CASE REPORT

Treatment of Class III Anterior Crossbite Using Güray Bite Raisers

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Class III malocclusion may be associated with mandibular prognathism, maxillary retrognathism, or both.[1-7] Class III maxillary retrognathism generally involves anterior crossbite, which must be opened if upper labial brackets are to be bonded. Removable appliances used for this purpose require patient cooperation; posterior composite ramps may not resist the forces of mastication, and lingual incisor brackets are easily sheared off.

Diagnosis and Treatment Planning

A 13-year-old female presented with the chief complaint of a protruding lower jaw (Fig. 1). Initial evaluation revealed a normal profile with no asymmetries or signs of TMD. The patient had a super-Class I molar relationship with an overjet of –2.5mm, overbite of 2mm, and maxillary and mandibular arch-length discrepancies of 8mm and 2mm, respectively. She had completed 95.8% of her skeletal growth. In the functional examination, she could move the mandible back to an edge-to-edge position (Fig. 2).

Maxillary constriction in the sagittal plane had resulted in maxillary retrusion relative to the cranial base, retroclination of the upper incisors, and retrusion of the upper lip. The main treatment objectives were elimination of the anterior crossbite, correction of the upper arch-length discrepancy, and improvement of the patient's soft-tissue profile.

Treatment Progress and Results

Maxillary edgewise brackets were placed, and an .016" × .016" Ricketts protrusion arch was used to protrude the upper incisors (Fig. 3A). To temporarily open the bite, Güray bite raisers[8] were attached to the occlusal surfaces of both maxillary molars (Fig. 3B). After four months of treatment, positive overjet had been attained and maxillary crowding eliminated.

Edgewise brackets were then bonded in the lower arch, and 120g Class III elastics were used to achieve a Class I canine and molar relationship. After an ideal buccal occlusion, overjet, and overbite had been attained, the appliances were debonded, and upper and lower Hawley retainers were delivered (Fig. 4A). The total treatment time was 22 months.

Post-treatment cephalomet-

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ric analysis showed anterior maxillary positioning relative to the cranial base and forward positioning of the upper incisors (Fig. 4B, Table 1). Although Class III elastics were used, the pretreatment position of the mandibular incisors was maintained. The vertical dimension increased as the anterior crossbite was eliminated.

Discussion

Appliances that can be used in early orthodontic treatment of

TABLE 1
CEPHALOMETRIC DATA

	Pretreatment	Post-Treatment
SNA	83.0°	85.0°
SNB	84.5°	81.5°
ANB	–1.5°	3.5°
U1-NA	21.0°	30.0°
U1-NA	2.0mm	5.5mm
L1-NB	30.0°	30.5°
L1-NB	5.0mm	5.0mm
Pg-NB	1.5mm	2.5mm
Interincisal angle	125.0°	119.0°
Occlusal plane-SN	12.0°	15.0°
GoGn-SN	26.0°	30.0°
Upper lip to Steiner's soft-tissue line	–2.0mm	–1.0mm
Lower lip to Steiner's soft-tissue line	2.0mm	0.0mm

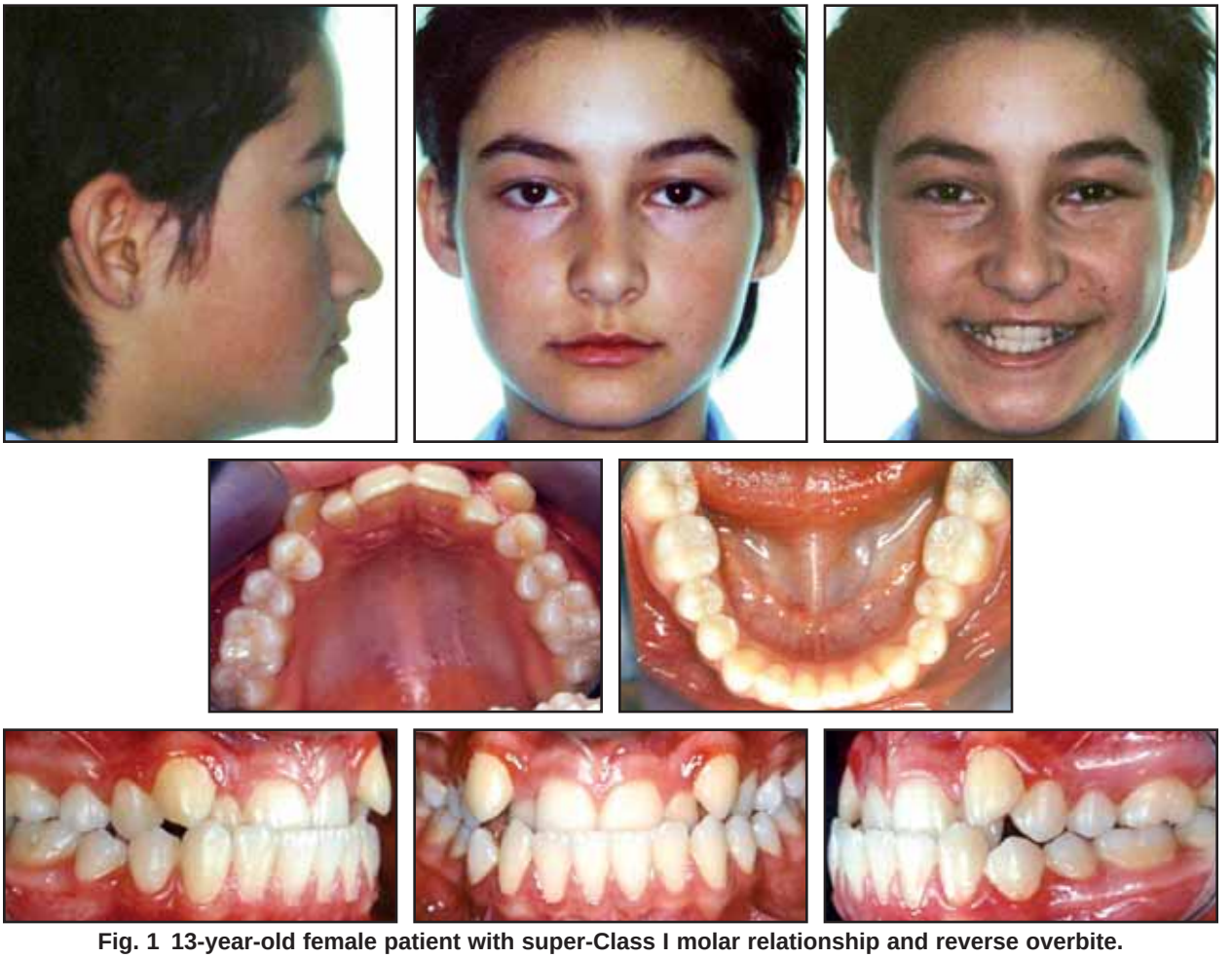

Fig. 1 13-year-old female patient with super-Class I molar relationship and reverse overbite.

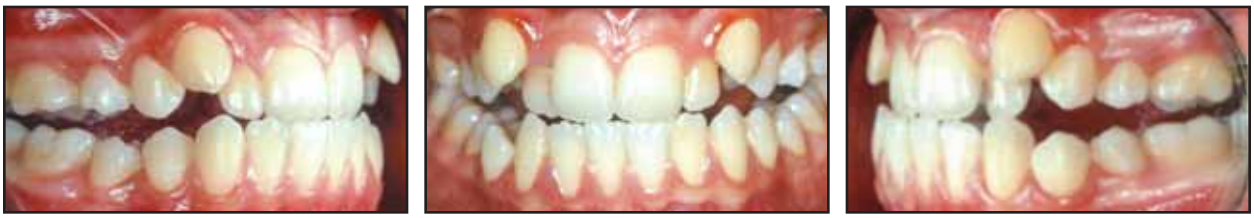

Fig. 2 Edge-to-edge incisor position achieved by moving mandible back.

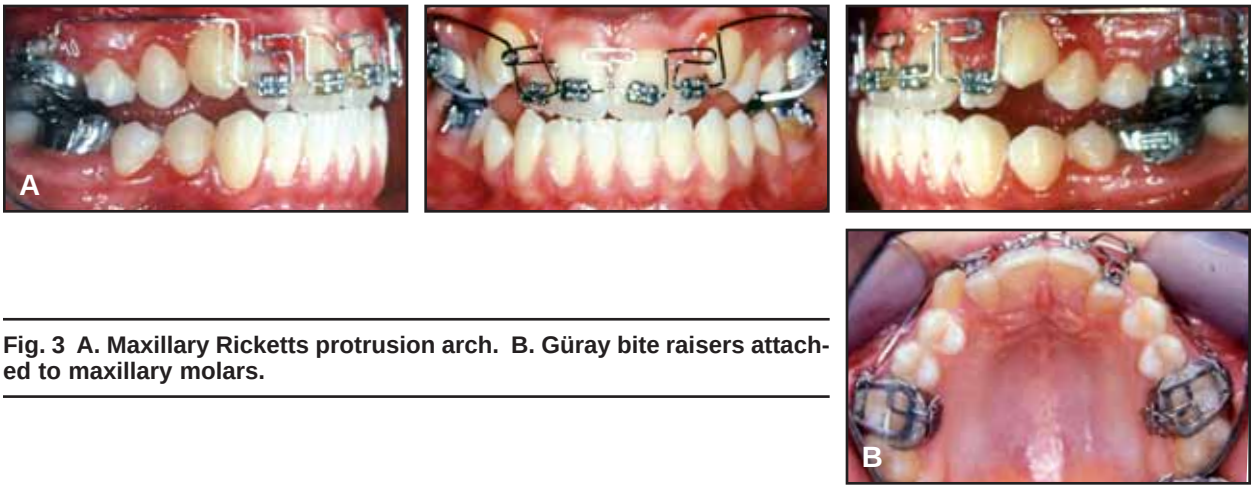

Fig. 3 A. Maxillary Ricketts protrusion arch. B. Güray bite raisers attached to maxillary molars.

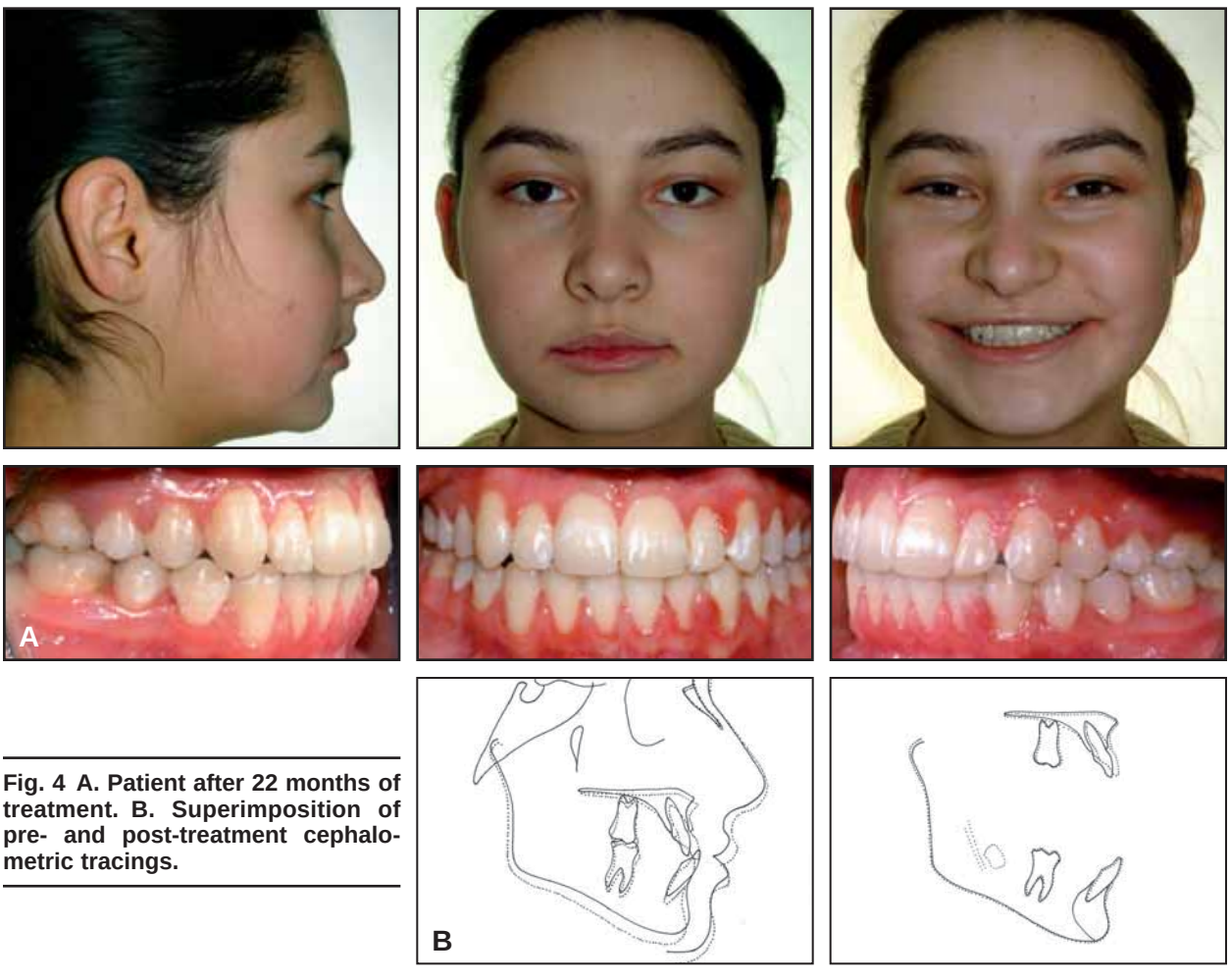

Fig. 4 A. Patient after 22 months of treatment. B. Superimposition of pre- and post-treatment cephalometric tracings.

Class III malocclusion include the Delaire facemask, reverse-pull headgear, Fränkel III, bionator III, Class III twin block, magnetic twin block, and Altuğ mini-maxillary protractor.[9-14] Chin-cup therapy can also be effective in skeletal Class III patients.[9,15-21] Because these devices all require patient cooperation to be effective, however, edgewise appliances with protrusion mechanics may be preferable if the bite can be opened to allow initial bonding of the maxillary incisors.

Treatment of adult Class III patients always involves fixed appliances, with or without extraction and orthognathic surgery. A Class III activator can be used, but fixed appliance therapy is still needed to eliminate maxillary crowding after the activator treatment.

In the case presented here, temporary use of Güray bite raisers allowed simultaneous fixed appliance treatment and overbite reduction. The patient was treated to an ideal result, with full occlusion and a harmonious facial profile.

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