

Histological healing after nonsurgical periodontal treatment with enamel matrix derivatives in canine experimental periodontitis

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Abstrak

ABSTRACT

The histological outcomes after nonsurgical periodontal treatment with enamel matrix derivatives (EMD) remain controversial. The present study evaluated periodontal wound healing after scaling and root planing (SRP) with subgingival application of EMD for treatment of experimental periodontitis. Periodontal breakdown was induced by applying silk ligatures around mandibular third and fourth premolars of six beagle dogs until radiographic bone loss progressed to approximately half of the root length. Probing pocket depth (PPD) and clinical attachment level (CAL) were proximally measured 2 weeks after ligature removal (baseline). Mesial and distal surfaces of the experimental teeth were subjected to SRP and randomized using a split-mouth design to subgingival application of EMD (test) or normal saline (control). PPD and CAL were re-evaluated at 11 weeks. Animals were sacrificed at 12 weeks for histological analyses. No significant differences were observed in PPD and CAL between both groups at baseline and at 11 weeks.

Histologically, test sites exhibited a greater amount of new cementum than that did the control sites ($p < 0.01$). Moreover, the control sites revealed increased epithelial downgrowth compared with the test sites: ($p < 0.05$). On the other hand, no intergroup differences were detected in terms of bone position, connective tissue attachment, gingival recession, and planed root length. This study suggested that EMD has an increased potential to support formation of new cementum with decreased epithelial downgrowth when used as an adjunct to nonsurgical periodontal treatment.