

# Treatment of Unilateral Posterior Crossbite with Mandibular Shift

David Kennedy, BDS, LDS, MSD, FRCD(C)

*“Clinical Showcase” is a series of pictorial essays that focus on the technical art of clinical dentistry. The section features step-by-step case demonstrations of clinical problems encountered in dental practice. If you would like to propose a case or recommend a clinician who could contribute to this section, contact editor-in-chief Dr. John O’Keefe at [jokeefe@cda-adc.ca](mailto:jokeefe@cda-adc.ca).*

Unilateral posterior crossbite with a functional shift occurs in approximately 7% of children. When left untreated, there may be a limited degree of self-correction, which can result in asymmetric growth. If treatment is initiated in the very late deciduous or early mixed dentition stage of development, treatment time is usually short and the prognosis good.

Initial pretreatment records for a 6-year-old girl (Fig. 1) show crossbite on the left side; a centric relation to centric occlusion shift was detectable, with a mandibular midline deflection toward the side of the crossbite. The molar and canine relationships were also asymmetric, the crossbite side being half-cusp Class II and the non-crossbite side having a Class I relationship. Because of limited interproximal spacing of the maxillary deciduous incisors, crowding of the max-

illary permanent incisors was starting to develop. A Haas expansion appliance that would be used to apply slow maxillary expansion was made over the course of 3 visits. At the first visit, separators were placed proximal to the maxillary second deciduous molars. After 1 week, the separators were removed, bands were fitted, the separators were replaced, and an upper impression was taken. At the third visit, the separators were removed, and before cementing, the appliance was taken out of the mouth and the parent was instructed on how to turn the appliance. In this situation, the bands should not be overfilled with cement, as cement will be expressed under the acrylic during cementation and removal will be impossible. Slow maxillary expansion involves a quarter turn of the appliance (resulting in 0.2 to 0.25 mm of expansion) every 2 or 3 days; this is done at home by the parent. A total expansion of 5 to 6 mm



Figure 1: Pretreatment records of 6-year-old girl with left crossbite and asymmetry.

is usually required, with the overall correction taking place over 6 to 8 weeks. The parent and child were warned of temporary speech impediment and excessive saliva formation over the first week. Once overcorrection of the crossbite had been achieved, the appliance was left in place for an additional 6 months of passive retention.

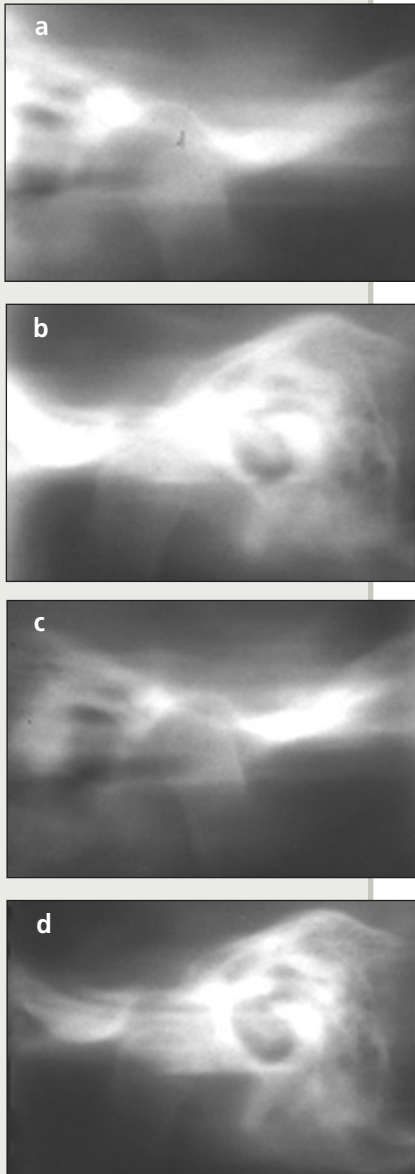
Patient records after removal of the appliance (**Fig. 2**) indicate slight overexpansion, along with correction of the crossbite. The functional shift of the mandible had been eliminated, which had resulted in spontaneous resolution of both the midline discrepancy and the asymmetric molar relationship. The previously observed crowding of the maxillary



**Figure 2:** Post-treatment records at age 7 years show correction of the crossbite and restoration of symmetry.



**Figure 3:** Records of the permanent dentition obtained at age 13 years show good long-term stability of the correction.



**Figure 4:** Tomograms.  
**a.** Right side, pretreatment.  
**b.** Left side, pretreatment.  
**c.** Right side, post-treatment.  
**d.** Left side, post-treatment.

permanent incisors had also resolved, and the first permanent molars were erupting into the correct transverse position. No further treatment was applied until after all the permanent teeth had erupted.

**Figure 3** shows the patient's mouth after eruption of all permanent teeth. Not only did the initial crossbite correction remain stable, but the resolution of asymmetry was also retained. Apart from mild crowding of the mandibular incisors, occlusion was ideal. In this instance, early intervention resulted in permanent correction and eliminated the need for more complex treatment.

**Figure 4** shows pretreatment and immediate post-treatment tomograms. Before treatment, the non-crossbite side (the patient's right side) had a large superior and posterior space between the condyle and the fossa; immediately after treatment, the condyle had centred itself within the fossa and the asymmetry had resolved. Meanwhile, the crossbite side remained centred within the fossa.

Early treatment of this patient had good short- and long-term benefits and was a cost-effective method of permanently resolving the malocclusion. ♦

#### THE AUTHOR



*Dr. Kennedy practices orthodontics in Vancouver and Richmond, B.C.*

**Correspondence to:** Dr. David Kennedy, 200-650 W 41st Ave., Vancouver, BC V5Z 2M9. E-mail: [drdavidkennedy@yahoo.ca](mailto:drdavidkennedy@yahoo.ca).

*The author has no declared financial interests.*