

Root damage and repair in patients with temporary skeletal anchorage devices (TAD)

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Introduction

The aim of this study was to evaluate the reparative potential of cementum histologically **after intentional root contact** with a temporary skeletal anchorage device.

Methods

Seventeen patients (8 male, 9 female; mean age, 16.2 years; range, 13.5-21.6 years) who were scheduled for extraction of 4 first premolars as part of their orthodontic treatment participated in this study. The roots of the premolars were intentionally injured with a temporary skeletal anchorage device. The teeth were extracted at 4, 8, or 12 weeks after the injury. Root contact with the temporary skeletal anchorage device was confirmed by using a stereomicroscope. Histologic samples were prepared. Demineralized serial sections were stained with eosin and hematoxylin, and cementum repair was assessed histomorphometrically.

Results

Despite varying depths of the injuries, including involvement of dentin, reparative cementum formation was observed in all sections. Healing cementum was almost exclusively of the cellular type; 70% of all the teeth exhibited good repair by the end of week 12.

Conclusions

This study established that healing of cementum takes place after an injury with a temporary skeletal anchorage device, and it is a time-dependent phenomenon.