

A Simplified Lingual Technique

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An increasing number of patients, especially young adults, are asking for esthetic alternatives to conventional orthodontics in the treatment of problems related to malalignment of the anterior teeth.^{1,2} One such method is the Idea-L system,* an efficient, simplified lingual technique that can be useful in cases of mild-to-moderate anterior crowding, post-treatment crowding relapse, late dental crowding, and anterior tooth spacing (Fig. 1).

Treatment with the simplified lingual technique may require interproximal enamel reduction (stripping), depending on the severity of crowding, the shape of the incisors, and the Bolton Index. The limitations of this method are that it can be used only in cases requiring minimal torque control of the anterior teeth and that it does not correct malocclusions in the posterior segments.

The Idea-L system consists of standard .018" × .025" edgewise lingual brackets that can be

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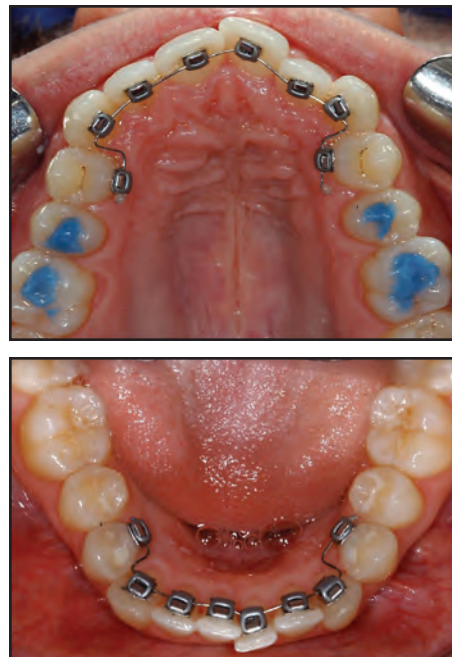


Fig. 1 Idea-L system combined with Slide low-friction ligatures.



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bonded from first premolar to first premolar or from canine to canine in either or both arches. The morphology of the bracket wings allows simple and effective placement of Slide ligatures,* which transform the bracket slots into tubes for orthodontic movement with minimal friction^{3,4} (Fig. 2A). When friction is required (as in correction of rota-

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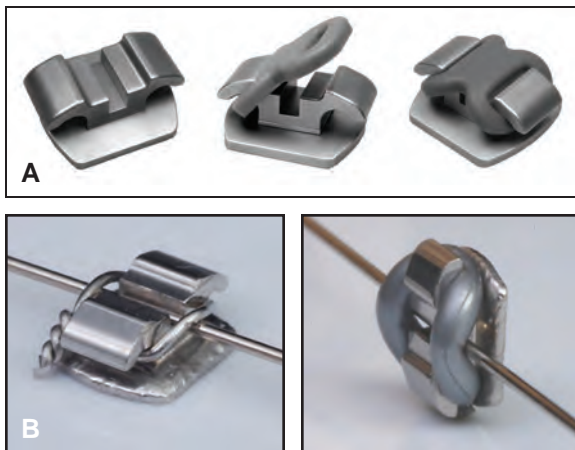


Fig. 2 Idea-L bracket used with Slide ligature (A) or with stainless steel or elastomeric ligature (B).

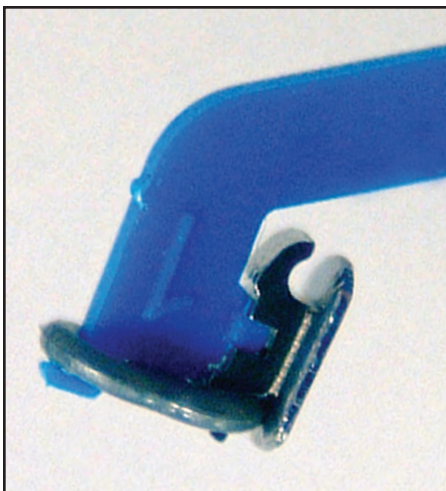


Fig. 3 Positioning jig with Idea-L bracket and Slide ligature.

tions), the Slide ligatures can be replaced with elastomeric or stainless steel ligatures (Fig. 2B).

Because the brackets are small (1.6mm wide) and thin (1.4mm), patient comfort is enhanced (especially when used with Slide ligatures), speech is not hampered, and impingement of the soft tissues, particularly the tongue, is minimized.⁵ The reduced thickness of the Idea-L brackets allows placement closer to the incisal edge, where the flat anatomy of the anterior teeth permits better adaptation and adhesion of the bracket base compared with the cingulum area.⁶ The absence of gingival hooks on the Idea-L brackets reduces tongue discomfort and facilitates oral hygiene.

Bracket Positioning and Bonding

The simplified lingual technique requires no laboratory preparation of a model setup for indirect bonding. Instead, the clinician uses special positioning jigs, available in six occlusogingival lengths in increments of .5mm, to place each bracket at the desired height on the dental cast, according to this procedure:

1. For each tooth to be bonded, choose the appropriate jig length. Insert the jig's straight projection into the bracket slot, then secure a Slide ligature

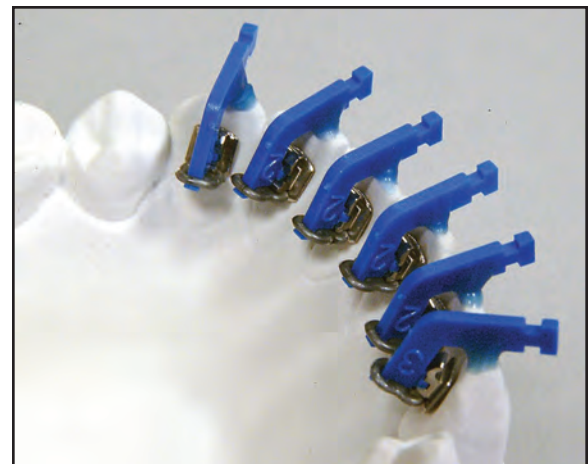


Fig. 4 Positioning jigs with bracket-ligature assemblies affixed to model teeth with thin layer of adhesive wax.

to the bracket's gingival tie wing and stretch it over the jig's hook projection (Fig. 3).

2. Place each jig with its bracket-ligature assembly in the desired location on the plaster cast, and secure it with a thin layer of adhesive wax between the jig handle and the occlusal edge of the model tooth (Fig. 4).

3. Embed the jigs into a transfer tray made from a transparent polyvinyl siloxane bite-registration material** (Fig. 5). Remove the transfer tray from the cast, and place it in the patient's mouth to check for perfect adaptation.

4. Etch the lingual surfaces of the teeth to be bonded with 37% phosphoric acid gel for 20 seconds. Rinse and dry thoroughly.

5. Apply a thin layer of primer to the etched tooth surfaces and a thin layer of adhesive to each bracket pad.

6. Seat the transfer tray firmly over the prepared teeth, applying only enough pressure to hold the tray in place without distortion.

7. Light-cure the adhesive for 10 seconds on the occlusal surface of each tooth.

8. Remove the transfer tray simply by rotating it lingually to release the jigs from the Slide liga-

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Fig. 5 Transfer tray for indirect bonding made from translucent silicone material.

tures, which will remain connected to the gingival bracket wings (Fig. 6).

9. Insert the archwire in the bracket slots, and secure the Slide ligatures over the occlusal bracket wings (Fig. 7).

Archwire Sequencing

The typical archwire sequence for the simplified lingual technique is:

- .012" superelastic nickel titanium wire for leveling and alignment
- .014" superelastic nickel titanium wire for leveling and alignment
- .016" titanium molybdenum wire for finishing and detailing

One of three lingual archforms (small, medium, or large) can be used, depending on the patient's transverse arch dimensions. When lingual brackets are placed on the first premolars, 1st-order bends must be made to give the wire its classic "mushroom" shape (Fig. 7).



Fig. 6 After removal of transfer tray, Slide ligatures remain connected to gingival bracket wings.



Fig. 7 Archwire tied into bracket slots by securing Slide ligatures over occlusal bracket wings.



Fig. 8 Case 1. 32-year-old male with post-treatment relapse of crowding in both arches.

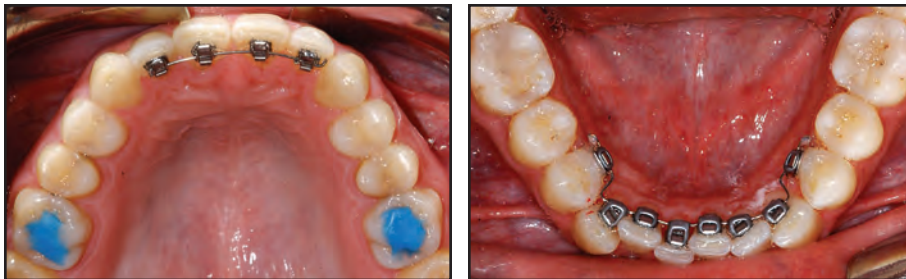


Fig. 9 Case 1. Simplified lingual technique applied in lower and upper arches.

Case 1

A 32-year-old male presented with post-treatment relapse that involved crowding of the lower arch, with an irregularity index⁷ of 9mm, and of the upper arch, with an irregularity index of 3mm (Fig. 8). Interproximal enamel reduction was carried out on the lower incisors, and Idea-L brackets were bonded in the lower arch from first premolar to first premolar and in the upper arch from lateral incisor to lateral incisor (Fig. 9).

In the lower arch, .012" and .014" superelastic nickel titanium wires were used for leveling and alignment and an .016" titanium molybdenum wire for detailing and finishing. In the upper arch, only an .012" superelastic nickel titanium wire with stainless steel ligatures was used.

After six months of treatment, the crowding had been corrected in both arches (Fig. 10). Measurements of the dental casts before and after treatment showed that the upper arch depth had increased by 2mm, while no change was observed



Fig. 10 Case 1. Patient after six months of treatment.



Fig. 11 Case 2. 17-year-old female after treatment of Class II, division 1 malocclusion with functional appliance.

in lower arch depth.⁸ Both upper and lower arch widths were unchanged.

Restorative cosmetic treatment was performed because of incisal wear on the upper and lower incisors, and 3-3 upper and lower lingual retainers were bonded.

Case 2

A 17-year-old female had completed treatment with a functional appliance for correction of a Class II, division 1 malocclusion associated with mandibular retrusion (Fig. 11). Because she declined finishing of the occlusion with conventional labial brackets, the Idea-L system was pro-



Fig. 12 Case 2. Simplified lingual technique applied in lower arch.



Fig. 13 Case 2. Patient after five months of treatment.

posed to correct crowding in the lower arch, which had an irregularity index of 5mm. Interproximal enamel reduction of the lower incisors was performed, and lingual brackets were bonded in the lower arch from first premolar to first premolar (Fig. 12).

The typical archwire sequence was used over five months of treatment (Fig. 13). The lower arch depth increased by 1mm, with no change in arch width. At the end of treatment, a 3-3 lower lingual retainer was bonded.

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