

Customized Stent for Proper Placement of Dental Implant

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Abstract

Correct placement of dental implant plays a pivotal role in the success of the procedure. A guidance for correct placement of dental implant is mandatory, at least for the beginners. Various stents have been highlighted in the literature to serve this purpose, but they have their own demerits. To overcome their demerits, we propose a customised stent for proper placement of dental implant.

Keywords: Dental Implant; Proper placement; Customized stent

Case Presentation

Dental implant placement in a correct position is a challenge. A surgical stent at least for the beginners is essential for the correct placement of implant during surgery. For the successful implant prosthesis proper mesiodistal and buccolingual angulation is mandatory [1]. The accurate preplanned position and angulation aid in preservation of papilla and provide an esthetic implant restoration profile [2].

The various stents mentioned in the literature includes vacuform or acrylic resin templates adapted over duplicated casts of diagnostic wax-up. According to Wong H et al [3] computer aided guides made without channel and only with hole, do not merit proper angulation guide for the implant placement. Some authors incorporated plastic or metal tubes and channels in acrylic resin that dictate the position of implants [4]. All these stents cannot be autoclaved and having acrylic flanges which cause difficulty in proper adaptation when flap is raised for the placement of implant, are some of the drawbacks of these stents.

To overcome the above mentioned drawbacks, we recommend the use of customised stent for the accurate placement of dental implant during the surgery (Rai Modification). On the diagnostic cast, a metal crown was fabricated on the site where the implant is to be placed. After determining the proper cusp and fossa relationship, the center was marked and after creating a hole with round carbide bur in the crown, the stainless steel tunnel was placed in the center through which the drills were used for osteotomy on the implant recipient site (Figure 1). We put the length of the tunnel around 10mm because according to Choi et al. [5] length of the guide channel was the deciding factor in reducing angle deviations in mesiodistal and buccolingual direction.

Advantages of Customised Stent

1. Can be autoclaved, so less chance of infection.
2. The metal tube channel is 10mm length, approximately 7mm superior and 3mm on the

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Figure 1: Showing customized stent over the diagnostic cast.



Figure 2: Photograph represents drilling through tunnel of the stent.

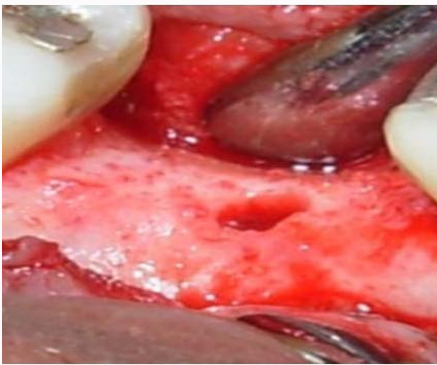


Figure 3: Accurate osteotomy at the implant placement site.

inferior aspect from the base of the crown:

- a. To control implant angulation and
 - b. Allow copious saline irrigation as the inferior tube channel is 1 to 1.5 mm above the bone (Figure 2).
3. Tube in a crown provides the accurate site, as it is placed after determining proper cusp fossa relation and exactly maintaining mesiodistal and buccolingual bone dimensions (Figure 3).
 4. The superior placement of channel over the crown to guide the drill is the uniqueness of this modified stent as there was no mention of it in the previous reported literature.

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