

Correcting a Single-Tooth Anterior Crossbite with Lingual Segmented Mechanics

VITTORIO CACCIAFESTA, DDS, MSC
MARIA FRANCESCA SFONDRINI, MD, DDS

Clinical management of a single-tooth anterior crossbite is often challenging for the orthodontist, particularly when using lingual appliances. If the tooth is in deep overbite, a biteplane can prevent interference from the opposing arch.¹ If the biteplane is lost or not worn full time, however, the occlusal contact may not allow the mal-

posed tooth to be moved buccally.

Some clinicians use glass ionomer splints to free the anterior teeth in cases of deep overbites.² This article demonstrates the combined use of a lingual cantilever and a glass ionomer splint for correcting a single-tooth anterior crossbite.



Fig. 1 27-year-old male before treatment, showing maxillary left lateral incisor in crossbite and slightly rotated mesially.



Fig. 2 S-loop .017" × .025" TMA cantilever from premolar bracket used to move lateral incisor out of cross-

Dr. Cacciafesta is Assistant Clinical Professor, Department of Orthodontics, University of Pavia, Italy, and University of Aarhus, Denmark. He can be contacted at Piazza Dante 3, 27100 Pavia, Italy; e-mail: vcacciafesta@hotmail.com. Dr. Sfondrini is Assistant Clinical Professor, Department of Orthodontics, University of Pavia, Italy.



Dr. Cacciafesta



Dr. Sfondrini

Case Report

A 27-year-old male presented with the maxillary left lateral incisor in lingual crossbite and mesially rotated (Fig. 1). The patient asked for an “invisible” appliance and fast treatment.

An .022" premolar bracket was bonded to the palatal surface of the maxillary left second premolar. An S-loop .017" × .025" TMA* cantilever was engaged in the bracket slot and activated for buccal movement and slight distal rotation of the left lateral incisor, with the mesial end bonded to the lateral incisor's lingual surface

(Fig. 2). A glass ionomer splint (Fuji Ortho LC**), bonded to the mandibular first molars, was used to open the bite and thus allow faster correction of the crossbite.

After one month, the cantilever had brought the lateral incisor completely into alignment and had corrected the rotation (Fig. 3). After two months, the cantilever was removed, and a fixed lingual retainer was bonded (Fig. 4).

*Registered trademark of Ormco/“A” Company, 1717 W. Collins Ave., Orange, CA 92867.

**Trademark of GC America, Inc., 3737 W. 127th St., Alsip, IL 60650.



Fig. 3 Patient after one month of treatment, showing alignment and distal rotation of lateral incisor.



Fig. 4 Patient after two months of treatment, with bonded lingual retainer in place.



Discussion

The lingual cantilever mechanics shown in this case permits the clinician to apply a well-defined biomechanical force system for highly controlled tooth movement. Multilooped cantilevers can be designed to create statically determinate force systems in various clinical situations. The results are highly predictable, and any undesirable side effects can be minimized and easily monitored during treatment.

In addition, the low load-deflection rate and wide range of activation of TMA wires enable them to deliver relatively constant forces throughout orthodontic movement, without the need for frequent reactivations and appliance adjustments.

Finally, the lingual appliance is invisible and well tolerated, thus satisfying the patient's needs.

REFERENCES

1. Fischer, T.J. and Ziegler, F.D.: Crossbite correction with Copper Ni-Ti archwires and lingual brackets, *J. Clin. Orthod.* 30:97-98, 1996.
2. Carter, R.N.: Glass ionomer orthodontic splints, *J. Clin. Orthod.* 30:106-109, 1996.