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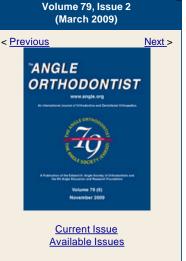
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Original Articles

Stability of Mini-Screws Invading the Dental Roots and Their Impact on the Paradental Tissues in Beagles

Yoon-Goo Kang^a, Ji-Young Kim^a, Young-Jun Lee^b, Kyu-Rhim Chung^c, and Young-Guk Park^d

Abstract

Objective: To examine the stability of mini-screws that invade a dental root by measuring the retention period/failure rate, and to illustrate their effects on paradental tissues.

Materials and Methods: Three adult male beagle dogs received 48 orthodontic mini-screws. Half of the mini-screws were implanted to invade the roots, and the rest were placed in the middle of the alveolar bone. Half of the mini-screws were loaded immediately. The retention period of the mini-screws was documented. The dogs were euthanized after 8 weeks, and tissue samples were examined histologically.

Results: The failure rate of the mini-screws that invaded the roots was 79.2%, and that of the mini-screws in the middle of the alveolar bone was 8.3%. The application of force had little effect on the failed mini-screws. Moderately injured roots were repaired with osteoid and/or cementoid tissues with normal periodontal ligaments, followed by recovery of the original configuration.

Conclusion: Orthodontic mini-screws had a higher failure rate when placed to invade the dental roots. However, minimally damaged dental roots do not adversely affect the healing process. (*Angle Orthod.* 2009:79;)

Keywords: Mini-screw, Root damage, Root healing

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