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ORTHODONTICS

Alternative Orthodontic Treatment for Adult Crossbites and Overbites

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Orthodontic treatment for deep bite cases in adults has traditionally involved either a removable anterior bite plane to supraerupt posterior teeth, or active intrusion of anterior teeth using reverse curve archwires.[1,2] Headgear and the Nance appliance are also used, but are more appropriate for growing patients. Resolving deep bites may become a necessity in order to bracket lower anterior teeth. As many patients with deep bites exhibit decreased vertical dimension caused by insufficient eruption of posterior teeth,[1] appropriate treatment allows their supra-eruption to a normal vertical dimension. Although bite plane therapy causes some intrusion of anterior teeth, the greater part of deep bite correction results from posterior extrusion and occurs within 6 months, effectively.[3] Increasing vertical dimension has been accomplished to restore lost vertical dimension due to enamel erosion,[4] and in certain cases it may aid in temporomandibular disorder treatment.[5] Removable anterior bite planes can accomplish this, but require continuous patient compliance and are difficult to use while eating, a time when posterior re-intrusion may occur.

Composite placed on the lingual surfaces of teeth Nos. 6 through 11 provides a fixed alternative to bite plane therapy. The point occlusion on composite accelerates tooth movement due to decreased occlusal interferences from intercuspation. A fixed material is less bulky than a removable Hawley, and does not require patient compliance. Furthermore, occlusal settling occurs after treatment using a Hawley retainer.[6]

This article shows cases where lingually bonded composite, or lingual brackets, were used to "jump" teeth in crossbite and allow posterior supraeruption to decrease overbite in a short treatment time for adult cosmetic orthodontic patients.

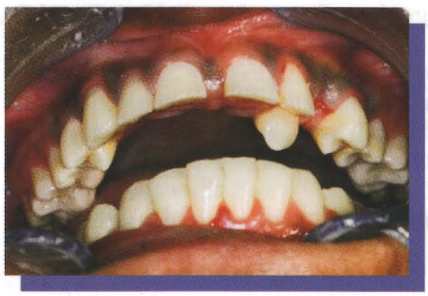

Figure 1a. Lingually positioned maxillary canine in deep crossbite.
(Photo Date: 99/5/12)

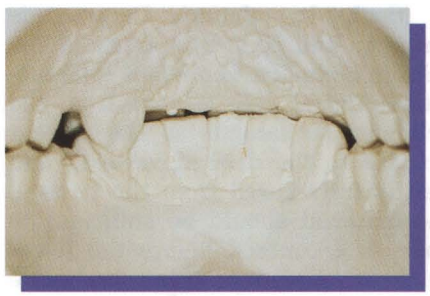

Figure 1b. Preoperative view from the lingual showing palatal occlusion and canine crossbite.

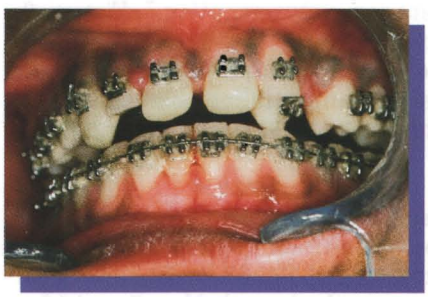

Figure 1c. Composite is placed on teeth Nos. 6, 8, and 9 to allow buccal movement of No. 11.
(Photo Date: 99/6/22)

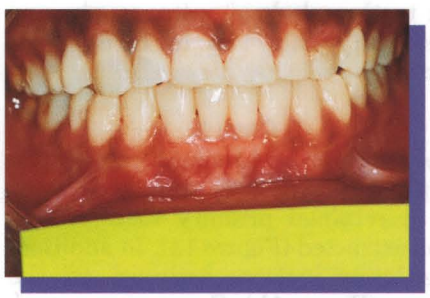

Figure 1d. Two-month recall after 7 months of treatment. Note the overbite. Tooth No. 11 will require a gingivectomy for proper gingival contour.
(Photo Date: 00/2/23)

PROCEDURE

After ideal upper and lower orthodontic bracket placement 4 mm from the incisal edge (Ortho Organizers; Elite Mini-Twins; Reliance Self Cure Cement, Reliance), the lingual surfaces of teeth Nos. 6 through 11 are etched and primed. A hybrid compos-

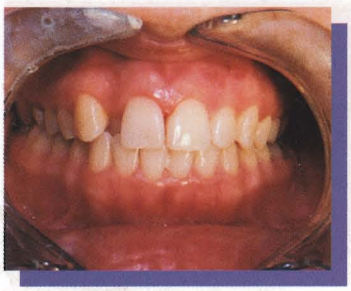

Figure 2a. Tooth No. 7 is in deep crossbite.
(Photo Date: 00/2)

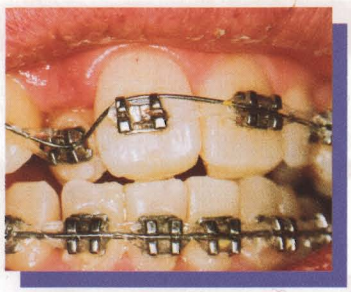

Figure 2b. Lingually bonded composite is temporarily placed on teeth Nos. 8 and 9 to allow unobstructed buccal crown tipping of No. 7.
(Photo Date: 00/3/2)

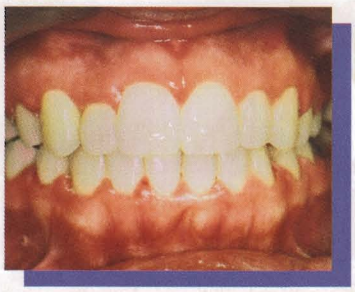

Figure 2c. After 5 1/2 months of treatment.
(Photo Date: 0/7/18)

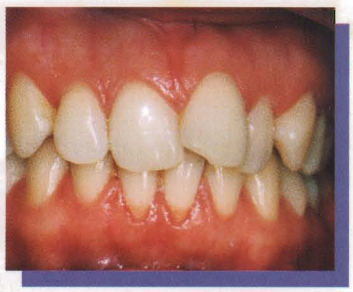

Figure 3a. Preoperative view of crowding and midline deviation.
(Photo Date:98/2/19)

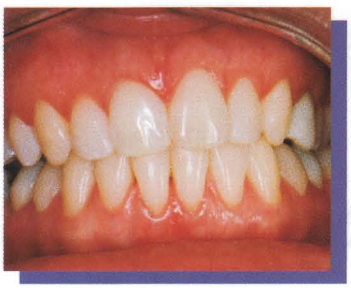

Figure 3b. After 7 1/2 months of treatment with lingual braces. Note decrease in overbite.
(Photo Date: 98/10/1)

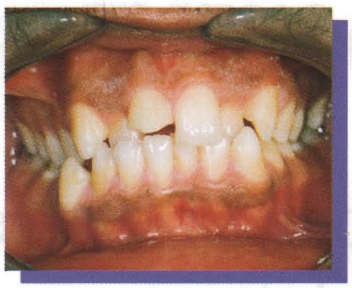

Figure 4a. Teeth Nos. 7, 10, and 29 are in deep crossbite.
(Photo Date: 99/9/13)

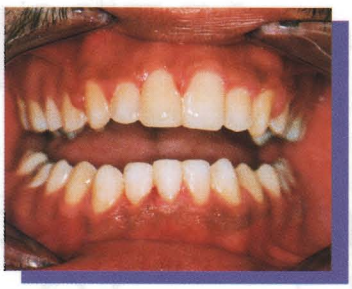

Figure 4b. After 6 1/2 months of treatment.
(Photo Date: 00/4/4)

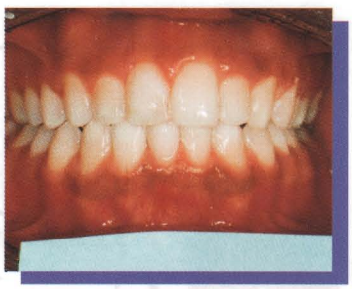

Figure 4c. Six-month recall.
(Photo Date: 00/10/9)

ite (Sculpt-It, Jeneric Pentron) is placed in the occluding areas of the teeth in occlusion to prevent intercuspation. Initial cure is done from the facial for 10 seconds as the patient occludes to the desired vertical, and then is fully cured from the palatal. The material should be sufficient to make first contact, before the lower brackets. Additions may be made before polishing. Since anterior contacts rapidly change as tooth movement occurs, it is not essential that all six teeth occlude simultaneously, and frequently only two to three teeth occlude.

Case 1

The patient had a lingually positioned upper canine in deep crossbite caused by a retained primary tooth, which was extracted (Figure 1a). In addition, the lower incisors occluded on the palate (Figure 1b). Composite material was placed on teeth Nos. 6, 8, and 9 to allow buccal movement of No. 11, as shown in Figure 1c. The lack of posterior occlusion brought supra-eruption, resolving the palatal occlusion. Anterior space closure, alignment, and the resolution of the deep bite and canine crossbite occurred in 7 months. Two-month recall is shown in Figure 1d.

Case 2

Tooth No. 7 was in deep crossbite (Figure 2a). Lingually bonded composite was temporarily placed only on the lingual surfaces of teeth Nos. 8 and 9, to allow unobstructed buccal crown tipping of No. 7 (Figure 2b). Space was made through enamel reproximation (0.15 mm perforated disks, Brasseler) of the teeth local to the crowding (Nos. 6, 7, 8, and 9), and the case was completed in 5 1/2 months (Figure 2c).

Case 3

The lingual appliance (Ormco Brackets, Specialty Labs) has a built-in anterior bite plane, which brings posterior supra-eruption.[7] Figure 3a shows a patient with crowding and midline deviation, where decreased overbite and midline correction were achieved in 7 1/2 months (Figure 3b).

Case 4

Teeth Nos. 7, 10, and 29 were in deep crossbite, which was resolved through extraction of No. 25 and bonded composite on the buccal Nos. 7 and 10 to correct the crossbite (Figure 4a). Severe crowding and anterior and posterior teeth in crossbite were resolved in 6 1/2 months (Figure 4b). Six-month recall is shown in Figure 4c.

DISCUSSION

Although complete occlusal settling takes months to occur, significant posterior supra-eruption can take place in 2 to 5 months. Bonded composite is a simple way to not only resolve anterior deep bites, but to allow anterior or posterior teeth in deep crossbite to be brought into position without occlusal interferences. Despite the fact that only a few teeth are occluding during the process, the occlusal trauma and soreness is unremarkable. Treatment is not only simplified, but also accelerated. While involving more complex mechanics, the lingual orthodontic appliance serves as a cosmetic orthodontic alternative, which also encourages posterior supra-eruption, decreases overbite, allows lower bracketing, and permits more rapid resolution of anterior and posterior crossbites.✦

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