# Alignment of Blocked-Out Maxillary Lateral Incisors

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Alignment of blocked-out maxillary lateral incisors can be difficult in patients with deep overbite, primarily because of occlusal interference. A number of solutions have been proposed for this problem:

1. A fixed glass ionomer biteplane can be used to allow bonding of the maxillary lateral incisor brackets. Once initial alignment has been carried out, the brackets can be attached to the arch with, for example, a sectional .014" nickel titanium piggyback wire beneath an .018" stainless steel base archwire. When the lateral incisors are more favorably aligned, they can be ligated to the base archwire, and the biteplane can be removed.

The major drawbacks of this approach are that construction of a fixed biteplane in glass ionomer cement can be time-consuming, and its removal is sometimes difficult. The posterior biteplane can also cause difficulty with speech and eating, and is moderately uncomfortable for patients to wear. Adult patients in particular dislike the bite-ramping effect of such appliances.

2. A removable appliance incorporating a posterior biteplane can be used. Like any removable appliance, however, this will not work without patient cooperation. If the patient does not wear the appliance full-time, the lateral incisor brackets are likely to be sheared off. Ill-fitting removable appliances may also cause mucosal trauma and, if oral hygiene is poor, chronic candidal infection.

3. Our recommended solution is to initially bond the maxillary lateral incisor brackets to the lingual surfaces, thus avoiding occlusal interference and allowing rapid realignment of the blocked-out teeth. Once the teeth have been brought into the arch, the brackets can be repositioned on the labial surfaces and ligated to the main archwire as usual.

## Procedure

The lateral incisor bracket is bonded to the lingual surface using a conventional acid-etch technique. A 3.5oz elastic is first brought gingival to the archwire from the facial side and stretched over the lateral incisor to engage the gingival tie wings of the bracket (Fig. 1). The elastic is then wrapped around the archwire

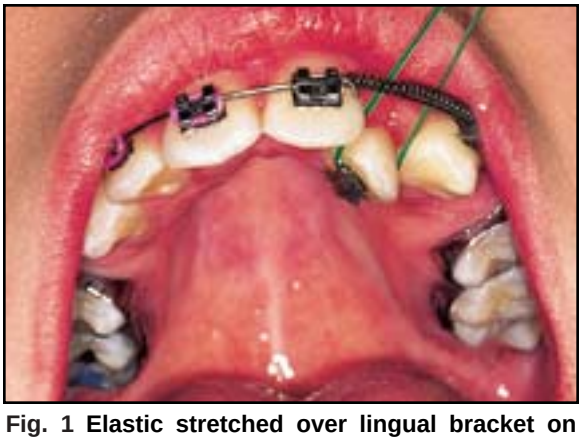

**Fig. 1 Elastic stretched over lingual bracket on blocked-out lateral incisor, gingival to archwire.**

**Fig. 2 Elastic stretched around archwire and back over bracket. Plastic hook aids in placement.**

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**Fig. 3 Case 1. 15-year-old male Class I patient with deep overbite and retroclined maxillary lateral incisors in crossbite.**

occlusally and again stretched over the lateral incisor into the bracket tie wings. Although the patient should be able to place the elastic after a few minutes of chairside instruction, a reasonable level of manual dexterity is required, and a plastic hook can sometimes be helpful (Fig. 2).

The elastics should be changed daily by the patient. After a few months, the blocked-out lateral incisors are usually in more favorable positions. Brackets are their placed in their ideal positions on the labial surfaces, and the archwire is fully engaged to allow complete alignment.

## Case 1

A 15-year-old male presented with a Class I incisor relationship on a Class I skeletal base. There was moderate crowding in the maxillary arch, with retroclined lateral incisors that were both in crossbite, and an overbite of 4mm (Fig. 3).

Treatment involved the extraction of four premolars and placement of maxillary and mandibular fixed appliances. Nickel titanium push-coil springs were used on an .018" stainless steel archwire to provide sufficient space for the blocked-out incisors (Fig. 4). Proclination of the maxillary lateral incisors was achieved with lingually placed lateral incisor brackets and elastics as described above.

**Fig. 4 Case 1. Nickel titanium push-coil springs used to open space for lateral incisors.**

After eight weeks, the teeth were in a positive overjet relationship (Fig. 5). Brackets were then placed on the labial surfaces of the lateral incisors for further alignment (Fig. 6).

**Fig. 5 Case 1. Alignment of incisors with lingually bonded brackets in eight weeks.**

## Case 2

A 13-year-old male presented with a Class II, division 1 malocclusion. There was moderate crowding in both anterior segments, with retroclined maxillary lateral incisors that were both in crossbite, and an overbite of 4mm (Fig. 7).

The treatment plan was to extract the four first premolars and to use headgear with maxillary and mandibular fixed appliances. Space was created for the blocked-out lateral incisors with nickel titanium push-coil springs between the maxillary central incisors and canines on an .018" stainless steel archwire (Fig. 8). Alignment of the lateral incisors was then begun using lingual brackets and elastics; the right lateral was moved prior to the left (Fig. 9).

**Fig. 6 Case 1. Maxillary lateral incisor brackets bonded labially for further alignment.**

In only three months, the lateral incisors had been brought into the arch enough to permit bonding of brackets in the ideal labial positions for further alignment with piggyback wires (Fig. 10).

## Conclusion

In patients with severe deep bites, blocked-out maxillary lateral incisors can be successfully aligned in a short period of time by bonding brackets lingually and having the patient replace the intraoral elastics daily. This technique avoids occlusal interferences without the need for cumbersome posterior biteplanes. It is a simple and effective treatment when other alternatives are less certain of success or more demanding of patient cooperation. ❑

**Fig. 7 Case 2. 13-year-old male Class II patient with deep overbite and retroclined maxillary lateral incisors in crossbite.**

**Fig. 8 Case 2. Maxillary right lateral incisor brought into arch with lingually bonded bracket and elastic.**

**Fig. 9 Case 2. Maxillary left lateral incisor brought into position.**

**Fig. 10 Case 2. Labial brackets placed on both lateral incisors for labial root torque.**