

## **A Simple and Rapid Method of Molar Uprighting :Case Report**

By Seema Gupta, MDS<sup>a</sup> and Sandeep Kumar<sup>b</sup>, MDS

<sup>a</sup>Senior Lecturer, Department of Orthodontics, Surendera dental college and research institute, Sriganganagar, Rajasthan.

<sup>b</sup>Senior Lecturer, Department of Prosthodontics, Surendera dental college and research institute, Sriganganagar, Rajasthan.

For correspondence:

Dr. Seema Gupta

Senior Lecturer

Department of Orthodontics

Surendera dental college and research institute

Sriganganagar, Rajasthan.

e-mail: mdsseema31@yahoo.com

Phone: 9024606318

### **Introduction:**

Mesial tipping of upper first molars is a very common finding during the en-masse retraction of maxillary incisors. Uprighting a tipped molar by using an uprighting spring is a fundamental orthodontic treatment technique<sup>1-8</sup>. However, it is time consuming and a difficult procedure. In this article, an easy, time-saving, cost-

effective and efficient method of uprighting a tipped upper molar with the use of an overlay wire.

**Appliance design:**

The main upper archwire should be at least .019 x .025 inch stainless steel before placement of the overlay (piggyback) wire. A 1mm stainless steel wire is used to fabricate the overlay wire. The step up bends are given just mesial to the headgear slots of the upper triple molar tube which faces occlusally. The wire then goes in the vestibule from one molar tube to the headgear slot of other side molar tube. The 30° tip back bends are placed in the molar portion of the overlay wire (Fig 1). When the wire is placed in the molar tubes, the anterior portion of the wire goes gingivally. The wire is then pulled and tied with the help of ligature wire in between the upper central incisors (Fig 2). The appliance is placed for only a period of ten days. This will cause distal uprighting of the upper molars with little intrusive and lingual torquing forces on the incisors (Fig 3). Extrusive forces on the molar are counteracted by the forces of occlusion.



Fig 1: Overlay wire made of 1mm stainless steel wire with 30° tip back bends

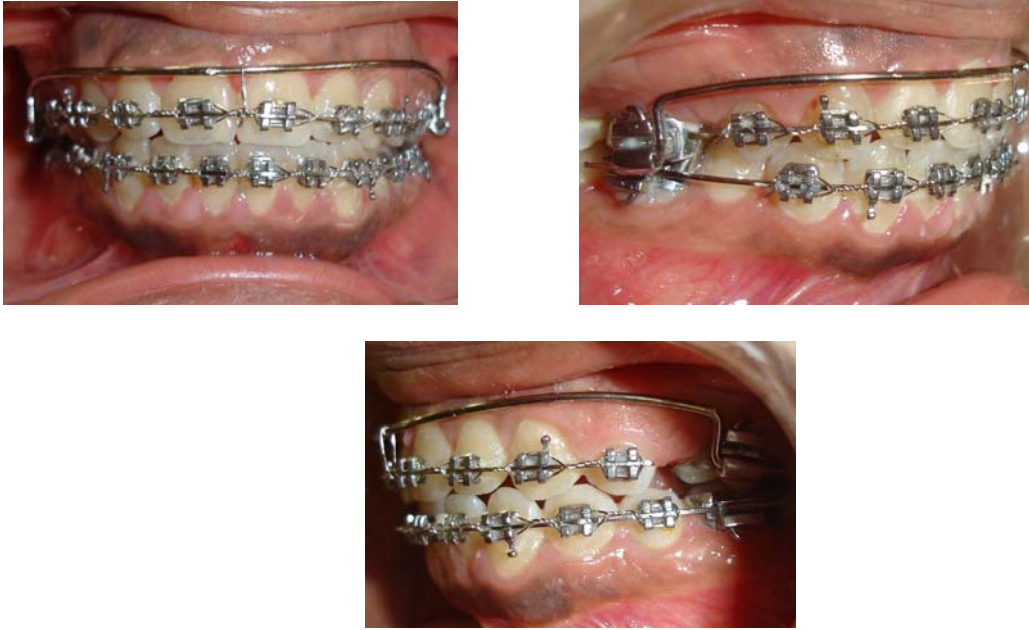


Fig 2: Appliance placed intraorally in the headgear slot of molar tube and tied anteriorly between the two central incisors.

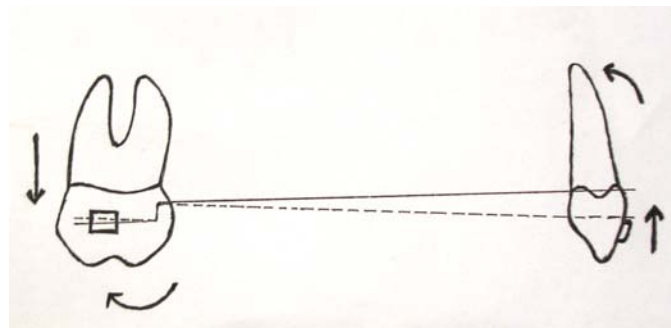


Fig 3: Biomechanics of the appliance. Solid line shows appliance in inactive stage and dotted line shows appliance in active stage.

**Case 1:**

A 20-year-old female presented with the chief complaint of prominent upper and lower incisors. She had a missing lower left first molar. Her treatment involved

extraction of all first premolars and en-masse retraction. It was observed, that during the treatment, her upper first molars tipped mesially during the retraction. The patient was then given an overlay wire for ten days for molar uprighting (Fig 4). There was improvement in the molar position (Fig 5), following which the appliance was removed.

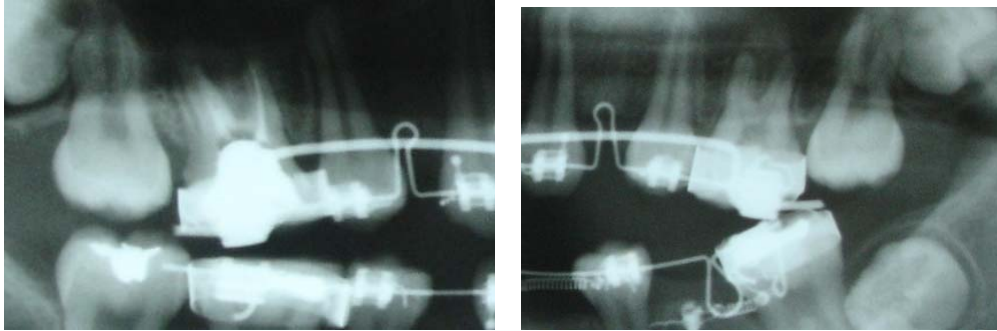


Fig 4: Case1: Radiographs showing mesial tipping of upper right (A) and left (B) first molars.

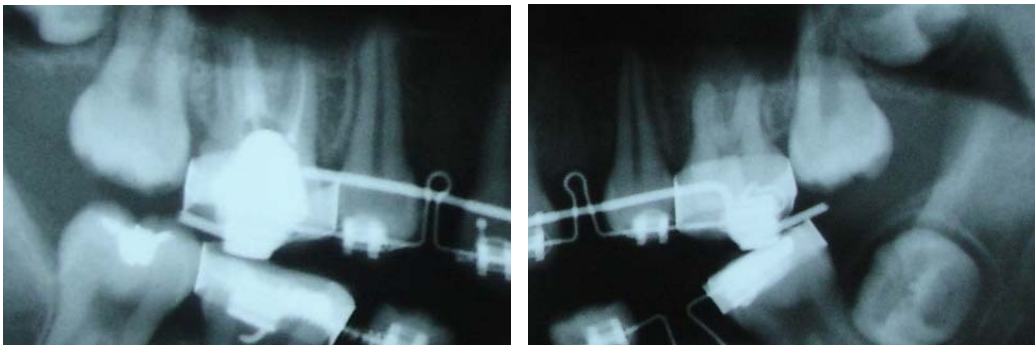


Fig 5: Case1: Radiographs showing improvement in molar tipping by distal uprighting with the use of appliance.

**Case 2:**

A 14 year old boy presented with the chief complaint of prominent upper incisors, associated with an increase in overjet. He was diagnosed as a Class II, Div. 1 malocclusion and treated with upper first premolar extractions. During the treatment it was noticed that upper left first molar tipped mesially. The overlay wire was placed (Fig 6). The improvement in the molar position was noticed after ten days, after which the appliance was removed (Fig 7).



Fig 6: Case 2: Radiograph showing mesially tipped left upper first molar



Fig 7: Case 2: Radiograph showing mesial tipping corrected with the appliance

**Case 3:**

A 22 year old female presented with missing upper first premolars, due to prior extractions. And with spacing in the upper arch and mesially tipped upper maxillary first molars. The patient was given an overlay wire for uprighting the tipped molars (Fig 8) for 10 days. The improvement in the molar position was noticed, after which the appliance was removed (Fig 9).

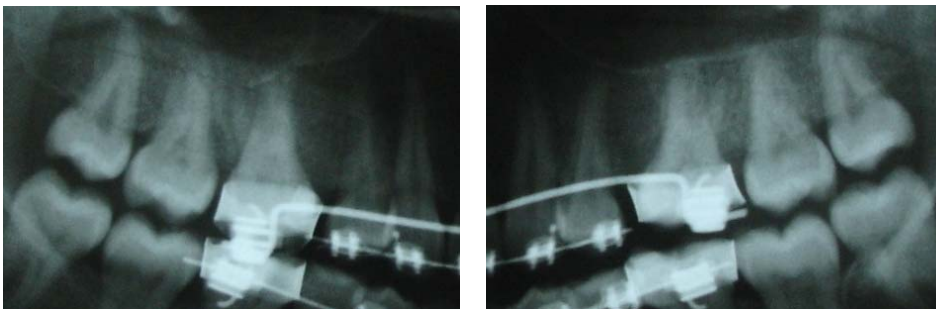


Fig 8: Case 3: Radiographs showing mesially tipped upper right and left first molars

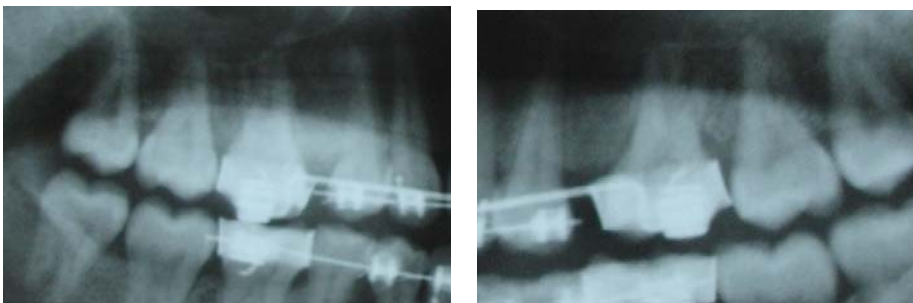


Fig 9: Case 3: Radiographs showing corrected position of the upper first molars.

## **Discussion:**

An overlay wire has been used for many purposes in orthodontics<sup>9,10</sup>, but its use for molar uprighting has not been discussed in the literature. In the present article, three cases have been successfully treated by the use of an overlay wire for just 10 days. The overlay wire is easy to use and as it is to be used for a short duration, it produces minimum reactionary forces. Its use is restricted to minor molar uprighting which may be required during the treatment. Activation of the appliance delivers uprighting moment on the molar with reactionary intrusive and lingual torquing forces on the incisors. These types of forces are usually desirable in most of the cases during en-masse retraction of incisors. In cases, where no such forces are needed, anterior box elastics can be given along with the appliance. Another advantage of the appliance is patient comfort. There are no occlusal interferences and no wire deformation from mastication. Fabrication of the appliance is easy, takes little chair time and treatment time is short. When using the appliance, the following guidelines should always be kept in mind: Adequate anchorage is critical. The main archwire should be at least 0.019 x 0.025 inch stainless steel with all the teeth, from premolar to premolar, ligated together with figure of 8 ligation. Activation should be light and the appliance should be removed in 10 days.

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