Surgical Procedure in Guided Tissue Regeneration with the Inion GTR Biodegradable Membrane System
Introduction

- This presentation familiarizes you with the basic steps how to use the Inion GTR membrane in guided tissue regeneration procedures.

- Helps you assist your customers in using the membrane in the correct manner.
Periodontal Defect Regeneration

In a guided tissue regeneration procedure to treat periodontal defects, a membrane is placed between the defect and the mucoperosteal flap to prevent the gingival cells from migrating into the defect space. The bony defect is given the opportunity to build new periodontal tissue, cementum and bone. Prior to membrane placement the defect is scaled mechanically from bacterial contamination to avoid interference with the healing process and re-occurrence of the disease. In some cases the defect is additionally filled with bone or bone substitute material to facilitate bone regeneration. Then the mucoperosteal flap is repositioned to close the wound.

The traditional technique to treat such a lesion is called "open flap debridement" and means the thorough cleaning of the exposed defect with subsequent closure.
Patient Selection

- Patients have to be selected carefully and prepared for surgery
- The general health condition of the patient needs to be considered (physical examination)
- Tobacco, alcohol or drug cessation, where appropriate
- Patients taking prescription medication, patients with labile diabetes or patients with steroid treatment may have reduced probability of treatment success (to name some examples)
- Patient compliance should be guaranteed
Defect Selection

- Defects can be class I and II furcation involvements and different types of vertical bone defects
- Multiple defect treatment per quarter is possible
- Soft tissue dimensions allowing for defect closure over the membrane
- Some remaining periodontium to initiate the regeneration process
- Defect morphology which allows to create and maintain a space
Presurgical Treatment

- Prior to surgery instruction to proper oral hygiene should be given
- Measurement of attachment level and pocket depth
- Radiographs are taken to presurgically to evaluate the defect type and size
- Additional observations (excessive plaque, tooth mobility and gingival bleeding) to be recorded.
- Local anesthesia shall be given
- Systemic antibiotic treatment is at the discretion of the physician
Measuring Pocket Depth

- By probing with a periodontal probe
- Pocket depth: from the gingival margin to the base of the pocket
- 4 aspects to be probed: mesio-buccal or -labial, distal-palatinal or -lingual
- Measurements in mm (rounded)
Membrane Preparation

The membrane should be prepared before defect exposure, allowing for membrane curing prior to implantation.

1) Take the membrane package out of the box

2) Peel the membrane blister open and remove the template from the membrane cavity

3) Open the bottle and POUR all of the solution into the cavity with the membrane. Remove excess plasticizer. Let it SOAK for 20 seconds and place it in cavity B for curing

4) Let the membrane CURE for 5-10 minutes in cavity B and then FLUSH it shortly with sterile water
Defect Exposure

- Incision 1 tooth proximal and 1 tooth distal from the defect (picture 1)
- Full thickness flap elevation of the gums after incision (picture 2)
- Lifting, or flapping, the gums away from the tooth and surrounding bone
- Denudation of the bone adjacent to the defect

Picture 1: Incision  
Picture 2: Flap elevation
Defect Evaluation

- Additional probing of the pocket depth at the exposed defect
- Evaluation of the defect morphology to see whether GTR treatment is possible and what shape of membrane is needed

Probing after defect exposure
Root Scaling & Planing

- Cleaning the diseased root surfaces
- Scaling is the removal of plaque external stain from teeth.
- Root planing is the removal of calculus, periodontal pathogens and their toxins from the root surface resulting in clean root surface so that re-attachment of supporting tissue can occur
**Membrane Trimming**

- The membrane is trimmed to fit the defect by means of surgical scissors (picture 1).
- The sterile templates can be used to facilitate the trimming (picture 2 and 3).
- Put on top of the membrane while cutting and discard templates right after trimming.
- The edges of the membrane should be rounded to eliminate the risk of puncturing soft tissue.
- About 3-4mm overlap distal, mesial and apical of the defect (see Nyman et al 1982) to ensure good closure.
- Coronally, the membrane should be closed tightly against the tooth surface.
- Insert the membrane to see whether it is shaped correctly.

*Picture 1: Trimming the membrane with scissors*
*Picture 2: Template & membrane*
*Picture 3: Templates*
*Picture 4: Adapting the membrane*
Membrane Immobilization

- Can be done with resorbable tacks provided
- Position the membrane over the defect
- Drill through the membrane into the bone with the drill provided
- Apical fixation is usually not needed as the membrane can be inserted between the flap and the bone
- Pick up the tack with the tack applicator provided
- Insert the tack into the predrilled hole, press firmly and release the applicator by angling it
- Membrane can also be sutured in place with a degradable suture and a non-cutting needle
Membrane Immobilization, cont.

Picture 1: Membrane is sutured in place with a tight closure around the tooth

Picture 2: The membrane after immobilization
Wound Closure

- Complete closure of the wound
- No membrane parts may be exposed, where needed, releasing incisions are possible to have improved mobility of the flaps for closure over the membrane
- Same as with open flap debridement technique
- Preferably resorbable sutures such as Vicryl

Picture 1: Suturing the membrane around the tooth

Picture 2: closed defect
Post-Surgical Procedure

- Usually no brushing for 6 weeks
- Flushing with disinfectant to be advised by the physician
- Follow up visit commonly after 6 weeks and 12 weeks