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Rigid endosseous implant utilized as anchorage to protract molars and close an atrophic extraction site

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ABSTRACT

A two-stage endosseous implant, placed in the retromolar area of the mandible, was utilized as rigid anchorage to translate two molars 10–12 millimeters mesially into an atrophic endentulous ridge. Despite substantial anchorage demand over a three year period, the endosseous implant remained rigid (“osseointegrated”). At the end of treatment the implant and adjacent, intravitally labeled bone were recovered. Microradiographic and polarized light analyses revealed that about 80 percent of the endosseous portion of the implant was in direct contact with mature lamellar bone. Bone labels demonstrated a remarkably high remodeling rate (about 30 percent/year) for cortical bone within 0.5 millimeter of the interface. Continuous remodeling may be the long-term mechanism whereby loaded implants resist bone fatigue and maintain “osseointegration.” Clinical use of orthodontic implants, placed outside the dental arches, requires careful attention to soft tissue management.

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