OSTEOGENICS
CLINICAL EDUCATION

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Guided Bone Regeneration Using a High-density Titanium-reinforced PTFE Membrane

Fig 1

Fig 2

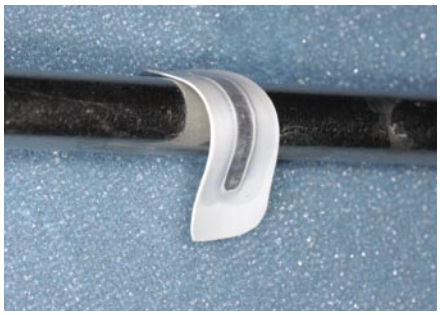

Fig 3a

Fig 3b

Fig 4

Fig 5

Fig 6

Fig 7

A 55 year-old female presented for implant placement in a recent extraction site. Surgical exposure revealed fibrous healing at the buccal and coronal aspect of the site, requiring augmentation simultaneous with implant placement (Fig 1 and Fig 2) to regenerate the buccal bone contour.

A high-density, titanium-reinforced PTFE membrane in a single-tooth configuration (Cytoplast® Ti-250 Anterior Narrow) was trimmed to fit over the defect and then curved over an instrument handle to provide three-dimensional support and stability (Fig 3a and Fig 3b).

Mineralized bone allograft was placed into the defect (Fig 4) and covered with the membrane. The membrane is trimmed to remain 1.0 mm away from the roots of the adjacent teeth, and to extend 3 to 5 mm beyond the defect margins (Fig 5).

Primary closure was achieved using a 3-0 PTFE suture (Cytoplast® PTFE Suture; CS0518) (Fig 6). After four months of uneventful healing, the soft tissue covering the membrane appears healthy prior to implant exposure and abutment placement (Fig 7).

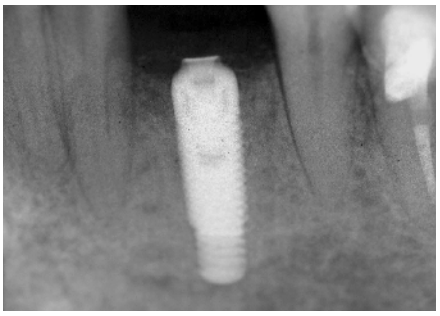

Fig 8

Fig 9

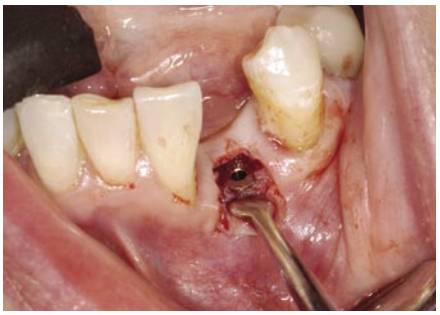

Fig 10

Fig 11

Fig 12

Fig 13

Four months after implant placement, the PTFE barrier remains covered with mucosa and regeneration of hard tissue is evident radiographically (Fig 8). Exposure of the barrier is accomplished using a u-shaped incision with apical advancement of the keratinized gingiva (Fig 9). The high-density PTFE membrane is easily removed through a conservative incision due to limited soft tissue ingrowth into the barrier (Fig 10).

Clinically, restoration of the full width of keratinized gingiva was observed at the time of abutment placement (Fig 11). Three months after implant placement, the restorative components were placed and the implant was restored with a porcelain fused to metal restoration (Fig 12 and Fig 13).

Summary

This case report demonstrates the successful augmentation of a localized defect involving the entire buccal plate of a recent extraction site. The use of a titanium-reinforced, high-density PTFE membrane provides predictable space-making and regenerative function without the risks associated with highly porous, expanded PTFE devices such as Gore-Tex®.

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