

**Technical Tips to Increase Predictability  
When Using GORE Regenerative Membranes  
in Intrabony Defects**

**Keys to Successful Guided Tissue Regeneration Procedures**

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### Select appropriate patient<sup>1-4</sup>

- Establish compliance (oral hygiene, appointments, follow-up).
- Healthy patients. Control diabetes.
- Smoking or light smokers (less than 10 cigarettes per day).
- Smokers should quit smoking 6 weeks prior to surgery and 6 weeks post-op.
- Ensure patient has achieved periodontal health prior to surgery.
- Residual full mouth plaque and bleeding scores > 20%.
- Perform non-regenerative periodontal surgery, when indicated, before GTR.

### Local factors that will have an impact on outcomes<sup>1-7</sup>

- Control fremitus.
- Control hypermobility. Teeth with degree 2 or 3 hypermobility require splinting.
- Ensure presence of attached gingiva (at least 3 mm). Apply a free gingival graft 3 months prior to GTR in sites with poor mucogingival condition.
- Check teeth vitality.
- Ensure appropriate root canal treatment to non-vital teeth.
- Avoid teeth with severe root surface anomalies, like deep concavities.

### Defects with no or very limited potential of success<sup>8,9</sup>

- Horizontal bone loss
- Class III Furcations
- Class II Furcations, upper molars
- Craters

### Defects with potential of success<sup>8,9</sup>

- 3 wall, 2 wall, 1 wall or combination intrabony defects (*see case 1 and 2*)
- Class II furcations, lower molars

### Favorable defect-associated characteristics: intrabony<sup>1-7</sup>

- Deep pockets (limited gingival recession)
- Deep defects
- Narrow radiographic angle (> 25°)

### Pre-surgical management<sup>9</sup>

- Check oral hygiene prior to GTR procedure
- Chlorhexidine oral rinsing before surgery
- Avoid local infiltration with high percentage of vasoconstrictors
- Avoid infiltration in the defect-associated keratinized tissue

### Flap design<sup>9,10</sup>

- Use surgical instruments which allow delicate tissue handling. Microsurgical instruments are strongly suggested.
- Use magnification glasses and/or operating microscope as needed. An operating microscope could be of great help.
- Flap design with sulcular incisions.
- Extend incisions at least one tooth mesial and one tooth distal from the defect.
- Use a papilla preservation technique at defect(s) site(s).
- Modified papilla preservation technique in interdental spaces < 2 mm, or interdental tissue maintenance (at upper premolars) (*see case 3*).
- Simplified papilla preservation flap (*see case 4*).
- Perform a Crestal incision when the defect is associated with an edentulous ridge.
- Elevate full thickness flaps.
- Expose 3-5 mm of bone crest all around the defect.
- Keep flaps moist.
- Use of vertical incision(s) to the mucogingival line to gain access to defect, when needed.
- Do not release flap from underlying periosteum, in this phase.

### Defect debridement<sup>9</sup>

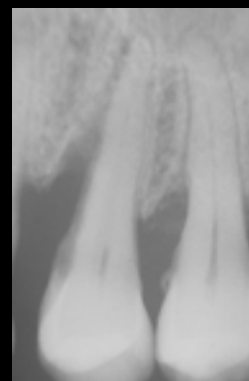
- Remove all the soft tissue from the defect.
- Carefully clean the root surface with hand and power-driven instruments.
- Do not apply any chemicals to the root surface.
- Rinse the defect with saline.

Case 1



Case 1 – Wide radiographic angle in a wide 2-3 wall intrabony defect

Case 2



Case 2 – Narrow radiographic angle in a narrow 1-3 wall intrabony defect

### Selection of the membrane <sup>11</sup>

- Wide, non supportive defects (1 and 2 wall): self supporting non-resorbable barriers, or bio-resorbable barriers supported with a filler.
- Narrow, supportive defects (2 and 3 wall): bio-resorbable barriers.
- Select the most appropriate commercial shape.

### Manipulation and trimming of the membrane <sup>12-15</sup>

- Exchange sterile gloves, and use powder-free gloves.
- Minimize handling; use template if provided.
- Do not remove the collar portion as it can contribute to easier adaptation and tissue integration (specific to non-resorbable membranes only).
- Trim membrane to ensure it lies passively with the ridge and covers the defect completely.
- The membrane should extend at least 3 mm beyond the defect.
- When placed against the root surface, ensure the membrane is adapted securely against the root surface.
- Ensure there are no sharp edges to the membrane by cutting into the material and overlapping edges.

### Membrane stabilization <sup>9-15</sup>

- Stabilize the membrane with sling sutures around the defect-associated teeth.
- Use resorbable sutures with bio-resorbable membranes.
- Stability is greatly improved by membrane extension.

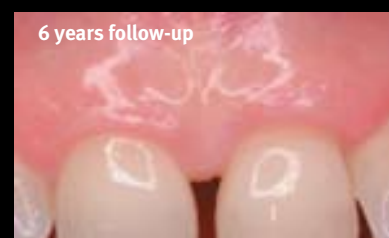
### Primary closure of the flap, without tension <sup>9-11,16-19</sup>

- Allow appropriate coronal positioning of the flap to close the interdental papilla on the barrier without any tension.
- Release the buccal flap from underlying periosteum.
- Extend vertical releasing incision(s), when present, beyond the mucogingival junction.
- Draw vertical releasing incision(s) if not present, at this time when needed.
- Try passive closure of the interdental papilla, before placing any suture.
- Use a bi-layered suturing technique. Use horizontal internal mattress sutures to coronally displace the buccal flap and alleviate residual tension.
- Horizontal crossed internal mattress suture with self-supporting or supported membranes.
- Offset internal mattress suture with non-supported bio-resorbable membranes.
- GORE-TEX® Suture CV-6 is appropriate when using the horizontal mattress suture technique.
- Close the interdental space with:
  - Vertical internal mattress sutures when the papilla is thick
  - Simple interrupted suture technique when the papilla is thin
  - GORE-TEX® Suture CV-7 is appropriate to close the interdental papilla

### Post-op protocol <sup>5,20</sup>

- Do not apply any periodontal pack.
- Instruct patient to start chlorhexidine (0.12% CHX) rinse after surgery 3 times/day (after meals).
- Maintain CHX rinsing protocol until normal mechanical oral hygiene is resumed.
- Prescribe pain-killers and systemic antibiotics, if deemed necessary.
- Instruct patient to avoid brushing and mechanical interdental cleaning in the surgical area.
- Instruct patient to avoid chewing in the treated area.
- Remove sutures after 1 week.
- Recall the patient regularly for the first 6 weeks (1/week or biweekly).
- At recalls, perform full mouth prophylaxis with a rubber cup and CHX gel.
- At week 2, instruct the patient to carefully brush with a soft toothbrush if no complication(s) are visible.
- Bio-resorbable membranes, uneventful or normal healing: instruct patient to resume normal tooth brushing and interdental cleaning at week 6, to interrupt CHX rinsing, and to gradually resume chewing in the treated area.
- Non-resorbable membranes, no complications: instruct patient to resume normal tooth brushing and interdental cleaning at 3 weeks after membrane removal, to interrupt CHX rinsing, and to gradually resume chewing in the treated area.

### Case 3



Case 3 – Wide interproximal space, accessed with a modified papilla preservation technique. The defect is a non-supportive 1 wall defect. The membrane of choice is a titanium reinforced ePTFE barrier.

## How to manage complications 5,20-24

- For exposure without infection, a cotton swab with CHX may be used to cleanse the membrane.
- For exposure with infection, an antibiotic of choice is administered to the patient. A cotton swab with CHX may be used to cleanse the membrane.
- Instruct the patient to avoid any direct brushing on soft tissues.
- Increase CHX rinsing protocol.
- Recall the patient every week.
- For non-resorbable membranes, early removal is advised when the exposure continues to extend (get larger) over a week, persisting severe inflammation is visible, drainage or flap sloughing is visible.
- For resorbable membranes: wait for membrane resorption; if an exposure occurs, the exposure should be managed and nursed along.

## Membrane removal (non-resorbable only) 12,13,17,25

- Ideally remove the membrane at week 6.
- Avoid local infiltration with high percentage of vasoconstrictors.
- Perform intrasulcular incisions and papilla preservation flaps to expose the membrane.
- Frequently irrigate the gingival flap with saline.
- Remove the membrane carefully, with an apico-coronal traction.
- Rinse the area.
- Do not instrument the regenerated tissue.
- Close the flap to completely cover the regenerated tissue.
- Apply interrupted sutures (GORE-TEX® Suture CV-6 or CV-7 are appropriate).
- If a flap dehiscence does not allow coverage of the regenerated tissue, place a “saddle-shaped” free gingival graft.

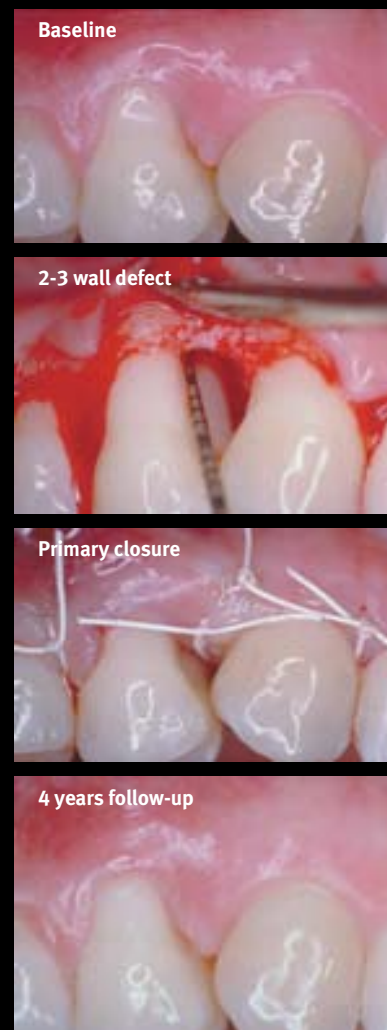
## Maturation and long-term stability of the regenerated tissue 26-28

- Recall patient regularly (every 2-3 months).
- Perform full mouth prophylaxis.
- Carefully remove soft and hard debris from the regenerated area, when present.
- Avoid deep mechanical instrumentation and probing at regenerated site for 6 to 9 months.
- Ensure appropriate supportive periodontal care to maintain stability over time.
- Warn patients that cigarette smoke and poor oral hygiene could cause loss of attachment at regenerated sites.

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## Case 4



**Case 4 – Narrow interproximal space, accessed with a simplified papilla preservation flap. The defect is a narrow 2-3 wall defect. The membrane of choice is a bio-resorbable barrier. Primary closure is obtained with a double layer suturing technique, including an offset internal mattress suture. Clinical appearance after 4 years.**