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Digital Implant Impressions Using Encode Healing Abutments

Dr. Scherer is a full-time private practice prosthodontist in Sonora, California, and an Assistant Clinical Professor at Loma Linda University. He has published articles related to implant dentistry and digital technology with a special emphasis on implant overdentures. Dr. Scherer's involvement in digital implant dentistry has led him to develop and utilize new technology with CAD/CAM surgical systems and outside-the-box radiographic imaging concepts.

CASE PRESENTATION | XX

A healthy 53-year-old male presented with an implant (T3, Biomet 3i) placed in tooth position No. 13. The patient had the implant placed immediately after tooth extraction, and a coded healing abutment (Encode, Biomet 3i) was placed on the implant. Six weeks after implant placement, the patient presented to have final impressions made.

A light dusting of contrast powder was placed on the healing abutment. Digital impressions of the healing abutment and adjacent teeth were fabricated with an intraoral scanner (True Definition, 3M ESPE), capturing all of the details of the grooves and notches present on the surface of the healing abutment. The scan images were reviewed and instructions were entered to fabricate a gold-hue abutment with a PFM crown (Bellatek, Biomet 3i). The digital impression with instructions was instantaneously transferred to the dental laboratory with details to create a PFM crown with a hole through the occlusal surface corresponding to the long axes of the screw channel.

The laboratory 3D-printed a dental model with the planned abutment in position, allowing for conventional crown fabrication. After the crown was fabricated, the final abutment was sent to the laboratory for verification of margin adaptation and screw channel position.

The patient returned 2 weeks later (total of 8 weeks after implant placement), the healing abutment was removed, and the abutment was placed. The crown was adapted to the abutment with minor modifications. After verifying the crown fit and esthetics, the abutment was torqued and the crown was luted to the abutment using a resin cement (RelyX Ultimate, 3M ESPE). The residual cement flowed out the occlusal aspect of the crown, permitting a venting effect. The cement was removed and a temporary restoration was placed covering the screw access channel (Cavit G, 3M ESPE).

Figure 1—A patient presents with an implant (T3, Biomet 3i) and coded healing abutment (Encode, Biomet 3i). The implant was placed 6 weeks prior to the impression appointment.

Figure 2—A light dusting of contrast spray was applied to the healing abutment and adjacent teeth. Final digital impressions were made using an intraoral scanner (True Definition, 3M ESPE).

Figure 3—Digital impression capture showing instantaneous feedback of acceptable capture of the healing abutment code and details of adjacent teeth. The prescription details were entered into the system and sent instantaneously to the dental laboratory for abutment and crown design.

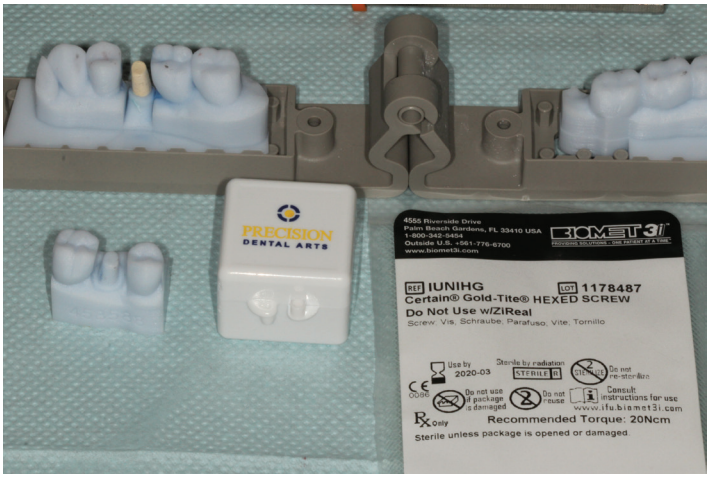

Figure 4—The abutment design was incorporated into a 3D printed model and sent to the laboratory for fabrication of the PFM crown. Details were sent to the laboratory to make an occlusal screw access channel through the crown to convert the cement-retained crown into a screw-retained crown.

Figure 5—The patient returned 2 weeks after impression (total 8 weeks after implant placement) and healing abutment was removed.

Figure 6—Using the digital impression approach (Encode, Biomet 3i), the abutment or final screw never has to be adjusted or placed onto the model during laboratory fabrication of the crown. This ensures optimal abutment and prosthetic screw integrity.

Figure 7—The abutment was placed, the gold screw torqued to 15Ncm, and the crown adapted to the abutment. Minimal adjustments were made and the crown was luted using a definitive resin cement (RelyX Ultimate, 3M ESPE). Cement flowed out the occlusal screw channel, which acted as a vent hole during luting.

Figure 8—The cement was removed and a temporary filling material placed over the screw channel (Cavit G, 3M ESPE).

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