TECHNIQUE CLINIC

Use of Lingual Brackets for Deep-Bite Correction

Although there has been considerable controversy over treatment of patients with deep overbite,[1-3] most clinicians use some combination of incisor intrusion, incisor proclination, and mandibular rotation.[4] Factors to be considered in treatment planning include the position of the occlusal plane, the anticipated amount of mandibular growth, the vertical dimension desired at the end of treatment, and the esthetics of the smile.

Burstone listed six principles that must be considered in attempting incisor or canine intrusion[5]:

1. Optimal magnitudes of force, delivered constantly with low-load-deflection springs.
2. Single-point contact in the anterior region.
3. Careful selection of the point of force application with respect to the center of resistance of the teeth to be intruded.
4. Selective intrusion based on anterior tooth geometry.
5. Control over the reactive units by formation of a posterior anchorage unit.
6. Inhibition of eruption of the posterior teeth and avoidance of undesirable eruptive mechanics.

This article will suggest a simple and effective method of intruding incisors in deep-bite cases that fully respects the principles set out by Burstone.

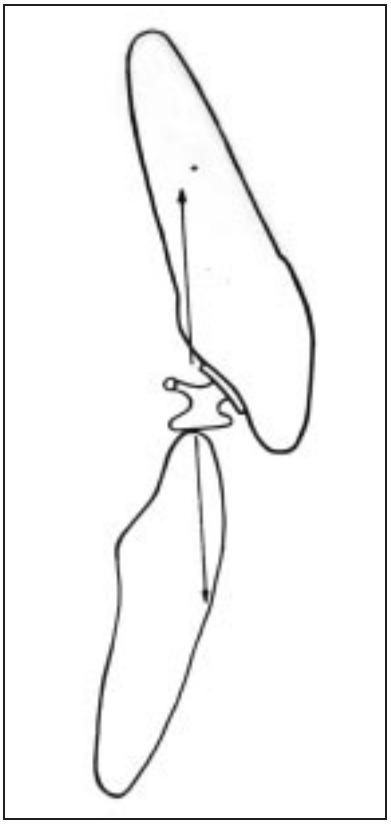

Fig. 1 Force of occlusion on lingual bracket generates intrusive components against maxillary and mandibular incisors, passing close to center of resistance of maxillary incisor.

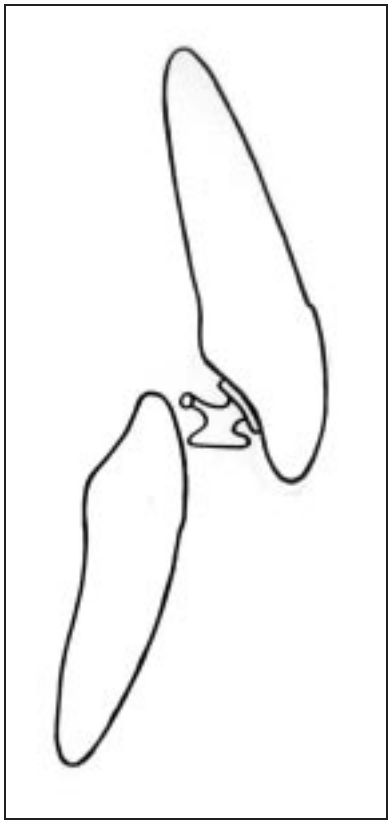

Fig. 2 With overjet of more than 4mm, mandibular incisors close behind lingual brackets.

Lingual Bracket Placement

The appliance for rapid incisor intrusion consists simply of four lingual brackets (from Ormco* or American Orthodontics**), bonded directly or indirectly. Precise placement is not necessary, because the brackets are used only as fixed biteplanes. The biting force generates intrusive components against the maxillary incisors, passing close to their centers of resistance, and against the mandibular incisors, with a line of action in front of the centers of resistance (Fig. 1).

For the mandibular incisors to occlude with the maxillary

*Ormco/"A" Company, 1717 W. Collins Ave., Orange, CA 92867.

**American Orthodontics, 1714 Cambridge Ave., Sheboygan, WI 53082.

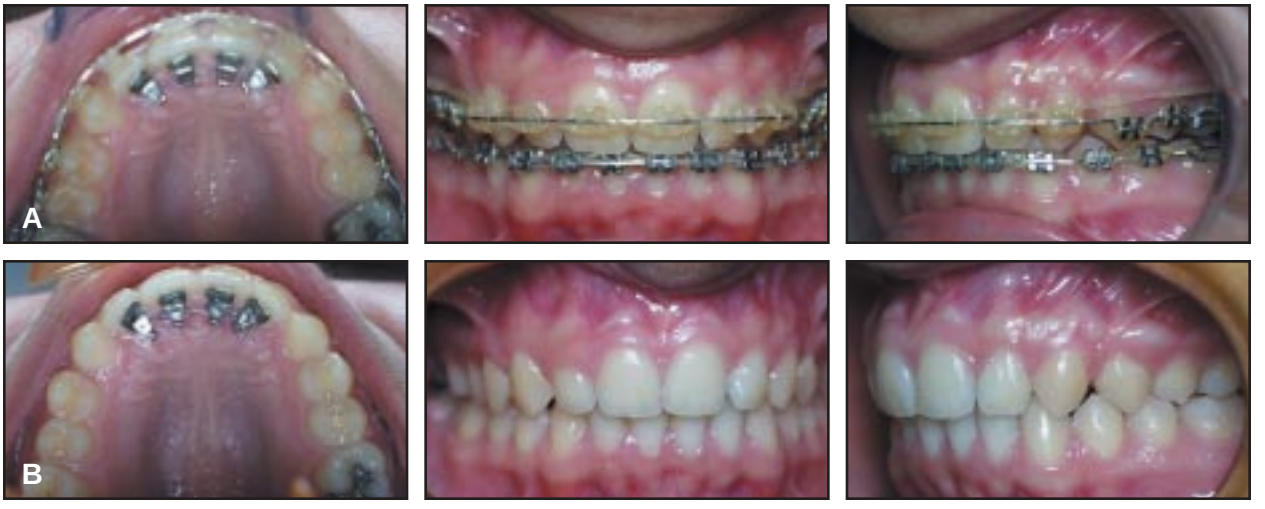

Fig. 3 A. Patient with severe deep bite and deficient lower facial height treated with fixed labial appliance and four lingual brackets. B. Malocclusion corrected in five months, with lingual brackets left for retention.

lingual brackets, the initial overjet must be less than 4mm. In patients with more severe overjets, the mandibular incisors will not close on the lingual brackets, and the therapeutic effect on the deep bite will be lost (Fig. 2).

The instantaneous bite opening produced by the lingual brackets allows immediate bonding of the mandibular anterior segment and rapid intrusion of the incisors (Fig. 3). Separation of the posterior teeth will result in only a slight increase in the tendency for posterior eruption.[6]

Conclusion

In accordance with Burstone's principles, this method uses optimal magnitudes of force, produced by the patient's muscles; uses forces with single-point contact in the anterior region, passing close to the centers of resistance of the teeth to be intruded; produces controlled, simultaneous intrusion of the maxillary and mandibular incisors; and does not require toothborne anchorage. Esthetics, comfort, and efficiency are further advantages of this simple technique.

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