

Modified Transpalatal Bar for Maxillary Molar Intrusion

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This article describes a simple technique for intrusion of overerupted maxillary molars, using fixed appliances and a modified transpalatal bar.

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Fig. 1 Case 1. Modified transpalatal bar with soldered spring for intrusion of maxillary right second molar.



Fig. 2 Case 1. Elastic chain stretched between soldered spring and lingual button on maxillary right second molar.

Appliance Fabrication

The fixed-removable transpalatal bar is prefabricated from .036" stainless steel wire.* A wire of the same dimension is soldered to the bar and extended parallel to the palate, apical to the molar that needs intrusion. A horizontal helix is bent into the distal end of this extension, with the wire ending in an apical hook (Fig. 1).

After the transpalatal bar is inserted into the first molar tubes, a section of elastic chain is stretched between the hook and a button bonded to the lingual surface of the overerupted molar, thus activating the soldered spring (Fig. 2).



Fig. 3 Case 1. 39-year-old male patient with overerupted maxillary right second molar before treatment.

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A standard molar tube is bonded on the buccal side of the tooth being intruded, and an initial maxillary .016" stainless steel wire is inserted, with a step-up bend mesial to the overerupted molar. This buccal activation helps guide and support the palatal activation, so that no extrusive forces are exerted upon the adjacent or contralateral maxillary molars.

Case 1

A 39-year-old male was referred by a prosthodontist due to the difficulty of restoring the edentulous mandibular right second molar region. Clinical and radiographic examination showed that the maxillary right second molar had extruded and had tipped buccally (Fig. 3). A modified transpalatal bar was constructed as described above and delivered after banding and bonding of the maxillary teeth.

Every four weeks, the appliance was reactivated by placing a new palatal elastic chain and increasing the step-up in the buccal archwire (Fig. 4). After five months of treatment, the maxillary right second molar had been overintruded (Fig. 5). The patient was then referred back to the prosthodontist, and an implant was placed in the mandibular right second molar region (Fig. 6).



Fig. 4 Case 1. Step-up activation added in buccal archwire mesial to second molar.



Fig. 5 Case 1. Patient after five months of treatment, showing 4mm intrusion of maxillary right second molar.



Fig. 6 Case 1. Section of panoramic radiograph showing overintrusion of maxillary right second molar and placement of implant in right mandibular second molar region.

Case 2

A 41-year-old male was referred by a periodontist for evaluation of the position of the maxillary right first molar (Fig. 7). The decision was made to intrude the molar with a modified transpalatal bar. A soldered extension from the spring to the bar was incorporated for additional support, with careful attention paid to the clearance between the appliance and the palatal tissue to ensure patient comfort (Fig. 8). The maxillary teeth were bonded, and an .016" stainless steel wire was placed with a step-up bend mesial to the right first molar (Fig. 9).

Every four weeks, the appliance was reactiv-



Fig. 7 Case 2. 41-year-old male patient with over-erupted maxillary right first molar before treatment.

vated by placing a new palatal elastic chain and increasing the step-up in the buccal wire. After four months of treatment, the intrusion was complete, and the patient was referred back to the periodontist for implant placement (Fig. 10).

Discussion

Maxillary molar extrusion in the adult patient is usually caused by a loss of antagonists. Methods of correcting this problem generally involve either grinding the elongated tooth in preparation for a full-crown restoration¹ or intruding the molar with an intermaxillary device,^{2,3} sectional mechanics,⁴ a removable appliance,⁵ a transpalatal bar,⁶ anchorage from mini-



Fig. 8 Case 2. A. Modified transpalatal bar with soldered spring and supporting extension designed to intrude maxillary right first molar. B. Appliance kept parallel to palatal tissue for patient comfort.

plates^{7,8} or miniscrews,⁹ or magnets.¹⁰

The simple mechanics described in this article rely on maximum anchorage involving the maxillary teeth. The comfortable and cost-effective modified transpalatal bar can achieve significant intrusion of an overerupted maxillary molar in a short period of time.

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Fig. 9 Case 2. A. Appliance activated for intrusion of maxillary right first molar. B. Step-up bend added in buccal archwire mesial to right first molar.



Fig. 10 Case 2. Patient after four months of treatment, showing intrusion of maxillary right first molar.