

Socket preservation of a compromised extraction site

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Case description

The patient (m, 45) presented to my practice with severe periodontitis apparent from a deep periodontal pocket of 8mm with 3mm recession and pus visible through the mucosa on the buccal side with involvement of the furcations (**Fig. 1**). He was generally in good health. The recorded OPG shows the hopeless situation for tooth #26 (**Fig. 2**). The proposed treatment plan was careful extraction of #26 followed by simultaneous socket preservation in a flapless approach with staged implant placement into the regenerated socket and a fixed metal ceramic prosthesis at #26 as a final restorative solution. The aim of this patient-friendly treatment approach was to preserve the soft tissue conditions and to prevent bone resorption in the posterior area in order to avoid the need for any sinus augmentation procedure at the time of implant placement.

Surgical procedure

Treatment planning. Preoperatively, antibiotics (Augmentin 1g) and analgesics (Ibuprofen 600 mg) were given. The surgery was performed under local anesthesia. The tooth was extracted carefully; removal of granulation tissue was achieved by thorough curettage (**Fig. 3**). The buccal plate was partially absent and significant bone dehiscence could be identified. Before the bone grafting procedure, the epithelium around the border of the socket was eliminated by means of a 15c blade and the extraction socket was rinsed thoroughly with sterile saline solution. The defect was homogeneously filled with bone graft substitute material up to the mesial and distal bone margins (**Fig. 4**) and then moistened with sterile saline. Before membrane application, the excessive saline was removed by means of a sterile gauze. Straumann® MembraGel was



Fig. 1



Fig. 2

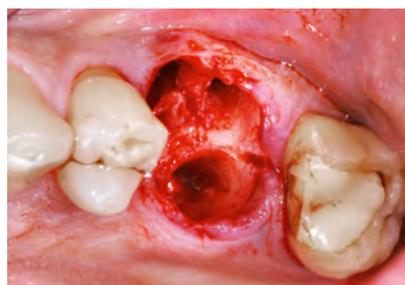


Fig. 3

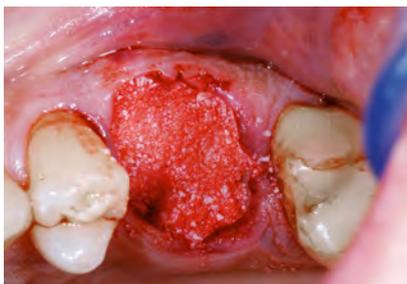


Fig. 4



Fig. 5



Fig. 6

applied to completely cover the bone substitute material in all dimensions. Care was taken not to overfill the socket and stay slightly underneath the crestal soft tissue margin to facilitate soft tissue granulation afterwards. After setting, Straumann® MembraGel was kept in place by placing a modified external criss-cross-suture (Vicryl, 5–0). Care was taken not to disrupt the membrane during the suturing procedure (Fig. 5).

Postoperative treatment. The patient was instructed to rinse three times daily with a 0.2% CHX solution (1 minute) for a period of 3 weeks. For post-surgical pain, analgesics were prescribed (Ibuprofen 600 mg, as needed). Furthermore, antibiotics were prescribed for the next 6 days (Augmentin 1 g in the evening immediately post-op, twice daily for the next 5 days). The patient was seen

after 10 days for suture removal (Fig. 6) and then weekly for the first month to monitor the healing process (Fig. 7). Complete wound closure was detected approx. 5–6 weeks post-op (Fig. 8). The overall healing process was uneventful. At the time of re-entry and implant placement 4.4 months after extraction socket treatment, the patient presented healthy gingival conditions (Fig. 9). After flap preparation, a nicely regenerated alveolar bone was found with sufficiently preserved volume (Fig. 10). Therefore, the implant (Straumann® Standard Plus Ø 4,8 WN) could be placed without any further augmentative procedure (Fig. 11). The bone quality present at the time of implant insertion allowed stable implant placement, as indicated by an Osstel value of 70 ISQ (Fig. 12). Therefore the abutment could already be placed 4 weeks later (Figs. 13, 14). The final restoration by means of a single fixed metal ceramic



Fig. 7



Fig. 8



Fig. 9

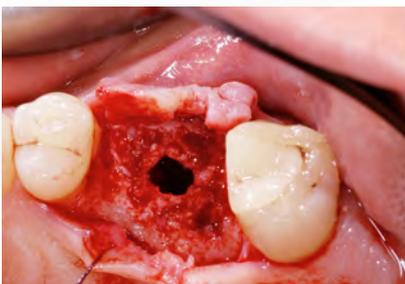


Fig. 10



Fig. 11



Fig. 12

prosthesis in area # 26 was installed 12 months after socket preservation surgery (Fig. 15). The clinical and radiological evaluation at this time revealed stable bone and soft tissue conditions with a fully restored emergence profile (Fig. 16).

Findings

Thanks to its liquid application, Straumann® MembraGel presents a user-friendly method to seal a grafted extraction socket in a flapless procedure. In the presented case, Straumann® MembraGel led to uneventful post-surgical soft tissue healing, while at the same time sufficiently protecting the bone graft. Therefore, at time of implant placement, the patient presented sufficiently preserved bone and soft tissue conditions, allowing implant placement without any need for additional soft or hard tissue augmentation procedures.

Osstell ISQ is a trademark of Osstell AB, Sweden.



Fig. 13



Fig. 14



Fig. 15

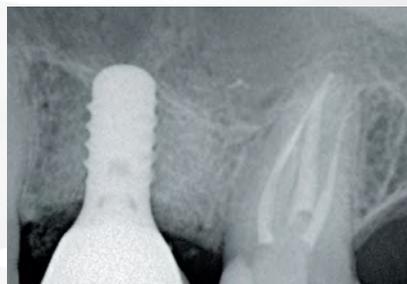


Fig. 16



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Lecturer in Periodontology at the University of Siena/Italy. Private practice limited to Periodontology and Implantology in Torino/Italy. Extensive research in the field of mucogingival surgery, bone regeneration, implant loading protocols and implants in periodontally compromised patients. Active member of the Italian Society of Periodontology and ITI Fellow.

My thanks goes to Francesco Cataldi for the fabrication of the crown.