

# Single Tooth Implant: Potential Pitfalls

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The single tooth implant is often promoted by dental implant companies as being “easy”, yet this is often far from the truth. The single tooth replacement often involves adjacent teeth, anterior esthetics, lost teeth with “history” and limited interocclusal space/ access. The novice or cavalier dentist may feel confident undertaking this responsibility following a couple of days at a manufacturer’s sponsored instruction course but can be rudely awakened by complica-

tions encountered during the surgical placement. If the surgeon is not comfortable dealing with possible complications the patient may endure additional unnecessary surgery and the practitioner’s reputation and confidence will suffer. This commentary will present some potential complications encountered during single tooth replacement with implants and their remedies.

The first situation is an ideal site with adequate width and

height of bone yet due to the posterior location, the surgeon must deal with limited access due to opposing dentition and limited opening. This can cause the dentist to incorrectly angulate the drill during the osteotomy preparation (Fig. 1). Radiographs can often prevent this situation from developing. In this instance the implant was removed and replaced with a wider diameter implant and the void was filled with grafting material (PepGen P-15 putty, Ceramed, Lakewood, CO) (Fig. 2). Primary



**FIGURE 1**—Distal positioned implant.



**FIGURE 2**—Correct angulation.



**FIGURE 3**—Fractured tooth.



**FIGURE 4**—Buccal fenestration.



**FIGURE 5**—Immediate implant placed.



**FIGURE 6**—Graft material.



**FIGURE 7**—Resorbable membrane.



**FIGURE 8**—Connective tissue graft.



**FIGURE 9**—Implant radiograph.



**FIGURE 10**—Infected tooth.



**FIGURE 11**—Tooth removed (note: apical fistula).



**FIGURE 12**—Fractured root.



**FIGURE 13**—Missing buccal plate.



**FIGURE 14**—Donor site.



**FIGURE 15**—Monocortical graft in place.

closure was obtained.

The second case deals with anterior immediate tooth replacement (Fig. 3). The tooth was removed and the extraction socket

was probed to ensure intact walls. A buccal wall perforation was detected at the apex therefore a full thickness flap was reflected (Fig. 4). This revealed a buccal fenestration at the apical position.

The adjacent bone was perforated. An appropriately tapered implant was inserted (Fig. 5) and the opening was covered with grafting material (Bio Oss, Geistlich Sohne AG, Wolhusen, Switzerland) (Fig.



**FIGURE 16**—Temporary tooth bonded.



**FIGURE 17**—Healed graft site.



**FIGURE 18**—Seamless union.



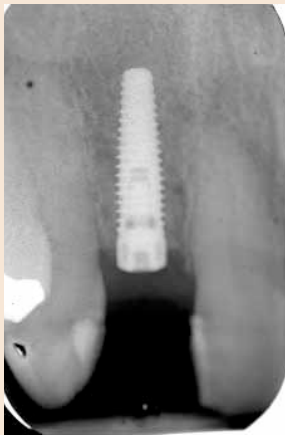
**FIGURE 19**—Osteotomy prepared.



**FIGURE 20**—Implant placed.



**FIGURE 21**—Primary closure.



**FIGURE 22**—Implant radiograph.

6) and a resorbable membrane (BioGuide, Geistlich Sohne AG, Wolhusen, Switzerland) (Fig. 7). The flap was closed, but due to the site lacking tissue at the extraction opening, a connective tissue graft was placed (Figs. 8 & 9) to establish primary closure.

Immediate implant placement was possible in this case because of the lack of infection, primary stability of the implant and careful case selection.

This next case deals with a maxillary lateral incisor with an extensive history. The tooth has

had root canal therapy, non-surgical retreatment, and apicoectomy (Fig. 10). The tooth still presents with a buccal fistula located at the apical region. This case is not suitable for immediate tooth replacement or immediate grafting following tooth removal due to active infection (Fig. 11). The tooth (Fig. 12) is first removed to eliminate the source of infection and allow soft tissue closure. Examination of the proposed graft/implant site may also be done at this time.

Following 6 weeks healing, the edentulous site is exposed, and degranulated in preparation for a monocortical block graft (Fig. 13). The area is perforated and the block is harvested from the symphysis (Fig. 14). The block is manipulated to fit the recipient site and fixed in place with a screw (Fig. 15). Primary coverage is established with periosteal releasing incisions and interrupted sutures. The patient's tooth is bonded (Fig. 16) back to the adjacent teeth without any pressure on the graft site. Following four months healing the site is now ready for implant placement (Fig. 17).

Full flap reflection reveals seamless integration of the graft and the screw (Fig. 18) is removed. The osteotomy is prepared (Fig. 19) and the implant is inserted (Fig. 20). Primary closure is obtained (Fig. 21) and the patient's tooth is rebonded (Fig. 22).

Implant dentistry is an exciting field to be involved with but should be approached with caution. One must be prepared for all potential pitfalls, which may arise. Having the clinical skills, instruments and materials ready to overcome any situation is essential to maintain a smooth running implant practice. There are no easy implant cases. **OH**

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