

CASE REPORT

Uprighting Mandibular Third Molar Using NiTi Wire

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ABSTRACT

If impacted teeth can be brought into occlusion, they should be brought into occlusion, especially in young patients. When the second molar is missing, saving the third molar becomes all the more important. In this case, the patient presented with a missing mandibular second molar, and an impacted mandibular third molar. A 0.019 × 0.025 NiTi wire was used to upright the impacted molar and bring it into occlusion. This method is economical, effective and works well for bonded and banded teeth.

Keywords: Case report, Impacted tooth, Molar uprighting, NiTi, Orthodontics.

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INTRODUCTION

Teeth that remain unerupted or lose the potential to erupt, or that are erupted partially, on the basis of clinical and radiographic evaluation are called impacted teeth.¹ Permanent teeth's eruption failure is a frequently seen dental anomaly.² When the second molar is missing or has been extracted in young patients due to caries or any other reason, saving the third molar and bringing it into occlusion becomes imperative.³

Mandibular molar uprighting can be achieved in many ways. A number of orthodontic approaches are advocated for the same, such as prefabricated Sander springs, Nickel-Titanium coil springs, helical uprighting springs, push spring appliances, and traction from removable appliances which are a few of the currently available options. Uprighting the molar requires excellent anchorage control. Later, a fixed appliance in the complete arch is necessary.⁴

Terminal molars can be frustrating for orthodontists a lot of the times. It is usually difficult and strenuous for the orthodontist to work in the posterior region of the oral cavity to bond brackets, along with maintaining a dry field. An impacted mandibular molar may not be completely erupted, so placing a bracket is often difficult or nearly impossible on partially erupted molars. This method is cost-effective and works well for both banded and bonded teeth.⁵

This current paper elucidates a straightforward, economical, pain-free and uncomplicated method for dealing with mandibular terminal molar impaction in adolescent patients.

CASE DESCRIPTION

A 17-year 4-month-old individual presented with a chief complaint of "forwardly placed front upper teeth". An Angle's Class II malocclusion with proclined upper and lower incisors was revealed upon intraoral examination. The right mandibular second molar was extracted two years ago, and there was a partially blocked-out but favorably positioned right unerupted lower third molar.

The panoramic radiograph revealed mesially angulated, unerupted mandibular third molars (Fig. 1). The upper arch was bonded from the second molar to the second molar; and the mandibular arch was bonded from the first molar to the first molar. After levelling, and alignment, the mandibular right third molar still impacted and not visible, and another OPG revealed it to continue to be impacted and mesio-angulated. At a subsequent

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Fig. 1: Pretreatment OPG

appointment, an 11–13 mm portion of 0.019" × 0.025" NiTi wire was inserted between the impacted third molar and first molar. The residual wire was bonded to the first molar and second premolar's occlusal surfaces.

An 11–13 mm section of 0.019" × 0.025" NiTi wire was cut, and the area was isolated. The wire was pushed between the distal surface of the first molar and the impacted molar. The wire is

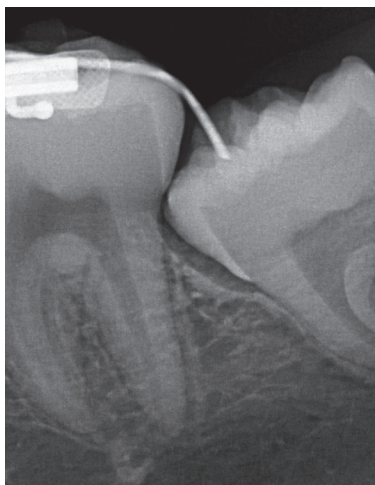


Fig. 2: RVG after insertion of 0.019 × 0.025 NiTi wire



Fig. 3: Intra-oral photograph after insertion of 0.019 × 0.025 NiTi wire

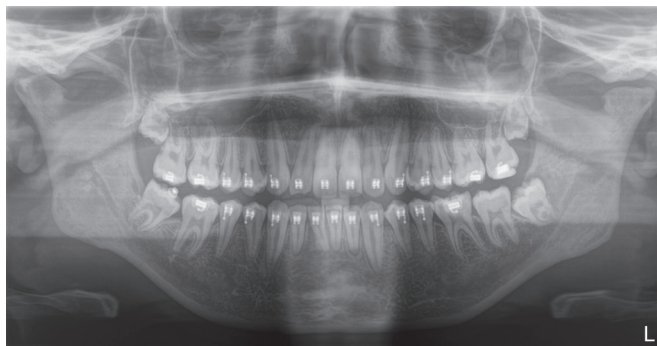


Fig. 4: Mid-treatment OPG

then pushed until resistance is felt. A radiograph is to be taken to ascertain the position of the wire (Fig. 2). The extended portion of the wire present in the oral cavity is fixed over the first molar and premolar with glass ionomer cement (GIC) (Fig. 3).

At the next appointment, another radiograph was taken to make sure that the wire was in place. After 8 weeks, the erupting crown of the mandibular left second molar was visible in the oral cavity. Another orthopantomograph revealed a correction in position



Fig. 5: Mandibular molar after uprighting brought into occlusion

(Fig. 4). At this juncture in treatment, the Nickel-Titanium wire was detached, and a lingual button was bonded on the lingual side to correct the inclination with cross elastics. The tooth would later be bonded (Fig. 5).

DISCUSSION

In 2011 there was a published description of a non-surgical technique used for uprighting of mandibular molars that were mesially impacted. Bach⁵ had used 0.014" × 0.025" Cu NiTi wire. Around the same time, Di Bagno⁶ was instrumental in developing a similar technique using 0.016" × 0.016" NiTi wire. In this case the author has used 0.019 × 0.025 NiTi wire.

A big plus-point of this technique is that it can be performed on a bonded or an un-bonded mandibular arch, which eliminates the period of waiting for many years and retaining fixed orthodontic appliances for an extended period of time until lower second molars erupt. Mandibular second molars that are impacted can be attempted to be up righted before, during, or after active orthodontic treatment. Uprighting can be initiated at any time during the treatment sequence when using this procedure on a bonded mandibular arch, preferably at the initial bonding appointment.

This procedure can be used for third molars as well if adequate space is available.

CONCLUSION

Bringing terminal molars into occlusion in young patients is beneficial. This technique eliminates the waiting period of many years and keeps fixed orthodontic appliances bonded for an extended period of time until mandibular second molars erupt. Mandibular second and third molars that are impacted can be attempted to be up righted before, during, or after active orthodontic treatment. Another benefit of this technique is that the opposing occlusion of the maxillary arch prevents supra-eruption, therefore, reciprocating effects on the mandibular first molar are reduced to a great extent. Uprighting of lower-impacted molars can be initiated at the initial bonding appointment or at any time during the treatment sequence, thus saving time.

This method is economical, efficient and helps with bonded as well as banded appliances.

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