

Dental implant esthetics

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Introduction

Abutments play a critical role in dental implant esthetics. This case highlights the capabilities of ZirDesign™ and its role in achieving superior results.

Case Report

An implant was placed in the missing tooth position using a two-stage approach (Figure 1). A bone graft was placed before. Three months after implant treatment, close inspection shows: a) thick tissue biotype, b) intact connective tissue attachment to adjacent teeth, c) no prior site preparation using an ovate pontic.

Guiding tissue formation

After implant placement using a two-stage procedure, second stage surgery must be performed, focusing on esthetics and provisionalization to guide peri-implant mucosal tissue formation (Figure 2).

The radiograph reveals that the 3.5 x 11mm Astra Tech OsseoSpeed™ implant has been placed at the ridge crest and is in good relationship to the adjacent roots (Figure 3). The proximity of the implant/abutment interface to the adjacent CEJ is appreciated. Ideally, this distance should be 3mm. In this case, clinical evaluation revealed shallow implant placement with only 2mm of tissue above the implant abutment interface. The scalloped form of the new ZirDesign abutment offers an ideal solution with its 1.5mm facial height.

Access to the implant cover screw was performed after

sounding through the anesthetized residual ridge crest using a 30-gauge needle. A biopsy punch was used to create the transmucosal incision in the form shown here (Figure 4). This subtractive approach can only be performed when abundant keratinized tissue is available. The cover screw was readily available and removed using a hex screwdriver.

Supporting esthetics

The ZirDesign abutment supports esthetics. It is strong, white and translucent, scalloped, and easily modified. It is retained with an abutment screw and placed with 20 Ncm torque (Figure 5). After removal of the cover screw, the ZirDesign scalloped abutment is carefully seated in the implant with the scalloped buccal surface oriented by the hex interface below (Figure 6).

The anti-rotational flat surface is coincident with the flat of the hex and the scallop (Figure 7). It should be oriented facially.

Note the abutment was reduced to gain facial/incisal clearance. The proper way to reduce the ZirDesign abutment is using a coarse Diamond with water spray. The surface should be finished with a Brassier Dialite blue wheel and then scrubbed and disinfected in chlorhexidine gluconate.

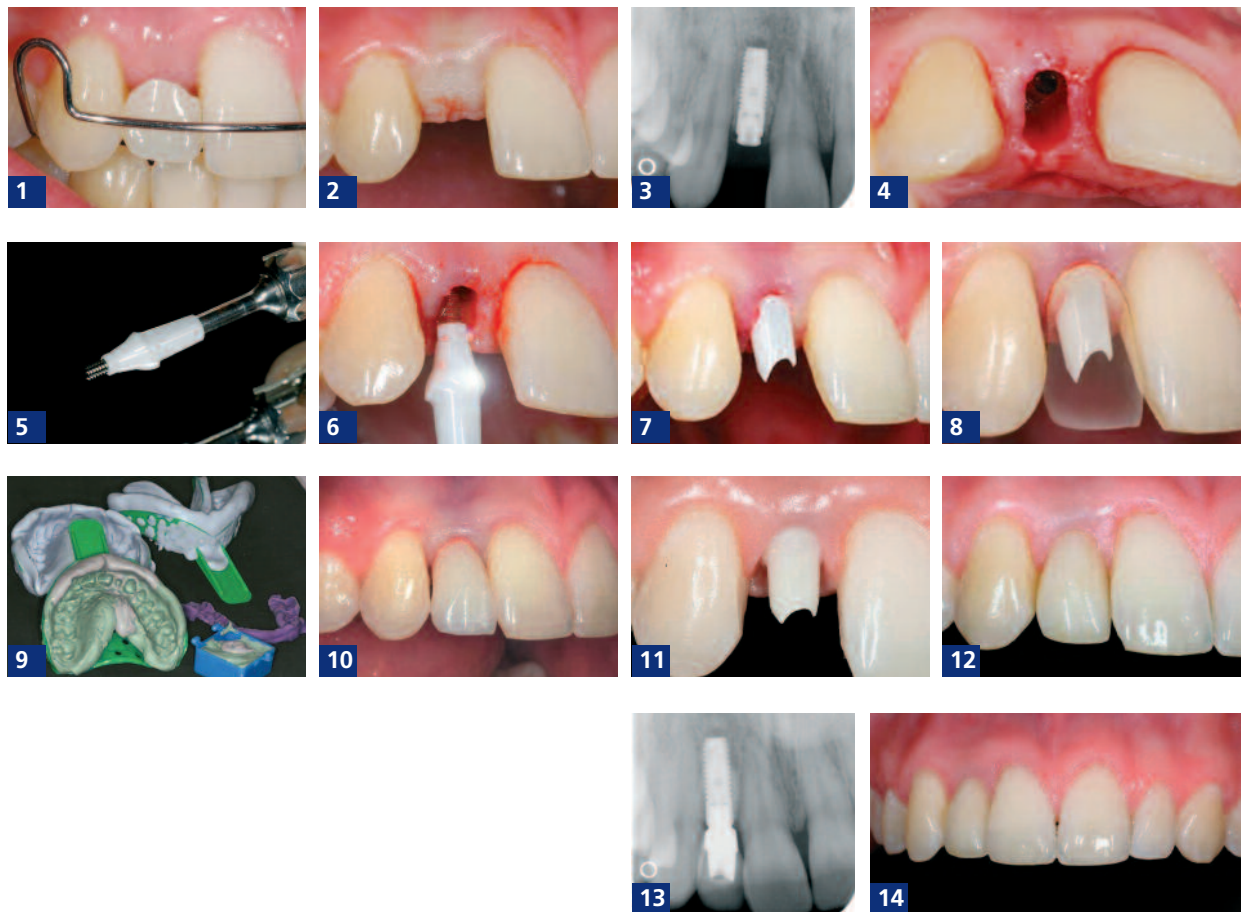
Defining tissue contour

This superimposed image (Figure 8) shows that the tissue contour must be further defined by the provisional crown form. Buccal contours should be convex and interproximal contours should be concave when possible.

Making a good impression

A direct impression can be made if the abutment is

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prepared clinically. Gently packing retraction cord makes it easy. The impression is then sent to the lab for crown fabrication (Figure 9).

In short, the laboratory should receive a) the impression of the abutment, b) the impression of the provisional restoration, c) the impression of the opposing arch, d) the interocclusal registration and a photographic shade prescription.

Provisional crown try-in

The gingival contour has been defined by the abutment and provisional crown (Figure 10). There is no unsightly discoloration of this tissue, even though the implant was located slightly buccal in the available space.

Final crown try-in

After 3-4 weeks, the peri-implant mucosa has formed (Figure 11). Proper architecture is the result of selecting

the ideal scalloped abutment and managing tissue remodelling using an ideal provisional crown. The shape quality and cementation of the provisional are important details.

Final restoration

Final crown at cementation (Figure 12). The form of the crown has been refined from the provisional. The interproximal and buccal tissue contours have been readily formed and maintained without recession. A radiograph reveals that the abutment is properly seated and the crown is well adapted to the abutment (Figure 13). Note the form of the abutment following its preparation.

The facial view of final restoration shows harmony of color, form and function (Figure 14). The treatment with ZirDesign abutments was a total success.