**APPLICATIONS**

- Manages surgical bleeding
- Seals sinus perforation
- Reduces dry socket formation

*BenaCel® Dental Dressing* is made of biocompatible oxidized cellulose and contains no chemical additives. When placed in the extraction socket, *BenaCel® Dental Dressing* forms a gelatinous scaffold in the blood extrudate, facilitating the development of a stable blood clot to stop bleeding and prevent dry socket formation. *BenaCel® Dental Dressing* adheres to moist oral mucosa and forms a barrier, protecting the wound from further irritation and pain. The material dissolves in a few days and is safe if swallowed.

*BenaCel®* may also be used as a wound dressing for the temporary management of oral surgical wounds, such as operative, postoperative, donor sites, and traumatic injuries. Made of plant-based material, *BenaCel®* is non-allergenic and non-immunogenic. Several sizes are available for various wound configurations.

**AVAILABLE SIZES**

- 5 x 7mm plugs - for anterior conical extraction sites
- 6 x 8mm plugs - for posterior conical extraction sites and sinus perforations
- 15 x 15mm sheets - for mandibular molars and buccal roots of maxillary molars
- 50 x 50mm sheets - for surgical wounds, such as operative, postoperative, donor sites, and traumatic injuries
With BenaCel® dental dressing, management of post-extraction wound healing becomes as easy as 1, 2, and 3. (1) After extraction, remove granulation tissue, (2) pack 1 or 2 pieces of BenaCel® dental dressing into the wound, and then (3) have the patient bite down on a sterile gauze pack until bleeding stops. The gelatinous material helps to form a stable blood clot, preventing dry socket formation. BenaCel® dissolves within days and is safe if swallowed.

**CLINICALLY PROVEN RESULTS**

- Maxilla 2nd Molar
- Mandibular 3rd Molar
- Maxilla Central Incisors
Cytoflex® Tef-Guard® non-resorbable barrier membrane is made of micro porous ePTFE material. The micro porosity of Cytoflex® Tef-Guard® is designed to resist the penetration of fibroblasts and bacteria, while simultaneously allowing the exchange of interstitial fluids through the membrane. The unique micro porous design enhances the gingival tissue attachment and provides a favorable protected environment for neo-vascularization and repopulation of osteoblasts in the bony defects. The flexible material easily conforms to the bony defects of grafted sites, and can be easily retrieved as one piece after completion of bone growth. The bacteria-impenetrable membrane protects the tissue regeneration site despite flap recession or if primary closure is not obtained.

**Advantages of Micro-Pore Design**

- Better host tissue attachment with fewer flap dehiscence
- Micro and optionally macro texture on both surfaces
- Easily tagged with bone screws or pins
- Excellent handling and ease of use
Cytoflex® Tef-Guard® - Clinical Case Review

MINIMALLY INVASIVE IMPLANT SITE GRAFTING TECHNIQUE  Jenchun Chen DDS

This is a 38 year-old female who presented a crown-root fracture of the mandibular first molar and a thin gingival biotype. An immediate implant placement following tooth extraction was planned. A flapless, minimally invasive extraction and implant placement combined with guided tissue regeneration was employed to minimize soft and hard tissue recession.

The tooth root was extracted with an intrasucular incision and a periosteal elevator. The extraction socket was curetted to remove all soft tissue remnants. After an implant was placed into the extraction site, the gap between the implant and the socket wall was filled with bone graft particles (Figures 1 & 2).

A Tef-Guard® ePTFE membrane was trimmed to extend 3 mm beyond the socket walls and then tucked subperiosteally under the lingual flap, the buccal flap and underneath the interdental papilla using a curette. The membrane was allowed to rest passively over the socket (Figure 3), and was stabilized with a criss-cross absorbable PGA monofilament suture without primary closure (Figure 4).

After one-week post operation, the graft site was uneventful, and the suture was removed (Figure 5). At three-week post-operation, the soft tissue overlying the exposed membrane demonstrated healing without signs of inflammation. An inadvertent fold in the membrane (introduced during membrane placement) was found at the distal buccal corner (Figure 6).

The decision was made to remove the membrane early to prevent potential complications as a result of the folding of the membrane. After applying topical anesthetic, the membrane was easily removed by grasping with a tissue forcep. A dense, vascular connective tissue matrix was found underlying the membrane in the extraction socket upon membrane removal. Figure 7 shows the site at one week after membrane removal.

Following membrane removal, keratinized gingiva formed over the grafted socket. At six-week post-operation, the soft tissue was stable with preserved interproximal papillae and natural mucogingival architecture (Figure 8). This case demonstrates the effective use of a less invasive grafting technique using a micro porous ePTFE barrier.
TRIPLE-LAYERED MEMBRANE

- Easily adaptable
- Up to 4-month barrier function
- No pre-soaking required
- Non-pyrogenic, non-immunogenic

Micro-porous Cytoflex® Resorb membranes consist of three integral layers. The embossed gingival interface layer is designed to promote gingival tissue attachment. The middle layer is constructed of long lasting fabric filament to prevent fibroblast down growth. The defect interface layer is made to enhance adherence to the surrounding defect surface and to prevent fibroblasts from reaching the wound. All three layers are structurally integrated, resulting in a flexible membrane with superb handling properties and high nutrient permeability. Made of biocompatible poly (lactide-co-glycolide) copolymers, Cytoflex® Resorb membrane is non-pyrogenic, non-immunogenic and maintains a barrier framework for up to 4 months after implantation. The resorbable membrane does not require pre-soaking before administration, and completely dissolves within 6 months.

Adapts Easily To Tissue Contour

High Nutrient Permeability
EVALUATION OF REGENERATION CAPACITY

The safety and performance of Cytoflex® Resorb barriers were evaluated in a beagle dog model. Bilateral infrabony defects were surgically created at the distal aspects of both mandibles in eight beagle dogs. A Cytoflex® Resorb membrane was trimmed to cover each defect in accordance with GTR procedures without pre-soaking. Post-operation, wound healing was calm and uneventful. Two animals were sacrificed at 4, 8, 16 and 24 weeks, respectively, to assess regeneration progress. Histological analysis demonstrates that Cytoflex® Resorb membranes are effective at regenerating new cementum, periodontal ligament and alveolar bone tissue in the protected infrabony defect. Over time, the regenerated tissues remodeled and organized into matured tissue. The barrier frame remains largely intact up to 16 weeks and is completely resorbed at 24 weeks after implantation.

Fig 1. Micrograph (100X) of a defect area at 4 weeks. Osteoid tissue (O), blood vessels and periodontal ligament cells originated from the alveolar crest. Barrier frame (M) remained intact in its integrity. (R) denotes the apical reference point of the defect.

Fig 2. Micrograph (40X) of a defect area at 8 weeks. New bone (NB), new cementum (NC), and periodontal ligament tissue grew toward the coronal end of the defect. The barrier (M) exhibited superficial resorption, but maintained its structural integrity.

Fig 3. Micrograph (40X) of a defect area at 16 weeks. Harversian structure emerged. More new bone, cementum and periodontal ligament tissues regenerated and remodeled. The barrier frame remained but continuous structure was partially lost.

Fig 4. Micrograph (40X) of a defect area at 24 weeks. New cementum, periodontal ligament and regenerated bone with Harversian structure matured and became organized. The barrier frame was almost completely resorbed.
ADVANTAGES

- Bioactive and anti-bacterial
- Completely Resorbable
- Quickly stabilize the wound site
- Radio opaque
- Non-allergic & non-immunogenic

Unigraft® is made of fused oxides of calcium, phosphorus, silicon and sodium. Unigraft® granules have a significantly higher density than blood and will sink and stabilize the wound site after administration. Upon implantation, the material begins to dissolve by releasing a steady stream of Na, Ca and P ions, along with soluble silica into the bony defect. This increased concentration of local bone mineral ions has been demonstrated to enhance bone regeneration and exhibit an anti-bacterial effect. Unigraft® is radio opaque, its presence in the bony defect and replacement by new osseous tissue is discernible by radiography. The bioactive, non-immunogenic and anti-bacterial bone graft is particularly suitable for those that prefer non-tissue based graft and/or those with poor hygienic compliance.

INDICATIONS

- Filling of extraction sockets
- Augmentation of the alveolar ridge
- Elevation of maxillary sinus floor
- Apicoectomy and cystectomy
- Periodontal bone regeneration
- Filling of cranial and maxillofacial osseous cavities

Available in 0.4 - gram & 1.0 - gram doses
Sterile and individually packaged
Effective Grafting Of Advanced Periodontal Defects

Advanced periodontitis with a two-wall defect or less represents a challenging condition for bone grafting treatment because of the extensive loss of attachment around the periodontal defect. The results of the following two cases: a 7 mm, two-wall defect of a maxillary incisor, and a deep 11 mm, two-wall defect of a mandibular first molar, demonstrate the effectiveness of Unigraft® to repair severe periodontal decay. In each case, the defect was grafted with Unigraft® after debridement and removal of the granulation tissue. Wound healing was calm and uneventful. Over time, the radio-opaque Unigraft® was replaced with newly formed bone, resulting in a stable tooth with an aesthetically pleasing outcome.

Figure 1. A 7 mm, two-wall defect of a maxillary central incisor. Stability and aesthetics are patient’s primary concerns.

Figure 2. Defect was filled with Unigraft® moistened with the patient’s blood.

Figure 3. Primary closure with 4-0 interrupted ePTFE sutures. Wound healing was calm and uneventful.

Figure 4. 3-month post-operative view shows well healed soft tissue and minimal recession.

Figure 5. An 11 mm, two-wall defect of a mandibular first molar (pre-surgical radiograph) was filled with Unigraft® granules after debridement.

Figure 6. 12-month post-operative radiograph demonstrates a trabecula pattern emerging from the base of the defect.

Publications of Unigraft® Clinical Applications

- Intentional replantation of a hopeless tooth with the combination of platelet rich plasma, bioactive glass graft material, and non-resorbable membrane: a case report, Dental Traumatology 23(3), 190-194 (2007)
- Clinical Application of Unigraft® In the Treatment of Human Periodontal Defects, Unicare Biomedical Research Report January, 2001