

A COMPARATIVE HISTOLOGIC ANALYSIS OF THE USE OF A RESORBABLE COLLAGEN MEMBRANE AND ENAMEL MATRIX DERIVATIVE IN THE MANAGEMENT OF DEHISCENCE TYPE DEFECTS

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ABSTRACT

Several studies have documented the clinical efficiency of guided tissue regeneration (GTR) with resorbable collagen membranes and enamel matrix derivative (EMD) in periodontal regenerative therapy. The objective of this controlled experimental study was to compare the healing process of dehiscence type critical sized defects treated by EMD, or GTR. Eight mongrel dogs were used. Buccal osseous dehiscences were surgically created on the roots of maxillary canines, bilaterally. The defects were randomly assigned to one of the treatments: root conditioning and EMD application, or GTR with bioabsorbable Biomend Extend™ collagen membrane. During the follow up period, all animals showed uneventful healing with no serious adverse reactions. The dogs were sacrificed at 1 and 3 months post surgically, and the blocks were processed. Qualitative assessment of tissue health and reaction, periodontal regeneration and integrity of implanted materials was carried out. Both treatment modalities resulted in true periodontal regeneration in the form of new cementum, periodontal ligament and alveolar bone formation in the created defects. Moreover, EMD treated sites revealed both acellular and cellular cementum deposition, whereas GTR therapy resulted mainly in cellular cementum formation. Regarding the new alveolar bone formation, EMD group revealed superior results. Concerning tissue reaction, more inflammatory cells were observed in GTR group, probably related to membrane disintegration. Within the limits of this study, it can be concluded that EMD and Biomend Extend™ membrane are almost equally effective in producing true periodontal regeneration in periodontal dehiscence type defects, with EMD demonstrating slightly better clinical healing and superior histologic results.

INTRODUCTION :

Therapeutic approaches to the treatment of periodontitis generally fall into two major categories: those designed to halt the progression of periodontal attachment loss, and those designed to regenerate or reconstruct lost periodontal tissues.⁽¹⁾

The first evolutionary stage of periodontal regeneration focused on the reconstruction of osseous lesions utilizing a variety of bone replacement grafts. However, the ability for regeneration of cementum, and periodontal ligament was very limited in these preliminary attempts.⁽²⁾

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