



Bonded compomer slope for anterior tooth crossbite correction

Theodore P. Croll, DDS William H. Lieberman, DDS

Dr. Croll is in private practice in Doylestown, Pennsylvania and clinical professor, Department of Pediatric Dentistry, University of Pennsylvania School of Dental Medicine; Dr. Lieberman is in private practice in Redbank, NJ and coordinator of continuing education at Monmouth Medical Center in Monmouth, New Jersey.

The “reverse” stainless steel crown is a well-known method of correcting single tooth anterior crossbite (Fig 1). When an elongated preformed incisor stainless steel crown is luted with the lingual surface facing labially, the resulting slope contacts the opposing mandibular incisors and normal occlusal forces move the incisors out of crossbite relationship. The reverse crown method corrects “dental tipping” type single tooth crossbite rapidly, comfortably, inexpensively, and without the need for special patient cooperation. Such treatment is also useful in certain cases of primary tooth anterior crossbite^{1,2} and was used once for treatment of a 10-month-old.³

Two disadvantages of using reverse stainless steel crowns are the unsightly silver appearance of the crown form, and the limitations of working with an inclined slope that is already formed. Both problems can be avoided by using a bonded resin-based composite custom formed inclined slope.⁴ The authors have found that using a polyacid-modified, resin-based composite material (“compomer”) to form the slope facilitates treatment. Compomers do not have the physical strengths of the unmodified resin-based composites and are therefore easier to remove from the tooth after completion of crossbite correction. This article describes correction of single tooth anterior crossbite using bonded compomer material and documents two cases of successful treatment.

Technique

Using usual acid etching and light-curing procedures, compomer material, formed into an inclined slope, is bonded to the incisal half of the maxillary tooth in crossbite. It is best to use a shade of compomer material that is easily differentiated from the shade of the tooth. The difference in shade makes

it easier to recognize the resin material for removal after treatment. The slope is designed to elongate the incisor such that some overbite is created in centric occlusion. The posterior teeth typically do not contact after slope placement, but normal posterior occlusion is re-established as soon as the maxillary incisor is displaced labially. The bonded slope can be formed using a cut down acetate (“strip”) crown form or by freehand sculpting. Crossbite correction is usually completed in two to four weeks. The resin can be removed incrementally with burs and disks over several months so that sufficient overbite relationship remains to prevent relapse.

Case I

An eight-year-old boy had crossbite of the permanent left central incisors (Fig 2). The right maxillary central incisor was not yet erupted. A compomer (Hytac, ESPE) slope was bonded to the maxillary left central incisor and remained in place for five weeks. Treatment is documented in Figures 2-4.

Case II

A seven-year-old boy had bilateral permanent central incisor crossbite (Fig 5). A compomer (F2000, 3M Dental Products) slope was bonded to the left central incisor only (Fig 6). The single slope functioned to correct crossbite of both incisors, as evidenced by the 16 month postoperative photograph (Fig 7).

Discussion

When considering anterior crossbite correction using bonded resin-based composite or compomer material, one must rule out skeletal class III malocclusion. In a classic demonstration of Newton’s third law of motion, the resin slope functions to tip an anterior tooth labially while the mandibular tooth is



Fig 1. Stainless steel crown form, cemented in reverse, creates slope for crossbite correction.



Fig 2. Eight-year-old with crossbite of the left central incisors.



Fig 3. Compomer slope, bonded in place, establishes overbite relationship and elongated inclined plane.



Fig 4. Compomer slope removed in five weeks. Crossbite corrected as seen in this view, nine months after treatment.



Fig 5. Seven-year-old with bilateral central incisor crossbite.

tipped slightly in the lingual direction. If crossbite exists because of mandibular prognathism or a posteriorly positioned maxilla (or both), bonded resin slopes are not useful for crossbite correction. In questionable cases, cephalometric studies and/or orthodontic consultation may be indicated.

The patient and parents (or guardian) should be told that the child's bite will feel unusual for awhile, but the child will adjust to it. A softer diet than usual may be helpful for the first few days after slope placement.



Fig 6. Compomer slope bonded on the left central incisor only. Note length of slope and ideal mechanical advantage.



Fig 7. Crossbite correction of both incisors achieved with one slope, seen 16 months after treatment. Right tooth apparently corrected by influence of mutual gingival fibers.

When the resin slope is removed, care must be taken not to damage the enamel surface. We recommend slow speed diamond or carbide burs and aluminum oxide finishing and polishing disks for removal of the compomer material. High speed cutting is useful to remove a bulk of material, but the operator has more control using the slow speed handpiece for the resin bonded close to the surface.

References

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