

Regenerative periodontal therapy of an intrabony defect through a papilla amplification flap combined with enamel matrix derivative

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Clinical evaluation/ Diagnosis

A 45 year old, non smoking, systemically healthy patient, presented complaining of his gum bleeding during regular oral hygiene manoeuvres. His last dental visit occurred 2 years ago. Previous treatments only included the extraction of tooth 3.7. Clinically, the patient presented with intact dental arches and a stable occlusion. Visual signs of gingival inflammation were present in all sextants, and were combined with a FMPS of 63%, a FMBS of 48%, and no suppuration. Deep pockets (> 6mm according to Heitz-Mayfield et al. 2002) were present at teeth 1.8, 2.6, 2.7, 2.8, 4.6, 4.8. Radiographically, images compatible with intrabony defects were present at all teeth affected by deep pockets. Of these, 4.6 appeared to present a 3 wall intrabony defect at its distal aspect. At this root, the radiographic bone loss reached approximately 70% of the root length, determining a bone loss to age ratio of 1,56. Thus, the patient diagnosis was Localised, Stage III, Grade C, Periodontitis.

Treatment goals

A treatment strategy was designed to achieve infection control through the following phases: Causal Therapy. The patient was informed and motivated to improve his oral hygiene. An oscillating rotating toothbrush was prescribed, combined with regular use of interdental brushes and floss. Scaling and root planing was performed in 2 sessions using both ultrasonic and manual instruments. Teeth 1.8, 2.8, 4.8 were extracted due to the presence of deep pockets, unfavorable root morphology, and proximity with the second molars. For two weeks, the patient was prescribed to use a chlorhexidine mouthwash at 0,12% twice a day. A re-evaluation was performed 2 months after basic therapy, and evidenced the presence of a residual pocket of 7mm at the disto-buccal aspect of 4.6 and of 9mm at its linguo-buccal aspect. Advanced Therapy. A regenerative periodontal surgery was designed with the aim to control the infection at the residual pocket of 4.6 and to reconstruct the lost periodontal anatomy.

Description of clinical/surgical procedures

Based on the radiographic appearance of a contenitive defect configuration, EMD was chosen as regenerative technology. Due to the presence of a small soft tissue crater located below the contact point, a papilla amplification flap was selected to promote first intention healing over the defect. According to this flap design, an amplified papilla was created by removing the gingiva coronal to two scalloped paramarginal incisions performed at the buccal and lingual aspect of 4.7M and 4.6D, preserving approximately 1-2mm of keratinised tissue. Thus, an envelope-type, coronally advanced flap was designed, using the defect as a center of rotation, while at the level of the amplified papilla, the supracrestal soft tissue above the angular defect was preserved with intrasulcular incisions and a full thickness elevation. After defect debridement, root instrumentation, application of EDTA and EMD, the flap was closed with horizontal mattress, simple interrupted, and sling sutures (6/0 PGA).

Clinical outcomes

Postoperative healing occurred uneventfully and sutures were removed at 14 days. Maintenance care was provided every 7-10 days for the first postoperative month, every month for the following 3 months, and every 3 months until the first postoperative year. At 1 year, a CAL gain of 5mm was observed at the disto-buccal aspect of 4.6, and of 4mm at its disto-lingual one. Accordingly, an almost complete radiographic bone fill of the intrabony defect was observed in the periapical radiograph at 1 year. A supportive periodontal therapy regimen was established, with a frequency of recall of 6 months.