RAPID UPRIGHTING OF A LOWER SECOND MOLAR WITH MINISCREW ANCHORAGE

ABSTRACT

The aim of this case presentation is to report the rapid uprighting of a mesially inclined second lower molar after loss of an adjacent first molar with a miniscrew anchorage in an adult patient. 25 years old female patient applied with a chief complaint of upper anterior crowding and mesially inclined lower right second molar tooth. The mesial inclination of the lower right second molar was planned to be corrected with a miniscrew anchorage. The use of miniscrew provide absolute anchorage for molar uprighting. Orthodontic uprighting of the mesially inclined second lower molar was achieved in four months. After then, an Angle Class I molar relationship and a good intercuspation of posterior teeth were accomplished.

Key words: Miniscrew, Uprighting, Uprighting spring

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INTRODUCTION
Mesial tipping of lower second molar after loss of lower first molar is a common orthodontic problem for adult patients. Tipping of molar teeth cause functional, periodontal and prosthetic problems. Uprighting of the lower second molar is indicated in these patients but this movement is often limited by the anchorage available. Force required to move the tooth exerts an equal and opposite force on anchorage teeth. In addition, tipping a tooth distally generally extrudes it. As a treatment option, uprighting springs, dental implants and miniscrews can be preferred to upright tipped molars. In this study, a modified uprighting spring applied to a miniscrew was used to minimize these effects.

CASE REPORT
25 years old female patient referred to Hacettepe University, Department of Orthodontics, Ankara with a chief complaint of anterior crowding. The extraoral examination showed a straight profile (Figure 1). Intraorally, mild anterior maxillary and mandibular crowding was recorded. Lower right first molar was lost 7 years ago and the space have fully closed with mesial inclination of lower right second molar (Figure 2). Upper right first molar have a prosthetic restoration and a bridge was constructed in the left posterior segment (Figure 2).
A panoramic radiograph revealed mesial inclination of the lower right second molar and alveolar bone loss at the mesial aspect (Figures 3 and 4).

Treatment Procedure
Maxillary teeth were banded and bonded using .018x.025 inch fixed orthodontic appliances. A miniscrew with a diameter and length of 1.6 and 8 mm respectively was placed into the interradicular alveolar bone between mandibular first and second premolars. The miniscrew was directly loaded after insertion. A modified spring was bent from .016x.025 inch titanium molybdenum alloy wire and inserted through the distal access of molar tube (Figure 5).

RESULTS
After uprighting of the second molar, mandibular teeth were banded and occlusion were detailed (Figure 6).

DISCUSSION
Molar uprighting procedures have problems such as molar extrusion and movement of the anchorage unit. Miniscrews could provide adequate stability for uprighting of molar teeth. However, intrusive mechanics have been frequently required following uprigthing in these cases.
In this case, a modified uprighting spring and a miniscrew were used for uprighting of the mesially inclined second molar. The spring was designed to be inserted through the distal access of the molar tube to prevent excessive extrusion of the tooth during uprighting. The miniscrew was inserted in the alveolar bone between the premolars and uprighting spring was applied directly to the miniscrew. This application eliminated the use of additional intrusive mechanics in this patient. After uprighting, molar extrusion was minimal and could be eliminated by slightly abrading the artificial crown of the upper right first molar.
The duration of molar uprighting was rather shorter, in comparison with similar cases treated with microimplant anchorage in the literature.

CONCLUSION
The use of modified spring and miniscrew allowed to achieve rapid uprighting of the mesially inclined lower second molar with minimal extrusion.
Figure 2  Pretreatment intraoral photographs

Figure 3  Pretreatment panoramic radiography

Figure 4  Pretreatment periapical radiography

Figure 5  Uprighting spring

Figure 6  Intraoral photograph after molar uprighting
Figure 7 Posttreatment extraoral photographs

Figure 8 Posttreatment intraoral photographs

Figure 9 Mandibular superimposition

Figure 10 Posttreatment panoramic radiography

Figure 11 Posttreatment periapical radiography

REFERENCES


