Treatment of deep intrabony defects with guided tissue regeneration using entire papilla preservation technique: One-year clinical outcomes

Serhat Aslan,¹ Nurcan Buduneli,² Pierpaolo Cortellini³,⁴

¹Private Office Dr. Aslan, İzmir, Turkey.
²Ege University, School of Dentistry, Department of Periodontology, İzmir, Turkey.
³Accademia Toscana di Ricerca Odontostomatologica (ATRO), Florence, Italy.
⁴European Research Group on Periodontology, (ERGOPERIO), Berne, Switzerland.

e-mail: perio@deserhataslan.com

Background
Primary wound closure and undisturbed early wound stability over the biomaterials are the most critical factors of a successful periodontal regeneration. Yet, the surgical elevation of the interdental papilla to access deep intrabony defects entails an impairment of the papillary blood supply that can deteriorate healing process up to the lack of primary closure in the early healing period. Such complications may favour bacterial contamination.

Aim
The aim of this prospective cohort study is to evaluate the clinical applicability of a novel surgical procedure in the regenerative treatment of isolated deep intrabony defects using native collagen membrane and bone grafting materials.

Material and Methods
Fifteen systemically healthy patients (15 isolated defects, one defect per patient) with advanced periodontal disease (Stage III-IV)

Inclusion criteria:
- Presence of probing depth (PD) ≥ 7 mm, clinical attachment level (CAL) ≥ 8 mm
- At least 4 mm intrabony component involving predominantly the interproximal area of the affected tooth
- Full mouth plaque and bleeding score (FMPS, FMBS) ≤ 20%

Exclusion criteria:
- Systemic diseases hindering periodontal surgery
- Medication use (that affects periodontal tissues)
- Smokers
- One-wall intrabony defects

Surgical procedures
Baseline (9 mm of probing depth)
Depth of the osseous defect at surgery
Trimmed collagen membrane (CollProtect, Botiss Biomaterials)
Barrier placement with positioning suture
Filling the defect with xenograft (Cerabone, Botiss Biomaterials)

Collagen membrane for the buccal aspect
Primary wound closure
10-days post-surgery
3 mm probing depth at 1-year
Baseline radiograph
1-year radiograph

Results
Fifteen subjects with periodontal disease (9 males and 6 females; mean age: 47.7±12.1; range 21-63 years)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean±SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMPS (%)</td>
<td>12.33±1.87</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>FMBS (%)</td>
<td>9.8±1.85</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>PD (mm)</td>
<td>9.03±1.61</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>CAL (mm)</td>
<td>11.16±1.81</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>REC (mm)</td>
<td>2.13±1.3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>INFRA (mm)</td>
<td>6.06±1.53</td>
<td>4</td>
<td>9</td>
</tr>
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Patient characteristics and clinical parameters measured at baseline.

Conclusion
This novel procedure provides adequate mechanical access to interproximal deep intrabony defects and seems to be a promising approach for maintenance of optimal conditions, even with application of a barrier membrane. Long-term data with controlled trials are required to support the present findings.