Correction of a vertical fracture and a subsequent infection

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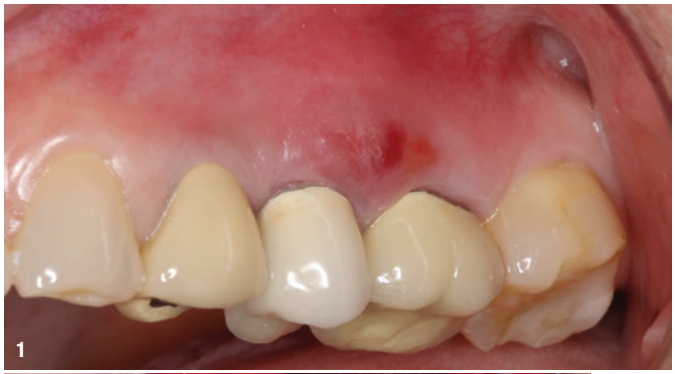

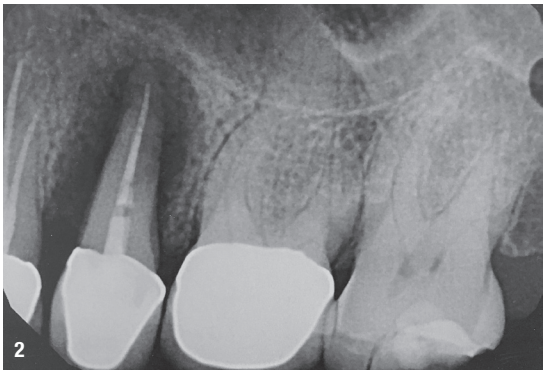

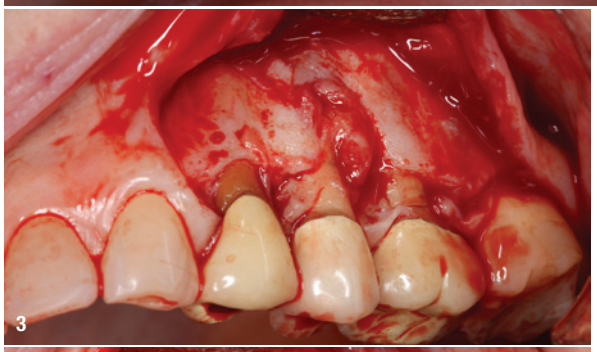

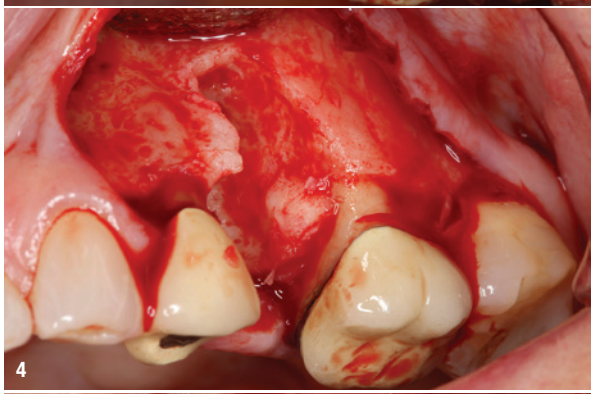

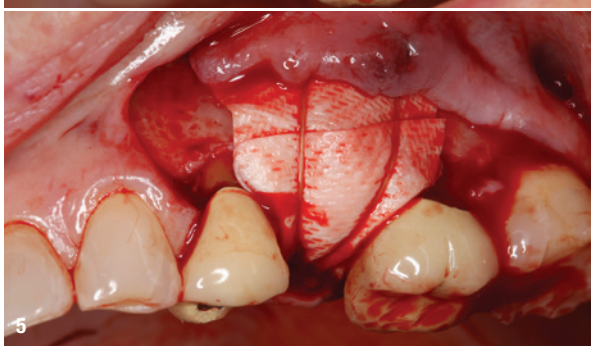

Fig. 1: Pre-op buccal view. **Fig. 2:** Pre-op radiograph. **Fig. 3:** Full-thickness flap reflection. **Fig. 4:** Extraction and degranulation. **Fig. 5:** Membrane stabilised with resorbable sutures over the allograft particulate bone graft.

A 46-year-old female patient with a non-contributory medical history presented for evaluation and treatment of swelling in her maxillary left quadrant. The intra-oral examination revealed moderate swelling and a buccal fistula 3 mm from the gingival margin of tooth #25 (Fig. 1). The radiograph revealed severe bone loss as a result of fracture and subsequent infection of tooth #25 (Fig. 2). Treatment planning included tooth extraction and subsequent tissue debridement. Tooth replacement with a dental implant was planned to be carried out once the site had regenerated.

Extraction and bone grafting

In a first surgical step, a full-thickness flap was reflected (Fig. 3). Once the infected tooth had been extracted, all granulomatous tissue was meticulously debrided from the defect (Fig. 4). The defect was then grafted with a freeze-dried bone allograft, and an OSSIX Plus membrane (Dentsply Sirona) was adapted to the buccal–occlusal–palatal line angle and secured with a resorbable suture (Fig. 5). At the follow-up two weeks after surgery, slight soft-tissue dehiscence at the incision line was noted (Fig. 6). There were no longer any signs of an infection. At four weeks postoperatively, the tissue over the graft–membrane complex had healed almost completely (Fig. 7). After four months, the patient had fully recovered (Fig. 8). At that point, a significant increase in the contours of the ridge in the area of the previous infection was notable.

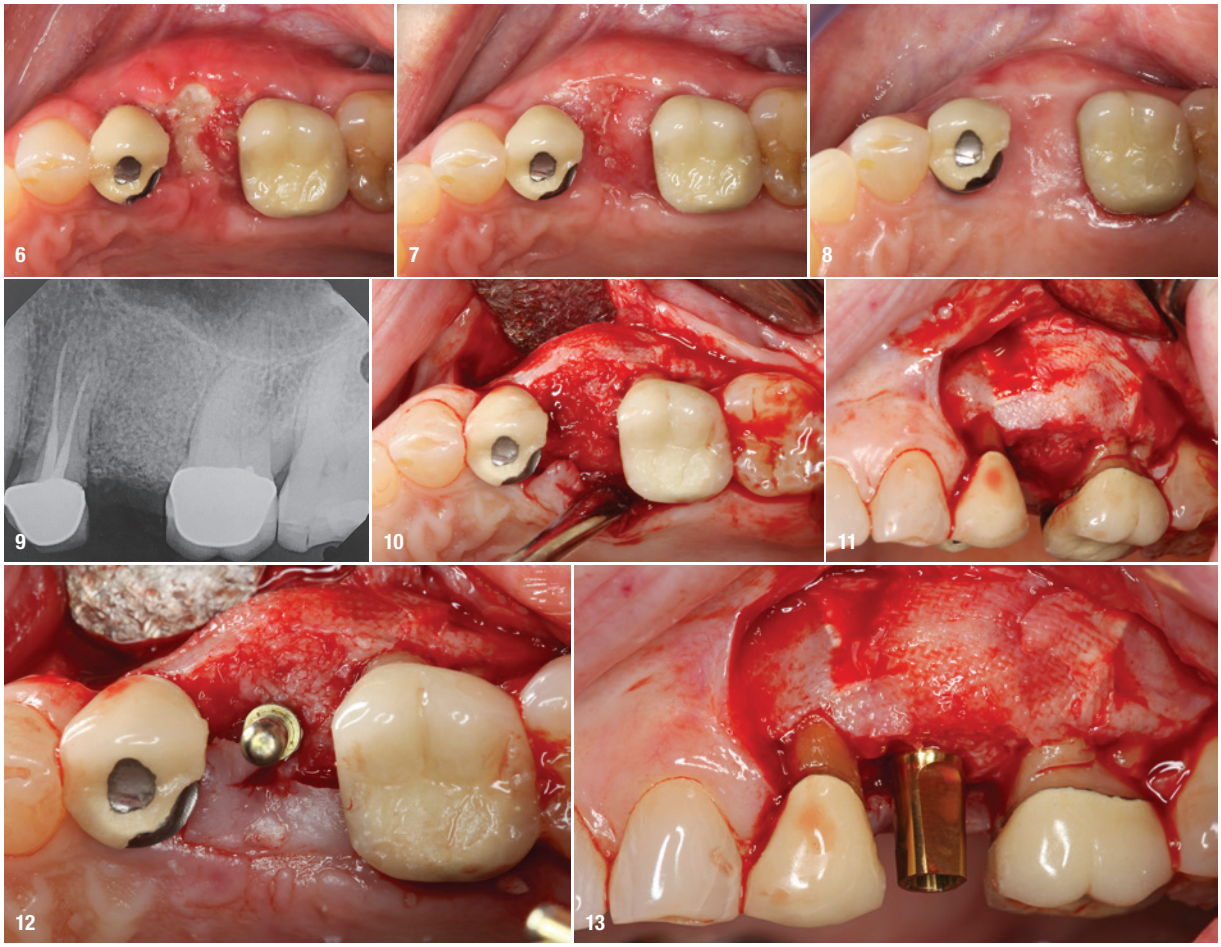

Fig. 6: Occlusal view of healing at two weeks post-op. **Fig. 7:** Occlusal view at four weeks post-op: almost complete healing over the graft–membrane complex. **Fig. 8:** Full recovery after four months. **Fig. 9:** Radiograph at four months post-op revealing complete defect filling and incorporation of the bone graft. **Fig. 10:** Occlusal view of the regenerated ridge at the time of implant placement. **Fig. 11:** Buccal view of the regenerated ridge at the time of implant placement. **Fig. 12:** Occlusal view after initial osteotomy preparation and placement of a guide pin. **Fig. 13:** Buccal view after implant placement.

A radiograph was taken which revealed complete defect filling and incorporation of the bone graft (Fig. 9). The vertical height of the alveolar ridge could be maintained despite the severity of the defect at the time of extraction.

Implant placement

Ahead of implant placement, six months after extraction, a flap was reflected (Fig. 10). At that point, the ridge had fully regenerated. Remnants of the OSSIX Plus membrane can be seen in Figure 11, protecting the healed ridge. The initial osteotomy was prepared and a guide pin was placed. At that point, a significant increase in ridge width beyond the confines of the alveolar housing was noted (Fig. 12). After implant insertion, imprinting of the herring bone pattern on the regenerated bone and re-establishment of the buccal–occlusal line angle could be seen (Fig. 13).

about the author

Dr Matthew J. Fien graduated from the Columbia University College of Dental Medicine in New York in the US in 2006. He received his specialty training in periodontics from Nova Southeastern University in Florida in the US and his diplomate status from the American Board of Periodontology in 2009. He has published articles in various dental journals and lectures throughout the US on bone grafting techniques and all aspects of implant dentistry. He is an active member of the American Academy of Periodontology and the Academy of Osseointegration and maintains a private practice in Fort Lauderdale in Florida.

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