

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

Different modes of treatment have been proposed in the literature, ranging from orthodontic band and springs<sup>9-17</sup> to Croll's bilateral band and wire appliance<sup>18</sup> and Grim's removable Hawley appliance<sup>19</sup> 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<sup>20</sup> and the ACCO<sup>21</sup> appliance have been used to distalize the first permanent molar.

Elastic separators,<sup>22</sup> deimpactors,<sup>23</sup> and helical springs<sup>24</sup> 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-

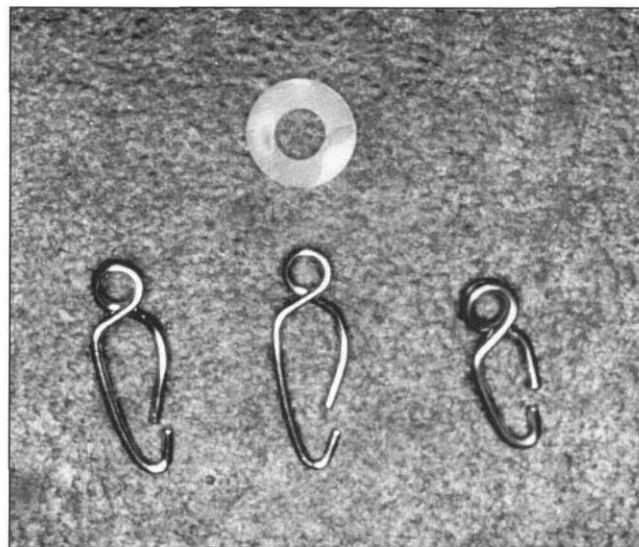
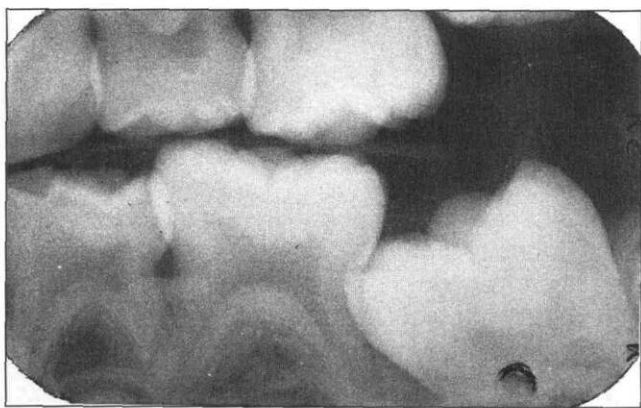


Fig 1. 0.022, 0.020, and 0.018 in. round stainless steel wire separators.



**Fig 2.** Bite-wing radiograph of the ectopically erupting left mandibular first permanent molar.

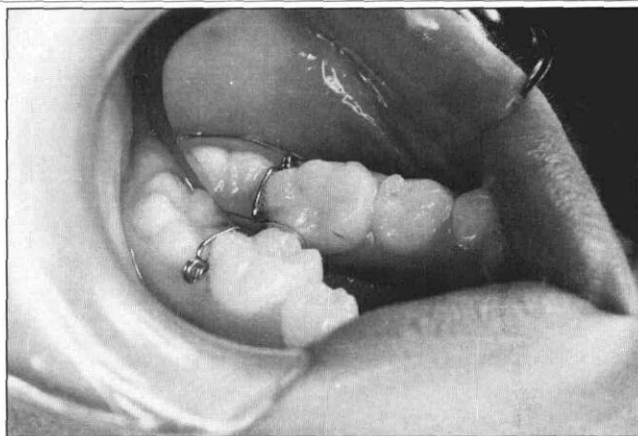


**Fig 3.** The result of successful treatment.

tages of this method are minimum chair time, patient comfort, no laboratory work, no anesthesia, no damage to the permanent molar, no bonding, no mesial movement, and also no requirement for anchorage. The simplicity of this technique reduces potential problems. The submerged location of these separators makes them less prone to dislodgment during treatment. The elastic separators come with white radiopaque dots that can be used to locate them should they be submerged completely under the gingiva.

This combination method works for mild to moderate and even some severe ectopic eruption. For the mild to moderate cases, the combination method includes an elastic separator and metal separator. For the severe cases, the combination method works if the ectopy is detected at an early stage. This technique should be successful as long as little or no crown or root resorption has occurred. Patients should be seen at monthly intervals for adjustments. Depending on the severity of the ectopy, the treatment usually can be completed in about six months.

Ectopic eruption sometimes is self correcting, and some practitioners suggest observation before therapy.



**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.

1. Young DH: Ectopic eruption of the first permanent molar. *J Dent Child* 24: 153-62, 1957.
2. Harrison LM Jr: Treatment of ectopically erupting permanent molars. *Dent Clin North Am* 28:57-67, 1984.
3. Braden RE: Ectopic eruption of maxillary permanent first molars. *Dent Clin North Am* 8:441-48, 1964.
4. Kimmel NA, Gellin ME, Bohannon HM, Kaplan AL: Ectopic eruption of maxillary first permanent molars in different areas of the United States. *ASDC J Dent Child* 49:294-99, 1982.
5. Teel TT: Ectopic eruption of first permanent molars: report of case. *J Dent Child* 56:467-70, 1989.
6. Pulver F: The etiology and prevalence of ectopic eruption of the maxillary first permanent molar. *J Dent Child* 35:138-46, 1968.
7. Bjerklind K, Kurol J: Ectopic eruption of the maxillary first permanent molar, Etiologic factors. *Am J Orthod* 84:147-55, 1983.
8. Kurol J: Ectopic eruption of maxillary first permanent molars: familial tendencies. *ASDC J Dent Child* 49:35-38, 1982.
9. Humphrey WP: A simple technique for correcting an ectopically erupting first permanent molar. *J Dent Child* 29:176-78, 1962.
10. Pulver F, Croft W: A simple method for treating ectopic eruption of the first permanent molar. *Pediatr Dent* 5:140-41, 1983.
11. Rust RD, Carr GE: Management of ectopically erupting first permanent molars. *ASDC J Dent Child* 52:55-56, 1985.
12. Groper JN: A simplified treatment for correcting an ectopically erupting maxillary first permanent molar. *ASDC J Dent Child* 52:374-76, 1985.
13. Kennedy DB: A bonded appliance to correct ectopically erupting permanent molars. *Pediatr Dent* 7:224-26, 1985.
14. Kennedy DB, Turley PK: The clinical management of ectopically erupting first permanent molars. *Am J Orthod* 92:336-45, 1987.
15. Kurol J, Bjerklind K: Treatment of children with ectopic eruption of the maxillary first permanent molar by cervical traction. *Am J Orthod* 86:483-92, 1984.
16. Seow WK: The application of tooth-separation in clinical pedodontics. *ASDC J Dent Child* 51:428-30, 1984.

- 
17. Roberts MW: Treatment of ectopically erupting maxillary permanent first molars with a distal extended stainless steel crown. *ASDC J Dent Child* 53:430-32, 1986.
  18. Croll TP: Correction of first permanent molar ectopic eruption. *Quintessence Int* 15:1239-46, 1984.
  19. Grimm SE: Treatment of ectopically erupting molars. *J Clin Orthod* 22:512-13, 1988.
  20. Kurol J, Bjerklind K: Ectopic eruption of maxillary first permanent molars: a review. *ASDC J Dent Child* 53:209-14, 1986.
  21. Bernstein L: The ACCO appliance. *J Pract Orthod* 3:461-68, 1969.
  22. Hartmann C: A treatment for ectopically erupted first permanent molars. *ASDC J Dent Child* 51:363-66, 1984.
  23. Venn RJ: Ectopic eruption of permanent first molars: a clinical technique. *J Pedod* 10:81-88, 1985.
  24. McDonald RE: *Dentistry for the Child and Adolescent*. 5th edition. St. Louis, MO: Mosby, 1985, pp 771-80.
-