Correcting ectopic first permanent molars with metal or elastic separators
Kikuko Hirayama, DDS Michael H. Chow, DDS, MMSC

Introduction

Ectopic eruption of a first permanent molar\textsuperscript{1-5} is a developmental disturbance in which the mesially directed path of eruption results in resorption of the second primary molar. Pulver\textsuperscript{6} and Bjerklin\textsuperscript{7} found no specific etiologic factor for ectopic eruption, but noted that it appeared more commonly among siblings\textsuperscript{8} and was not specific to any quadrant.

Different modes of treatment have been proposed in the literature, ranging from orthodontic band and springs\textsuperscript{9-17} to Croll's bilateral band and wire appliance\textsuperscript{18} and Grim's removable Hawley appliance\textsuperscript{19} with a kick spring to distalize the trapped molar. These appliances required the patient's cooperation, and some needed preparation of the first permanent molar. Like previous band and wire appliances, the wires also tend to impinge on the gingiva or the occlusal surface, making the appliance ineffective and difficult to use.

In severe cases, when extracting the second primary molar and regaining space for the eruption of the ectopic first molar are necessary, cervical headgear\textsuperscript{20} and the ACCO\textsuperscript{21} appliance have been used to distalize the first permanent molar.

Elastic separators,\textsuperscript{22} deimpactors,\textsuperscript{23} and helical springs\textsuperscript{24} have been used for the correction of ectopically erupting permanent molars. However, they cannot be used on moderate or severe cases and the spring does not provide sufficient force to move the permanent molar.

The purpose of this article is to present a simple technique using both a metal and elastic separator to correct ectopically erupting permanent maxillary and mandibular molars. The technique does not use an impression, laboratory time, etching or involve damage to the permanent teeth and can be used in mild, moderate, and severe cases.

Technique

If the ectopy is not too subgingival, treatment can be started by placing the elastic separator mesial to the ectopic molar with separating pliers. If the contact is too subgingival, the metal separator has to be placed first. A large metal separator is used for a deeply submerged ectopic tooth.

The separator should be replaced sequentially with smaller ones, so as to apply more pressure to the contact point. Three different sizes of metal separators (T.P. Laboratory, LaPorte, IN) are available which are 0.022, 0.020, and 0.018 inch round stainless steel wire (Fig 1). The insertion of the separator is achieved most easily using a utility plier. The head of the separator is placed on the marginal ridge area of the middle of the contact area, from either the buccal or lingual side. Separators should be left in place until the tooth is erupting normally or the separator's mobility indicates a need to change to another size or to the elastic separator. As soon as the ectopic tooth erupts sufficiently with the repeated placement of the metal separators, then the elastic separator is placed. The elastic separator adds considerable bulk, so as to create the large interproximal spacing necessary to distalize the ectopic tooth. The elastic separator is removed for one month so that the ectopic tooth can erupt. This process is repeated until the ectopic molar is erupted fully.

Several cases of ectopic molars were treated successfully with the combination of metal and elastic separators. The pre- and post-treatment radiographs are shown in Figs 2 and 3 (page 343). A clinical photograph of the inserted spring is shown in Fig 4 (page 343).

Discussion

Many methods for treating ectopic eruption have been tried, but many appliances are too complicated and need considerable clinical chair time. The advan-

Fig 1. 0.022, 0.020, and 0.018 in. round stainless steel wire separators.
Fig 2. Bite-wing radiograph of the ectopically erupting left mandibular first permanent molar.

Fig 3. The result of successful treatment.

Fig 4. The placement of the metal separator.

We believe in early treatment before damage is done to the second primary molar. This method of correcting molar ectopy is simple and easy to use and should facilitate early treatment.

Dr. Hirayama is a clinical instructor and Dr. Chow is an assistant clinical professor, Pediatric Dentistry, Tufts University School of Dental Medicine, Boston, MA. Reprint requests should be sent to: Dr. Kikuko Hirayama, Department of Pediatric Dentistry, Tufts University School of Dental Medicine, One Kneeland Street, Boston, MA 02111.