

SUCCESSFUL TREATMENT OF GINGIVAL RECESSION WITH STRAUMANN® EMDOGAIN™ WITH A CORONALLY REPOSITIONED FLAP



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Gingival recession is a common finding among patients and can lead to esthetic concerns, thermal sensitivity and/or root caries. Among the most common etiologies is mechanical trauma from aggressively brushing or movement due to orthodontic treatment in combination with a thin gingival biotype that is susceptible to recession. Occlusal trauma and frenum pull are considered co-factors in the recession process.

The indications for root coverage include increased root sensitivity, root caries, abrasions, pre-prosthetic coverage and esthetic concerns of the patient.

Various grafting techniques have been developed to address this problem, including the transplantation of autogenous tissue in combination with a coronally advanced flap, pedicle flaps, guided tissue regeneration and the use of allograft materials.

The goal of root coverage procedures is to gain complete root coverage and to restore the lost anatomic structures on the root surface. From a histological perspective, this includes new cementum, periodontal ligament and alveolar bone. The periodontal ligament is regenerated for a functional and esthetic result. Successful repair of the defect must fulfill the following criteria: root coverage to the cemento-enamel junction

with a pocket depth no greater than 3 mm, absence of bleeding upon probing, adequate attached tissue and color blending with surrounding tissues.

Advances in technology have significantly improved the predictability of root coverage procedures. The use of enamel matrix derived proteins (EMD) in a polyglycol alginate (PGA) carrier in conjunction with a coronally repositioned flap has been shown to be an effective treatment modality with reduced morbidity for patients.¹ Clinicians have reported on enhanced periodontal wound healing with the treatment of EMD with PGA* and a more natural-looking result.¹ In addition, treatment of gingival recession with EMD allows for the regeneration of periodontal tissues (cementum, periodontal ligament and bone) on previously denuded root surfaces.² The technique allows clinicians to provide treatment that is more comfortable for patients and achieve the end goal of root coverage on a more predictable basis than other treatment options (membrane, acellular dermal matrix, PRP)³ and periodontal regeneration in the defect.²

The following case report demonstrates the successful use of a coronally repositioned flap with EMD with PGA (Straumann® Emdogain™).



Fig. 1
Pre-operative



Fig. 2
Flap was created



Fig. 3
Straumann Emdogain is placed onto the defect

Case Report

A 24-year-old female patient in good health was referred for treatment of gingival recession that resulted from earlier orthodontic treatment. The patient's chief concern related to esthetics as she has a high smile line. She presented with a Miller Class I recession defect with an adequate zone of attached keratinized tissue (**Fig. 1**). With planned Emdogain treatment, this straightforward case was expected to result similarly to a connective tissue graft with less time needed for the surgical procedure (approximately 15 minutes for the complete procedure) and less post-operative discomfort. The patient was informed of the treatment plan and expected results and consented to treatment.

The patient was anesthetized and the flap was created by splitting the papilla. A full thickness flap was raised to the osseous crest and then continuing with a split thickness flap (**Fig. 2**). Care was taken to not perforate the buccal flap during the sharp dissection. Any perforation can compromise the blood supply and risk the success of the procedure. The denuded root surfaces were debrided with hand instruments to ensure the principle of a "receptive root." Periosteal release was performed from the inner aspect of the flap to allow for the coronal advancement of the flap. The papillae were de-epithelialized to create a vascular surface.

Straumann® PrefGel® was applied to the root surface for two minutes in order to remove the smear layer and the tooth root was then rinsed with sterile saline. Care was taken to control bleeding by using a two by two piece of gauze in the site. This helps to allow for the optimal environment for regeneration with EMD as blood affects the ability of the proteins to bind to the root surface.⁴ Straumann Emdogain was applied to the site (**Fig. 3**) and immediately sutured with 5-0 Mild Chromic Gut Sutures (**Fig. 4**). Any remaining Emdogain was then applied over

the top of the sutures (**Fig. 5**). After three to five minutes, a periodontal wound dressing was applied over the treated site.

The patient was given our practice's usual post-operative instructions – to not brush for at least two weeks, to rest on the day of surgery and to resume normal activity the next day. If pain occurred, the patient was instructed to take an over-the-counter pain medication. The patient was compliant and early wound healing was gratifying. At six months, 100% root coverage was achieved (**Fig. 6**). The patient was ecstatic with the results and lack of pain and opted to have another site treated. With the level of satisfaction that the patient experienced, the likelihood that she will refer more patients is strong.

Dr. Robert J. Miller received his dental degree from Boston University Goldman School of Dentistry in 1984. He received his Certificate for Advanced Graduate Study in periodontics from Boston University in 1986 and maintains a private periodontal practice in Plantation, Florida for over 25 years. He is an active member of the Academy of Periodontology, Academy of Osseointegration, Pierre Fauchard Academy, Academy of Dentistry International, American Dental Association, Florida Dental Association, South Palm Beach County Dental Association, Broward County Dental Association, and is a Fellow of the International Team for Implantology (ITI). He has a courtesy appointment with the Community Based division program at the University of Florida Hialeah Dental Clinic.

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Fig. 4
Immediately post-operative



Fig. 5
Immediately post-operative, Emdogain is placed over sutures



Fig. 6
Post-operative healing at 6 months

*Refer to Straumann® Emdogain™ Instructions For Use (IFU)

References:

- ¹ McGuire, MK & Nunn, M. Evaluation of human recession defects treated with coronally advanced flaps and either enamel matrix derivative or connective tissue. Part 1: Comparison of clinical parameters. *J Periodontol.* 2003;74:1110-1125.
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- ⁴ Miron R, Bosshardt D, Laugisch O, Katsaros C, Buser D, and Sculean A. Enamel Matrix Protein Adsorption to Root Surfaces in the Presence or Absence of Human Blood. *J Periodontol.* 2012;83(7):885-892.

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