

Corticotomy Assisted Orthodontic Canine Retraction (A Clinical Study)

A Thesis

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Abstract

Surgical injury to alveolar bone can temporarily accelerate tooth movement by increasing the remodeling rate of alveolar bone. The purpose of this study was to clinically evaluate maxillary canine retraction acceleration with corticotomy-facilitated orthodontics, and its effect on vitality of pulp and gingival sulcus depth.

The sample consisted of 12 adult patients (4 males, 8 females; mean age, 21.7 years) requiring the therapeutic extraction of the maxillary first premolars, with subsequent retraction of the maxillary canines. Surgical holes were done mesially and distally to the side with more space between canine and second premolar, and the other side served as the control. Canine retraction was done by power chain applying 200 g of force per side. Rate of canine movement and potential molar anchorage loss were measured after one month using study model and acrylic plug. Bleeding on probing, radiographical assessment, gingival sulcus depth, and vitality test have also been investigated throughout the study.

The surgical side showed a statistically higher retraction mean value as compared with the non-surgical side. In other words, the surgical side demonstrated 42.6% greater net canine distalization than the non-surgical side. Anchorage loss showed no significant difference between sides. There was no significant difference between the pre and post surgery gingival sulcus depth and pulp vitality response values of surgical side.

It has been concluded that surgical holes introduction is effective in accelerating orthodontic tooth movement, and has no harmful effects on surrounding vital structures and/or pulp vitality.