides a number of clinical and patient benefits. Reduced chair time, elimination of additional surgery, immediate nonocclusal loading, bone preservation, and aesthetic benefits are achieved when the patient receives a customized provisional (1,2,3,4).

The aim of this study is to preserve anterior aesthetic and function after the tooth extraction by immediately placing a single implant followed by placement of provisional restoration.

Methods and Materials

Three patients underwent immediate implant placement and immediate provisional restoration with nonocclusal loading in the aesthetic area. Implants placed into the fresh extraction socket using a flapless approach. Flapless implant placement helps to preserve site morphology by protecting and supporting existing hard and soft tissues while minimizing surgical trauma to the adjacent tissues. The implants that were used Bredent Blue SKY were either 14 mm length were 3.5, 4.0, 4.5 mm in diameter.

A SKY temp L abutment was placed and the screw torqued at around 18-20 N cm², which adequately supported the gingival profile in the first case. The clinical situation was scanned with cerec bluecam and manufactured the provisional crown out of Lava™ Ultimate from 3M Espe. The provisional crown was then cemented with temporary cement such as Tempbond (Figure 1).

After 4 months the provisional crown was removed and final preparation was initiated. For digitisation purposes, the SKY uni.fit CAD is placed. The CEREC inLab hard and soft tissues while minimizing surgical trauma to the adjacent tissues. The implants that were used Bredent Blue SKY were either 14 mm length were 3.5, 4.0, 4.5 mm in diameter.

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In the second case, after surgery, SKY uni.fit Ti-Base for Cerco is used, and in the third case SKY uni.fit CAD abutment with e-max CAD abutments were placed and the provisional Lava™ Ultimate crown were cemented with provisional cement. The aim was to use this abutment as the final abutment and therefore care was taken to avoid the need to unscrew it during the treatment.

After 4 months, the abutments were adjusted in the mouth without removing from the implants according to the final tooth form using a chamfer shaped diamond bur and water spray (Figure 2).

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To fabricate the ceramic crown, a second digital impression was taken of the previously milled and screwed abutment. The crown was CAD / CAM fabricated using the IPS e.max CAD LT block and the crown was cemented to the abutment with the same resin cement (Figure 2 and figure 3).

Conclusions

Placement of the temporary implant crown immediately after implant placement reduces overall treatment time, avoids a second stage operation and the original gingival tissue contour can be preserved. We think that customisation of the abutment is required to improve the aesthetics. However, these protocols require careful pre-operative planning and patient selection. Furthermore, good primary implant stability is a prerequisite, in addition to the development of a protected occlusion to create a non-occluding provisional crown.

Results

All restoration provided the patient with immediate esthetics, function and comfort without any complications during the healing period. During the provisional phase, an optimal emergence profile was created by adjusting the provisional restoration.

References