Clinical study of a newly developed injection-type gingival retraction material

林哲堂;李勝揚;蔡志孟
Yang J-C;Tsai C-M;Chen M-S;Wei J-Y;Lee S-Y;Lin C-T

Abstract

The aim of this study was to investigate the clinical outcomes with a newly eveloped non-aluminum chloride-containing injection-type retraction material (Korlex-GR®) in terms of gingival retraction, gingival recession, and patient comfort and also to compare it with 2 other commercial retraction materials (Ultrapak 1®, a medicated retraction cord, and Expasyl®, an injection-type retraction material containing 15% aluminum chloride). These 3 materials were randomly applied to 3 unprepared maxillary incisors of 8 periodontally healthy young individuals. Impressions were made with polyvinyl siloxane impression material before retraction, immediately after retraction, and 14 days after retraction. The duplicated stone models were subjected to a 3-D laser scanning device to estimate the width of the retracted sulcus and gingival recession. In order to evaluate pain during gingival retraction, subjects were asked to rank the pain experienced during retraction on a scale of 1 to 4, immediately after each material was applied. The Wilcoxon signed ranks test was used to determine the width of the retracted sulcus, the amount of gingival recession, and pain caused by each material. The Kruskal-Wallis test was used to determine any significant differences among the 3 materials, and the Mann-Whitney U test was used for multiple comparisons. The results showed an increase in the sulcus width after retraction by all 3 materials ($p<0.05$), but no statistical difference was noted among these materials. Significant gingival recession was also observed for all test materials after retraction ($p<0.05$). However, when the 3 materials were compared, the medicated cord seemed to produce significantly more gingival recession than the other 2 injection-type materials ($p<0.05$). With regards to pain during retraction, the medicated cord was also significantly more painful than the injection types ($p<0.05$). The above observations indicate that the non-aluminum chloride-containing injection-type retraction material is as good for gingival retraction as the other 2 materials but produces less pain and limits injury to the gingival tissue during the procedure.It is therefore recommended for clinical use.