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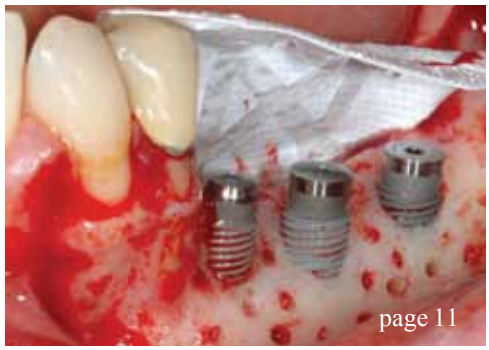
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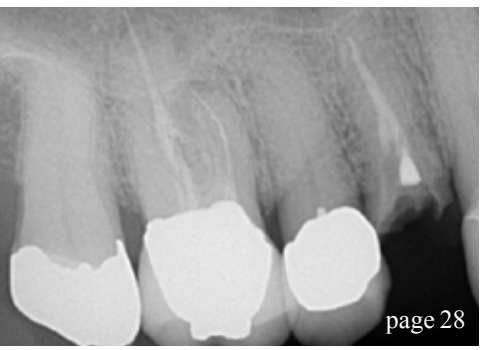
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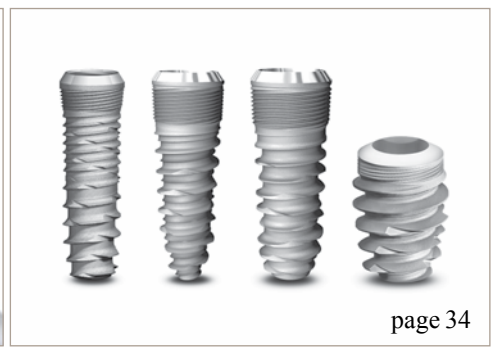
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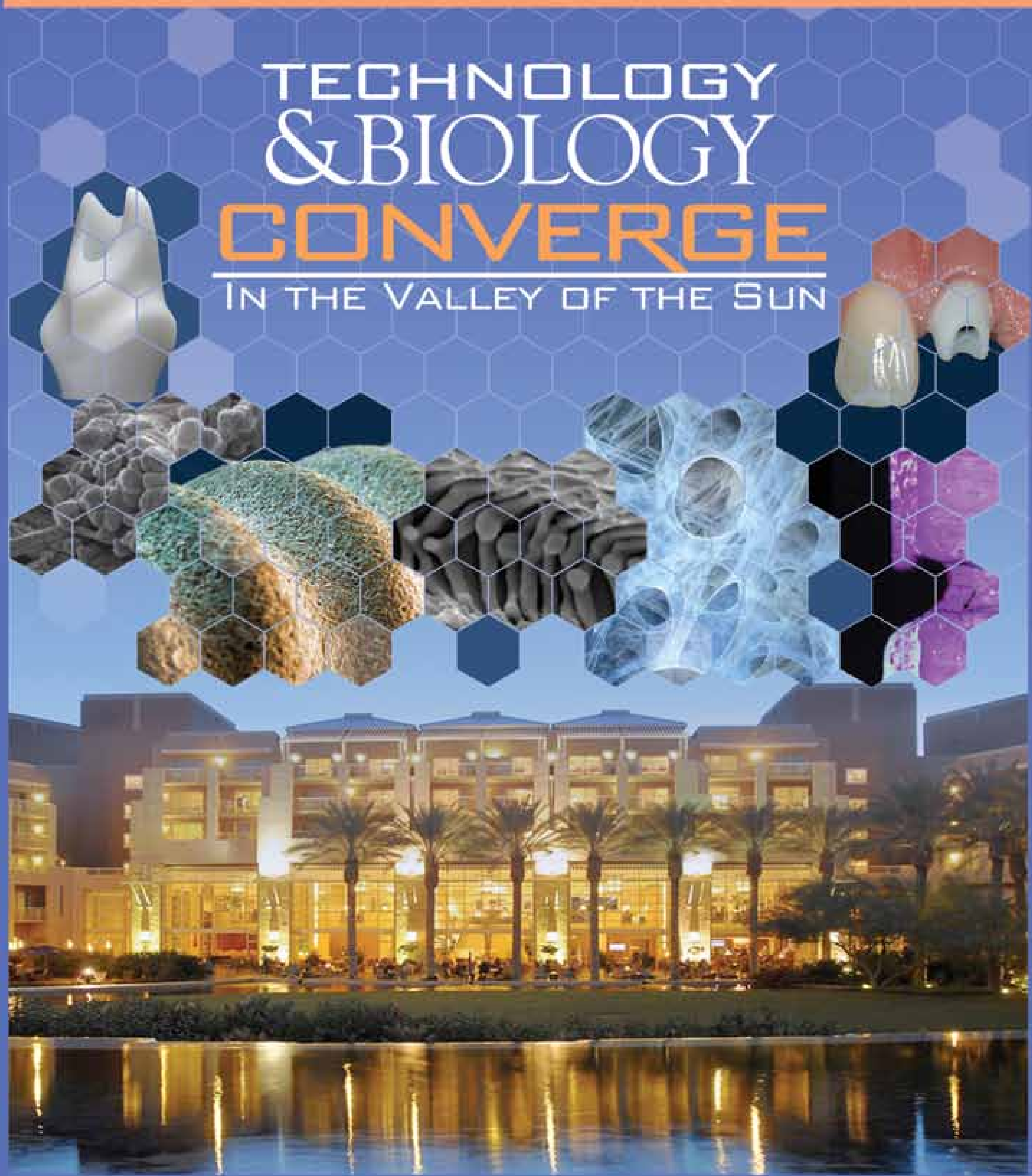

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Immediate implant placement and conventional loading of a maxillary central incisor

Author_Jay R. Beagle, DDS, MSD

_This 30-year-old caucasian female presented to the office, having been referred for the treatment of tooth #8. The patient's chief concern at the initial visit related to the tooth's pink discoloration.

Upon clinical examination, it was discovered that tooth #8 had a previous history of trauma, and it was surmised that the clinical crown had become noticeably pink in color as a result of internal resorption (Fig. 1). This diagnosis was confirmed radiographically, indicating a large radiolucency involving the central and distal portions of the clinical crown (Fig. 2).

It was determined that restoration of this tooth was not possible, and therefore, extraction was indicated. The presence of a mid-line diastema, which the patient wanted to reproduce, directed the treatment plan for tooth replacement utilizing a dental implant.

Her medical and dental health, including a periodontal and occlusal analysis, identified her as a good candidate for dental implant surgery and restoration. Although she presented with a high lip line and a thin-gingival phenotype, an immediate placement technique with a conventional restorative loading protocol was recommended to accelerate her rehabilitation.

The clinical and radiological findings, in combination with the patient's treatment expectations, led to an esthetic risk profile summing up to a medium esthetic risk, as per the specifications delineated by Martin et al 2007.

Prior to the initiation of the dental implant surgery, mounted diagnostic study casts were obtained and a surgical guide was fabricated.

The immediate implant surgical procedure for tooth #8 was carried out as described by Beagle 2006 (Figs. 3–7).

Excellent primary stability was obtained using a 12 mm 3.3-4.8 Regular Neck TE Straumann dental implant (Figs. 8, 9).

Fig. 1: Caucasian female, age 30, presents with internal resorption of tooth #8. A highly scalloped, thin type I gingival phenotype is clinically evident. (Photos/Provided by Dr. Jay R. Beagle)

Fig. 2: Periapical radiograph of teeth #8 and #9 illustrating the resorption defect associated with tooth #8.

_c.e. credit part I

This article qualifies for C.E. credit. To take the C.E. quiz, log on to *www.dtstudyclub.com*. Click on 'C.E. articles' and search for this edition (Implants C.E. Magazine — 3/2013). If you are not registered with the site, you will be asked to do so before taking the quiz. You may also access the quiz by using the QR code below.

Fig. 3: Buccal view of initial incision.

Fig. 4: Occlusal view of initial incision.

Fig. 5: Buccal view following preparation with 2.2 mm twist drill.

Fig. 6: Buccal view following preparation with 2.8 mm twist drill.

Fig. 7: Occlusal view following preparation with 2.8 mm twist drill.

Fig. 8: Placement of a 12 mm 3.3-4.8 TE Straumann dental implant with pre-mount attached indicating the correct mesial-distal relationship, as well as the correct occlusal-cervical relationship.

Fig. 9: Occlusal view of the TE Straumann dental implant with the pre-mount attached indicating the correct buccal-lingual position.

Fig. 10: Buccal view of the placement of a 3.5 mm beveled healing cap.


Fig. 3


Fig. 4


Fig. 5


Fig. 6


Fig. 7


Fig. 8


Fig. 9


Fig. 10

Grafting of the horizontal defect dimension and thin labial plate was performed using autogenous bone and a resorbable collagen membrane (Figs. 10, 11).

A semi-submerged flap closure was chosen to enhance the final positioning of the peri-implant soft tissues, and a periapical radiograph was taken immediately following surgery (Figs. 12–14).

Ten weeks following implant surgery, a small gingivectomy was performed to gain access to the beveled healing cap (Figs. 15, 16).

A synOcta provisonalization coping was attached to the implant (Figs. 17, 18), and a self-curing acrylic resin provisional restoration was fabricated and marginated using a synOcta laboratory analog as described by Higginbottom and coworkers 2004 (Figs. 19, 20).


Fig. 11


Fig. 12


Fig. 13


Fig. 14


Fig. 15


Fig. 16


Fig. 17


Fig. 18

Fig. 11: Occlusal view illustrating the addition of an autogenous bone graft into the horizontal defect dimension (HDD) along the buccal surface.

Fig. 12: Buccal view of flap closure using 5.0 vicryl suture.

Fig. 13: Occlusal view of flap closure using a semi-submerged closure technique.

Fig. 14: Periapical radiograph taken immediately following surgery.

Fig. 15: Occlusal view of surgical site following ten weeks of healing.

Fig. 16: Removal of healing cap following a minor gingivectomy procedure.

Fig. 17: Placement of a synOcta provisonalization coping.

Fig. 18: Occlusal view of synOcta provisionalization coping.

The peri-implant soft tissues were allowed to mature around the provisional restoration for four weeks prior to final impression (Figs. 21 – 23).

Following connection of the analog to the impression coping, a master cast was fabricated to reproduce the implant location three-dimensionally. The master cast was then utilized to aid in the creation of a screw-retained cast-metal crown framework using

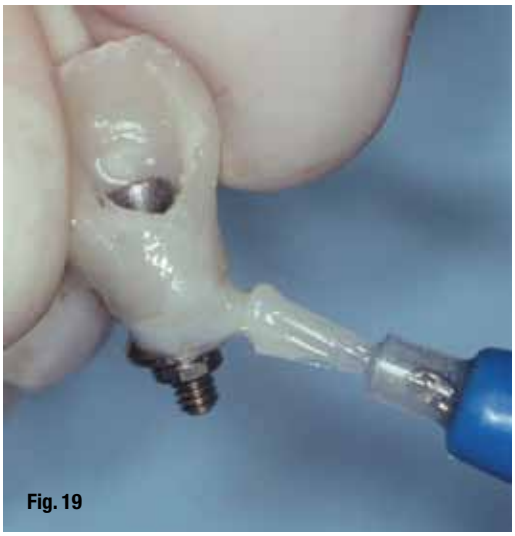
Fig. 19


Fig. 20a


Fig. 20b

Fig. 19: Margination of an acrylic screw-retained provisional restoration.

Fig. 20a, b: Emergence profile obtained using an acrylic provisional restoration.


Fig. 21


Fig. 22

Fig. 21: Placement of the provisional restoration. Note the initial closure of the mid-line diastema, resulting in a crown morphology that is too wide mesial-distally.

Fig. 22: Buccal view of soft tissue profile following tissue remodeling using the acrylic provisional restoration.


Fig. 23


Fig. 24

Fig. 23: Occlusal view of the peri-implant sulcus following tissue remodeling using the acrylic provisional restoration.

Fig. 24: Occlusal view of synOcta screw-retained impression coping.

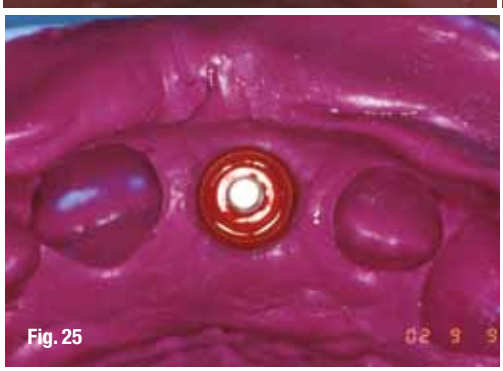
Fig. 25


Fig. 26

Fig. 25: Final Impression.

Fig. 26: Occlusal view of mature peri-implant sulcular tissue with synOcta abutment.

a non-rotational synOcta gold coping. Following the insertion of a 1.5 synOcta abutment (Fig 26), which was hand tightened, the crown framework was attached to the implant with an SCS occlusal screw, and a second definitive impression using a closed tray technique was made to verify the peri-implant soft tissue profiles (Figs. 27–30).

The ceramic work was completed at the laboratory using this accurate master cast. The 1.5 synOcta abutment was torqued to 35 n/cm^2 and the final


Fig. 27


Fig. 28

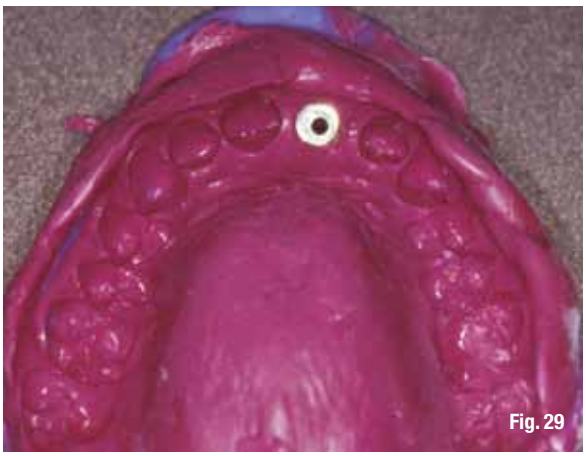
Fig. 29


Fig. 30


Fig. 31


Fig. 32


Fig. 33


Fig. 34

Fig. 27: Buccal view of cast gold framework coping.

Fig. 28: Occlusal view of cast gold framework coping.

Fig. 29: Impression of framework coping to verify soft-tissue profiles.

Fig. 30: Close-up occlusal view of impression of framework coping to verify soft-tissue profiles.

Fig. 31: Buccal view of final restoration delivered four months from initial surgery date.

Fig. 32: Occlusal view of final screw-retained restoration.

Fig. 33: Extended buccal view of final restoration delivered four months from initial surgery date.

Fig. 34: Periapical radiograph of final restoration delivered four months following initial surgery.

crown was seated and checked for marginal fit, occlusal and interproximal contacts and emergence profile (Fig. 31).

Final glazing of the ceramics was then performed, and the SCS occlusal screw was tightened to 15 n/cm^2. The screw access was obturated with a cotton pledget and restored with a light cured composite (Fig. 32).

A periapical radiograph was obtained to establish a baseline marginal bone level with maintenance