OsteoGraf®/LD-300 as a Bony Fill Around an Implant

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A 47-year old female patient presented in my office. Her chief complaint was a non-restorable endodontically treated tooth. Clinically, the crown was loose and radiographs revealed root resorption of tooth #8. The evaluation confirmed the tooth was not restorable. The patient was offered the treatment plan of extracting the tooth and placing a single endosseous implant and crown restoration or extracting the tooth and restoring the area with conventional crown and bridge restoration. A fixed bridge would require using the adjacent abutment teeth, which were also treated endodontically. X-rays of these teeth revealed periapical changes occurring and this would compromise the longevity of a new bridge (Figure 1). She elected implant and crown restoration as opposed to a three-unit bridge. The patient was scheduled for surgical removal of tooth #8 and placement of the endosseous implant.

The root was elevated and the socket thoroughly curetted to remove any remaining soft tissue (Figure 2). The debrided socket was then irrigated with sterile saline and aspirated. Incisions were made across the interdental papillae and the flaps were raised to both the facial and palatal sides of the socket. This was done just enough to expose 1.5 mm of the socket rim, creating an unobstructed view for placement of the implant.

A 3.8 x 10 mm Steri-Oss HA coated implant (Steri-Oss,Yorba Linda, CA) was determined to be the ideal size for this case. The implant was placed so that the shoulder was approximately 0.5 mm below the mesial and distal socket crests. The facial crest was 1 mm below the shoulder and the palatal crest was 1 – 2 mm below the shoulder. This placement was done to optimize the esthetics of the final restoration (Figure 3).

With the implant in ideal position, it was obvious the native bone was not in intimate contact with the implant on all sides, especially the facial aspect. *OsteoGraf®/LD-300* (CeraMed Dental, Lakewood, CO), a synthetic resorbable hydroxylapatite, was used to fill in the voids of the socket, and the facial and palatal crests were augmented with the material to cover the exposed shoulder of the implant (Figure 4). The *OsteoGraf/LD-300* provides a bony fill around the implant and eliminates the risk of soft tissue invagination into the socket.

Once the graft material was packed into the socket and into any voids around the implant, a small piece of TefGen® (LifeCore BioMedical, Chasta, MN) non-resorbable membrane, was tucked under the flaps of the tissue and over the socket rim. Since it was not possible to obtain primary closure over the extraction socket, the TefGen membrane was used to contain the graft material and act as a barrier against epithelial downgrowth. The flaps were then sutured closed with 4-0 Vicryl® (Ethicon, Somerville, NJ) (Figure 5) and the patient dismissed with postoperative homecare instructions.

In approximately four months, the graft will have resorbed and been replaced by bone and the endosseous implant integrated with the surrounding bone. At that time, the implant will be uncovered and restored.

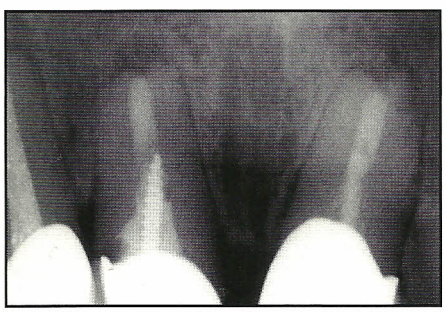

Figure 1. *Preoperative x-ray.*

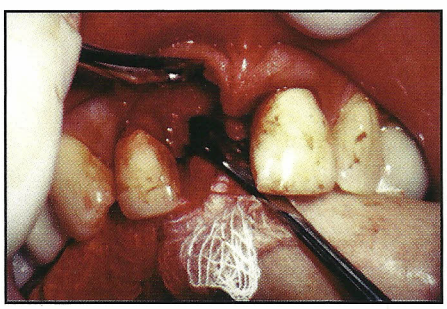

Figure 2. *Fresh extraction socket.*

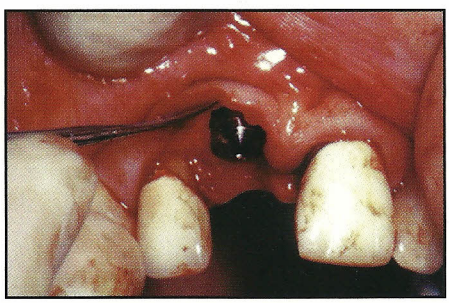

Figure 3. *Optimal esthetic placement.*

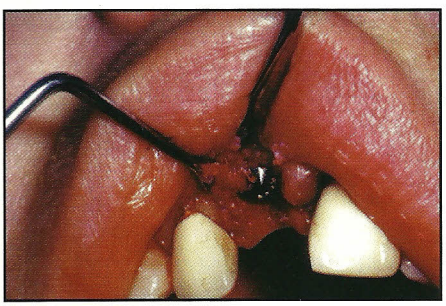

Figure 4. *OsteoGraf/LD.*

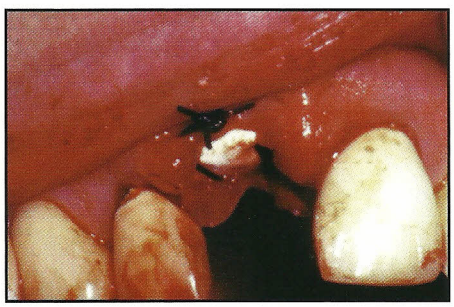

Figure 5. *Suture closure.*

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Grafting Fresh Extraction Sites with OsteoGraf®/LD-300

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Although each patient is different and each treatment plan is different the one thing all extraction sites have in common is that there will be loss of bone volume and dimension if the socket is not grafted. Ridge preservation is of utmost importance to me and I emphasize its importance to my patients.

A 60-year old female patient presented in my office with periapical and periodontal abscesses of the lower left first molar. Oral examination revealed a buccal fistula over the mesial root. A periapical radiograph confirmed lesions around both the mesial root and the distal root apex. The tooth had been previously treated endodontically.

It was explained to the patient that because of the extensiveness of the lesion, extraction of the involved tooth and implant crown replacement were advised. It was strongly recommended that the fresh extraction site be grafted with a resorbable, synthetic hydroxylapatite to preserve and maintain the ridge. The patient understood and agreed to the treatment plan.

Tooth #19 was elevated and both buccal and lingual flaps were raised to expose the socket (Figure 1). Fistulous tract and granulation tissues were enucleated from the socket walls revealing a large buccal wall defect over the entire length on the mesio-buccal root (Figure 2). The socket was thoroughly curretted and profusely irrigated with sterile saline solution.

Prior to placing the graft material, OsteoGraf ®/LD-300, resorbable synthetic hydroxylapatite, (CeraMed Dental, Lakewood, CO), a small piece of TefGen ® (LifeCore BioMedical, Chaska, MN), was cut and fitted to cover the socket opening (Figure 3). The purpose of the TefGen was to exclude the oral environment and contain the graft material. OsteoGraf/LD-300 was hydrated with sterile saline solution and packed firmly but not tightly into the socket (Figure 4), allowing for vascularity into the graft. The previously modified piece of TefGen was then placed over the grafted area and tucked under the edges of the buccal and lingual flaps. To assist in containment of the material and to avoid dislodgment of the TefGen, the flaps were sutured together with Vicryl (Ethicon, Somerville, NJ) suture (Figure 5). The TefGen will be removed in 3 weeks and the gingival tissue will eventually granulate over the graft. No attempt was made to achieve primary closure.

In approximately 6 months, the patient will return for placement of the endosseous implant. At that time, I anticipate the tissue to be stable and no evidence of ridge discrepancy. By grafting the socket at the time of extraction, the implant can be placed accurately with an ideal angle so as not to compromise the esthetics of the restoration.

In my experience, grafting fresh extraction sites has been very successful and proven to eliminate the prosthetic problems and compromised esthetics of final restorations.

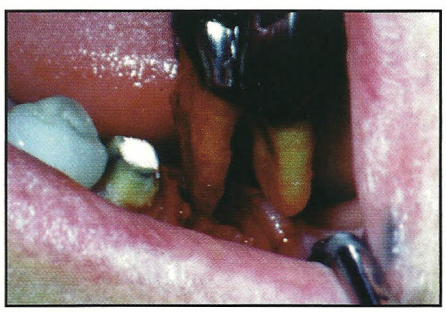

Figure 1. *Extraction of tooth #19.*

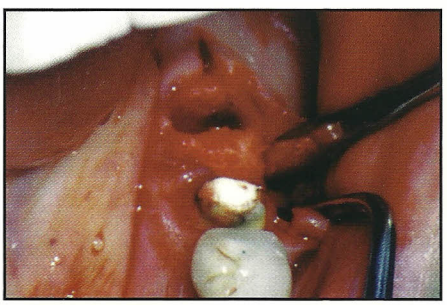

Figure 2. *Large buccal wall defect.*

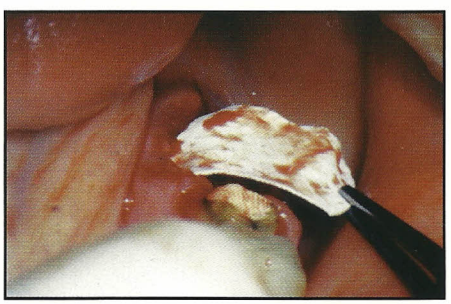

Figure 3. *TefGen ® cut and fitted over the socket opening.*

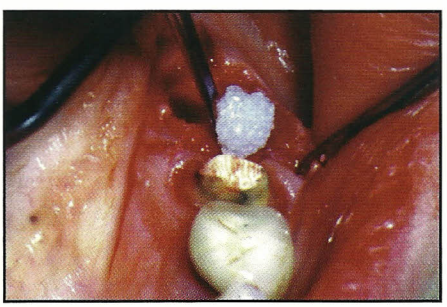

Figure 4. *OsteoGraf ®/LD-300 hydrated with sterile saline solution.*

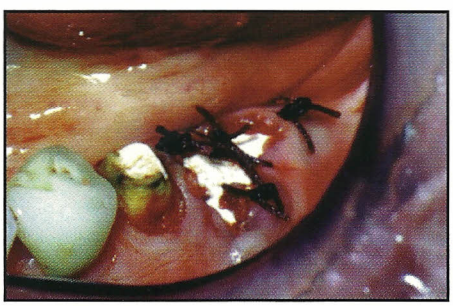

Figure 5. *Closure over the grafted socket.*