

Implant Placement and Restoration in Your General Practice

by Ara Nazarian, DDS



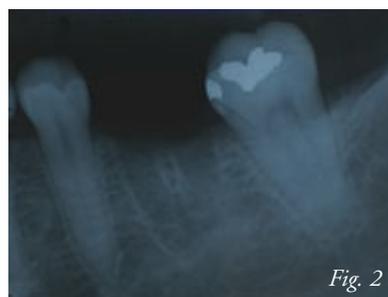
Today, we see more and more patients present with endodontically treated teeth that have failed for one reason or another due to fracture, recurrent caries, or periodontal problems. In the past, the common dental treatment would be to prepare the adjacent teeth for a three-unit bridge. However, with implant therapy gaining in popularity amongst patients and providers, the request to have implant treatment has increased. It is my opinion that implant tooth replacement is the standard of care and every general practitioner needs to learn how to replace missing teeth using this modality at some level. This article discusses a case and includes photos of the replacement of a posterior mandibular tooth using a simplified implant system.

A 45-year-old female patient presented for replacement of missing tooth #19 (Figures 1 & 2). The patient's medical history was non-contributory. The tooth was extracted two years previously due to a vertical fracture. Different options available to replace the missing tooth were discussed with the patient as well as any risks, benefits and alternatives. She decided to have an implant placed in the area of tooth #19.

The area of tooth #19 was anesthetized using 1.8ml 4% Septocaine (Septodont) with 1:100,000 epinephrine. I routinely do not use a mandibular block when placing implants in the posterior mandibular region. Infiltration in these areas with anesthetic provides adequate anesthesia while allowing the



Clinical view of edentulous area #19



X-Ray of preoperative view of edentulous area

patient the ability to feel any encroachment on the mandibular nerve. Once anesthesia was administered, the site for the implant was begun with a #8 surgical bur in a high-speed handpiece through the soft tissue approximately a millimeter through the bone. The location was centered facial-lingually as well as mesial-distally. Since the tooth being replaced was a molar and there was sufficient bone width and height, a 5mm x 12mm OCO Biomedical TSI dental implant was selected.

A 1.8mm pilot drill was placed into the site and advanced to a depth of 14mm measuring from the tissue surface (Figure 3). This additional 2mm was the same depth of the tissue height to bone. In other words, 12mm for the osteotomy in bone and 2mm for tissue thickness was created to place a 12mm long implant. A parallel pin gauge was placed in the site of the osteotomy and

an X-ray taken to check the angulations of the pin between the adjacent teeth within the mandible (Figure 4). Using a rotary tissue punch, provided in the surgical kit, a 5mm outline was created over the initial osteotomy and the tissue plug removed with a curette. Since there was a thin band of attached gingiva, a countersink drill was used to countersink the implant collar. The final drill in the OCO Biomedical surgical drill is side cutting only and used to form the final osteotomy since the depth was set by the pilot drill. Intermediate drills are not required in this system which makes the drilling sequence easy to implement. Once the osteotomy was completed, the 5mm x 12mm threaded implant was placed in the osteotomy using an implant finger driver until increased torque was necessary (Figure 5). The ratchet wrench was then connected to the adapter and the implant torqued to final depth reaching a torque level of 65Ncm (Figure 6). A 5mm healing abutment, included with the implant, was hand-tightened to the

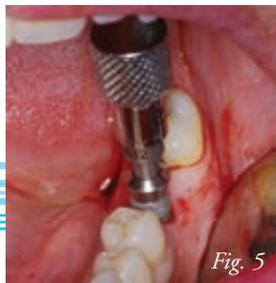


Pilot hole and tissue punch initiated



Paralleling pin for angulations

“12mm for the osteotomy in bone and 2mm for tissue thickness was created to place a 12mm long implant.”



Placement of implant



Clinical view of implant placed



Healing abutment on implant

continued on page 66



Abutment placed into implant

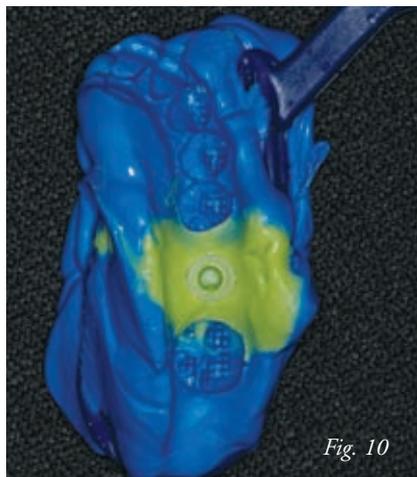


Trip placed on implant for impression

“The patient was very pleased with the end result and was surprised at how atraumatically the dental implant was placed through the gingiva.”

implant (Figure 7, page 65). A postoperative radiograph was made of the implant and the healing abutment. The implant was evaluated clinically after one week. The patient stated she had no postoperative discomfort or swelling.

When the patient returned four months later, the healing abutment was removed and the implant tested with reverse torque to ensure osteointegration. A solid stock abutment of 4mm height was tightened into the implant and then retightened to insure proper seating (Figure 8) and an X-ray was taken. An impression was taken of the implant and abutment using a Trip (Tissue Retraction Impression Pickup) from OCO Biomedical. The Trip was tried onto the TSI implant and abutment to check clearance for a triple tray impression (Figure 9). It was important to make sure the Trip displaced the gingiva and snapped over the collar of the implant to ensure proper seating. Since there was enough clearance and a tooth present on either side of the implant, a triple tray (Exacta Dental) was used with a heavy and light bodied polyvinyl siloxane impression material (Take-One Advance, Kerr) (Figure 10). Once the impression material was set, it was removed from the mouth, picking-up the Trip, and a 5.0mm marginal collar was snapped into the impression and sent to the lab for pour up. From this pour up, the marginal collar would reproduce the margin of the implant and the pour up would replicate the abutment. From this pour up the final PFM crown restoration was fabricated



Impression for crown restoration

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When the patient returned for the seating appointment the PFM crown was placed on the abutment with its margins on the implant and another X-ray was taken to verify an accurate fit (Figure 11, page 67). Since there were no open margins and the contacts and occlusion were good, the crown restoration was seated using Maxcem Elite (Kerr) cement. Once

the cement reached its gel stage, it was quickly cleaned off and any excess quickly and easily removed (Figure 12).

The patient was very pleased with the end result and was surprised at how atraumatically the dental implant was placed through the gingiva. In fact, she referred her husband and cousin to the practice.

Today, patients like to get all their services under one roof. They know, trust, and feel comfortable with their general dentist and usually prefer him/her to perform dental procedures necessary to reach optimum dental health. I am not advocating that general dentists offer procedures they are not comfortable with or not properly trained for. However, it is my opinion that general dentists should implement single posterior implants in their practices. Not only is rewarding psychologically and financially to the provider, but the patient benefits in the long run having another option for a posterior missing tooth. General dentists interested in offering implant treatment should pursue post-graduate implant training in placement and restoration if they want to meet the demands of today's society. ■

Sources

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Author's Bio

Ara Nazarian, DDS, is a graduate of the University of Detroit-Mercy School of Dentistry. Upon graduation, he completed an AEGD residency in San Diego, California, with the United States Navy. He is a recipient of the Excellence in Dentistry Scholarship and Award. Currently, he maintains a private practice in Troy, Michigan, with an emphasis on comprehensive and restorative care. His articles have been published in many of today's popular dental publications. Dr. Nazarian also serves as a clinical consultant for the Dental Advisor and Catapult, testing and reviewing new products on the market. He has conducted lectures and hands-on workshops on aesthetic materials and techniques throughout the United States. Dr. Nazarian is also the creator of the DemoDent patient education model system. He can be reached at 248-457-0500 or at www.demo--dent.com.



Fig. 11

X-Ray verifying seated crown



Fig. 12

Final crown restoration seated

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