

SUCCESSFUL USE OF CORONALLY ADVANCED FLAP WITH A SUBEPITHELIAL CONNECTIVE TISSUE GRAFT USING STRAUMANN[®] EMDOGAIN[™]



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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 that are traumatic in nature include physical (including improper tooth brushing, surgery, and piercing), chemical, and thermal.⁴ Less common etiologies include infection (e.g. herpes virus) and inflammation (periodontal disease). Like other etiologies, they likely require a susceptible host with, among other things, contributing anatomic factors, such as a thin gingival biotype, tooth arch discrepancy (large teeth often outside the facial bony housing) or prominent roots. Occlusal trauma and frenum pull are considered co-factors in the recession process.

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 advanced flap^{1,2} (CAF) or with an autogenous subepithelial connective tissue graft have been shown to be an effective treatment modality with reduced morbidity for patients. EMD with PGA, commercially available as Straumann[®] Emdogain[™], has been shown to promote regeneration of periodontal tissues on previously denuded root surfaces^{1,2} and provide a more natural-looking result.¹ The technique allows clinicians to treat gingival recession with predictable results.³ Additionally, a full arch of multiple recession lesions can be treated in one appointment.

The following case report demonstrates the successful use of a CAF with a subepithelial connective tissue graft (CTG) and EMD with PGA (Straumann Emdogain).

Case Report

A 67-year-old healthy non-smoker presented with Miller Class I recession defects and caries on teeth #20 and #21 (**Fig 1**). The treatment plan included removal of the caries (**Fig 2**) followed by an autogenous CTG with the application of Straumann Emdogain. The patient was informed of the treatment plan and expected results and consented to treatment.

Prior to flap elevation, the tooth root was thoroughly debrided and Straumann[®] PrefGel[®] was applied to the root surface for approximately 2 minutes in order to remove the smear layer, before being rinsed with sterile saline (**Fig 3**). Straumann Emdogain was applied to the root surface area (**Fig 4**) and to the harvested graft (**Fig 5**). A flap was coronally advanced to cover the CTG and sutured in place (**Fig 6**). Any remaining Emdogain was then applied to the palatal incision (**Fig 7**).

Healing progressed uneventfully and at one month, there was no residual swelling or pain from the procedure (**Fig 8, 9**). Similarly, at 3 months, the patient presented with near complete root coverage and was very satisfied with the results (**Fig 10, 11**).

Conclusion

By adding Straumann Emdogain to the subepithelial CTG and CAF procedure, the patient benefited from the potential of regeneration of the underlying support structures (cementum, periodontal ligament and alveolar bone), helping to achieve the ultimate goal of complete root coverage and true regeneration.

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Fig. 1
At time of diagnosis



Fig. 2
Removal of the caries



Fig. 3
PrefGel is applied to root surface



Fig. 4
Application of Emdogain to tooth root



Fig. 5
Emdogain applied to graft



Fig. 6
Graft in place



Fig. 7
Palatal incision with Emdogain



Fig. 8
One month post-operative



Fig. 9
One month post-operative



Fig. 10
Three months post-operative



Fig. 11
Three months post-operative

References:

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