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Maxillary molar distalization with the dual-force distalizer supported by mini-implants: A clinical study

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Introduction: The objective of this prospective study was to describe the clinical effects of a bone-supported molar distalizing appliance, the dual-force distalizer.

Methods: The study group included 16 patients (mean age, 14.3 years) with Class II molar relationships. Study models and lateral cephalograms were taken before and after the distalizing movement to record significant dental and skeletal changes (Wilcoxon test).

Results: The average distalization time was 5 months, with a movement rate of 1.2 mm per month; the distalization amounts were 5.9 ± 1.72 mm at the crown level and 4.4 ± 1.41 mm at the furcation level. The average molar inclination was 5.6° ± 3.7°; this was less than the amount of inclination generated by bone-supported appliances that use single distalizing forces. The correlation between inclination and distalization was not significant, indicating predominantly bodily movement. The teeth anterior to the first molar moved distally also; the second premolars distalized an average of 4.26 mm, and the incisors retruded by 0.53 mm.

Conclusions: The dual-force distalizer is a valid alternative distalizing appliance that generates controlled molar distalization with a good rate of movement and no loss of anchorage.

The full text of this article can be found at: www.ajodo.org.

EDITOR'S SUMMARY

An approach to the correction of Class II molar relationships in nonextraction orthodontic treatment that does not rely on patient compliance has been the subject of clinical interest during the last decade. This study reports treatment outcomes of a new appliance for molar distalization with mini-implants for bone-supported anchorage with immediate loading. The objective of this project was to investigate the clinical effects of a bone-supported molar distalizing appliance, the dual-force distalizer (DFD), with mini-implants providing skeletal anchorage for distalizing forces to both buccal and palatal surfaces of the maxillary first molars.

The authors reported that the appliance showed good stability when used in 16 patients without creating unwanted vertical or horizontal displacement during therapy. The DFD takes advantage of osseous anchorage to accomplish the desired treatment objectives. Premolars and anterior teeth were observed to follow the distal movement of the molars without loss of anchorage in the maxillary arch.

Am J Orthod Dentofacial Orthop 2009;135:282-3
0889-5406/$36.00

doi:10.1016/j.ajodo.2008.11.018

Fig 3. Patient treated with the DFD: **A,** before the DFD, with impacted canines; **B,** after distalization with the DFD; **C,** immediately after removal of the DFD; **D,** completely aligned maxillary arch.

Q & A

Editor: What are the primary advantages of the DFD?

Baccetti: The main advantage of the DFD is the double force exerted on the molars on the buccal and the palatal surfaces, resulting in a more bodily movement, preventing distal molar tipping compared with other distalizers with a single force.

Editor: Did any subject in this experimental group have unanticipated problems during treatment?

Baccetti: It is important to check the appliance when it comes from the laboratory because the mesial part of the buccal arm that goes from the palatal side to the buccal side must be on top of the mesial aspect of the premolar. This is to prevent occlusal interferences and to avoid mesial force to the canine.

Editor: Have you made any changes to the design of this appliance as you've gained clinical experience with its application?

Baccetti: We have been more careful with its individual design to avoid occlusal interferences.