

Orthodontic correction of an ectopic mandibular first permanent molar: a case report

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Ectopic eruption of mandibular first molar is a rare clinical problem. It is one result of an improper balance in the forces of growth and eruption. A case of ectopic eruption of the mandibular first permanent molar is described and the technique for repositioning it is showed.

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REVIEW OF THE LITERATURE

Ectopic eruption is defined as the abnormal eruption of a permanent tooth out of position. Ectopic eruption may cause abnormal root resorption of a primary tooth. The mandibular first permanent molar rarely erupts ectopically, in fact studies by Young suggest that the incidence of ectopic eruption of the maxillary first molar occurs 25 times more frequently than the mandibular first molar.³

However Dixon and Chintakanon have reported an equal predisposition of ectopic eruption of these teeth in the maxilla and mandible with a prevalence of 0.75%.^{1,2} Furthermore, Young describes two types of ectopic eruption. The 'jump' or reversible variety which are the majority tend to self correct. The 'hold' or irreversible type do not self correct and tend to be more uncommon. Generally speaking 66% of mandibular eruption tend to be of the jump type.³

The etiology of ectopic eruption remains relatively unknown. However, a number of factors have been associated with the abnormal finding. These include: (1) imbalance in the growth of the mandible in relation to the eruption of the first permanent molar, which can encourage continued mesial inclination of the molar and subsequently its entrapment under the distal budge of the second primary molar⁴ and (2) arch length deficiency. Other important findings associated with ectopic eruption include resorption of the roots of second molar.

This is more commonly seen in the maxillary dentition when the crown of the ectopic molar impacts against the second primary molar at the crown, which is composed of enamel, resorption is not found. This type of contact tends to be more commonly seen amongst the mandibular teeth. (94.5%)¹

CASE STUDY

The patient, a 9 year old boy presented at the clinic with a non-contributory medical history. Dental examination revealed no caries and good oral hygiene orthodontic examination disclosed normal skeletal relationship, an Angle class I occlusion in the mixed dentition with a deep-bite. No functional or soft tissue abnormalities were noted. The mandibular right first permanent molar was partially erupted in the mouth with the mandibular right second deciduous molar submerged and displayed lingually.

The radiographic examination showed the mandibular right first molar horizontally positioned and located under the dental budge of the second deciduous molar. No evidence of resorption on the distal crown of the right mandibular deciduous second molar were noted. Also the distal root of the permanent molar juxtaposed the tooth bud of the second molar. (Figure 1)

TREATMENT

A modified upper Hawley appliance with an anterior bite plane was employed to disclude the posterior teeth with the objective of allowing posterior teeth eruption to correct the deep overbite and facilitate the orthodontic correction of the ectopic molar. Both the primary right canine deciduous first molar were bonded in addition the bracket was bonded on the occlusal surface of the ectopic molar. A sectional arch wire .018" stainless steel was engaged between the three units. Anteriorly it stabilized the reactive segments. Active coil spring (SE NiTi) was used to upright the ectopic molar.

Applying the horizontal force generated by the coil spring as high as possible above the center of resistance

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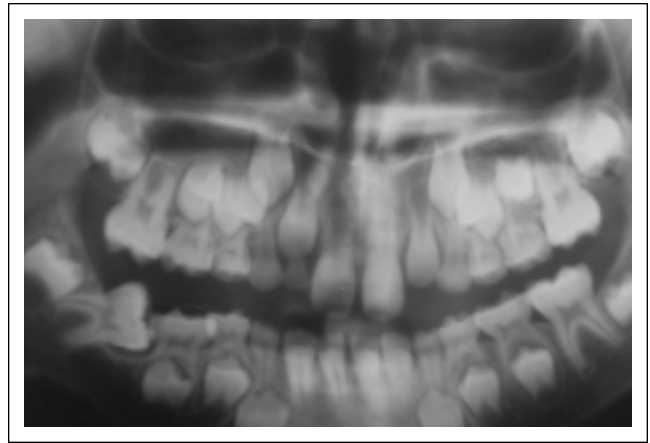
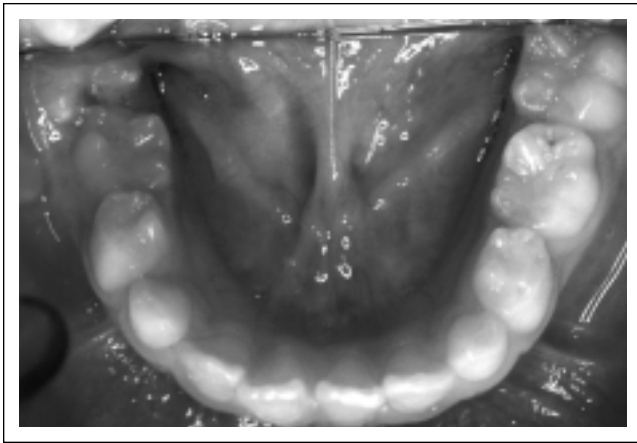


Figure 1. Patient before treatment. Horizontal malposition of ectopic mandibular first molar.

of the ectopic created a moment of a force to upright in an anti clockwise direction to correct the axial inclination of the molar. The active mechanics were employed for a period of 10 months. (Figure 2)

The panoramic radiograph reveals the correction of the molar; also note that the tooth does not appear to have impacted against the molar and tooth bud, this could be a result of the second molar tooth bud displacing distally during the uprighting of the first molar.

(Figure 3) Or potentially the center of rotation of the ectopic molar being located at distal cusp tip of the molar encourage preventing the possibility of impaction. No additional retention was planned. It is believed that the normal occlusal position of the molar with its antagonist and eruption of the right second premolar well provide adequate stability to maintain the right first molar in a corrected position.

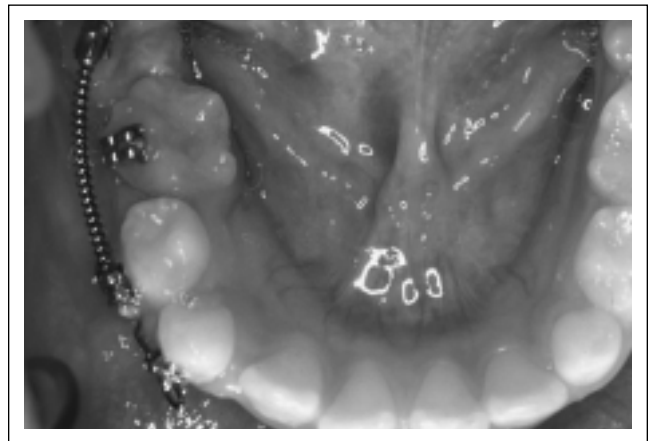
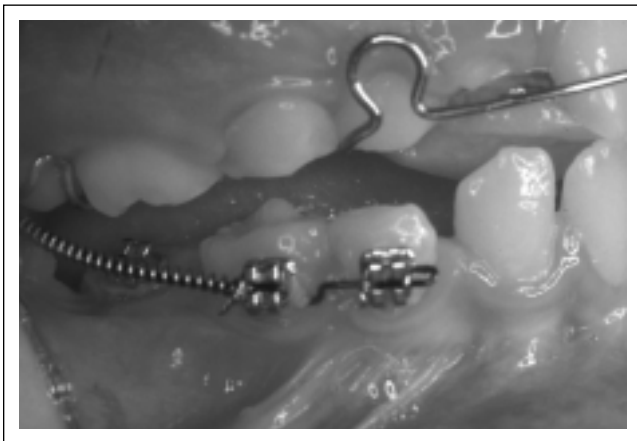


Figure 2. A modified Hawley appliance with anterior bite plane. A sectional arch wire .018" stainless steel with active coil spring.

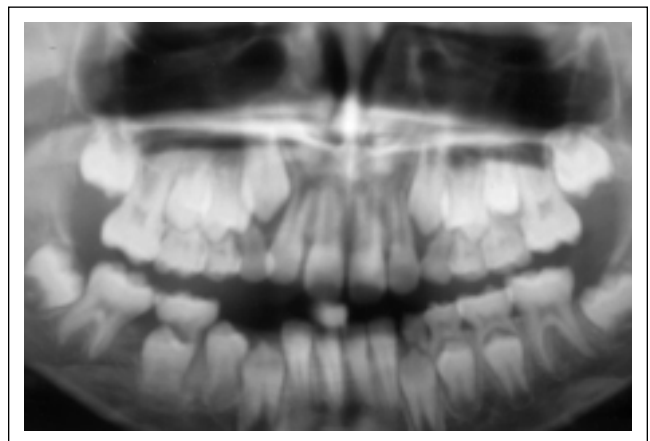
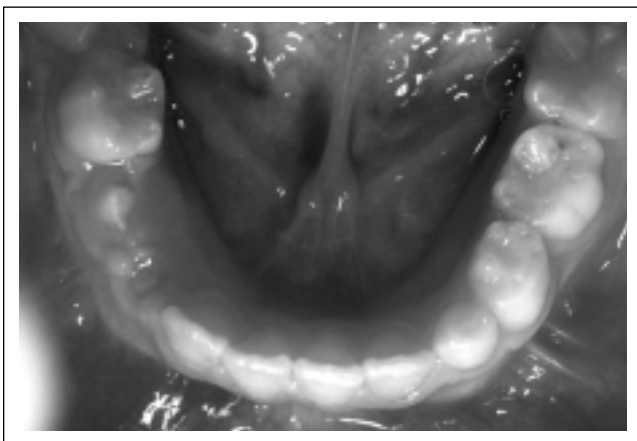


Figure 3. Post-treatment records after 10 months of active treatment

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