



# Conventional surgical-orthodontic approach with double-jaw surgery for a patient with a skeletal Class III malocclusion: Stability of results 10 years posttreatment

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This case report presents the treatment of a young man with a skeletal Class III malocclusion. He was treated with a conventional surgical-orthodontic approach in which 2 jaw surgeries were performed. The esthetic facial profile, pleasant smile, appropriate occlusion, and overall good treatment outcome remained stable 10 years after active orthodontic treatment. (*Am J Orthod Dentofacial Orthop* 2018;154:128-39)

Although various types of skeletal and dental profiles are associated with Class III malocclusions,<sup>1</sup> the mandible is typically the aberrant skeletal component of the patient's craniofacial anomaly.<sup>2-6</sup> The standard approach for adults with dentofacial deformities is surgical-orthodontic treatment.<sup>2-9</sup> Most dentofacial deformities requiring 2 jaw surgeries can be corrected with conventional orthognathic treatment.<sup>10</sup> However, currently, some clinicians are again advocating surgery first to reduce treatment time and prevent worsening of the profile during decompensation.<sup>2,3,8,11-14</sup>

Proper evaluation of patients requires examination of facial soft and hard tissues.<sup>4</sup> When planning surgery for Class III patients, the lip position is an important point to consider.<sup>4,15-18</sup> Many factors are involved in lip protrusion, and the amount of protrusion can

be controlled by various orthodontic and surgical procedures.<sup>17-20</sup> After treatment, orthognathic surgery patients benefit from an improved smile, more positive esthetics, increased self-esteem, and consequently a better quality of life.<sup>3,9,19,21-25</sup>

Orthodontists and surgeons should be experienced, and teamwork is necessary to achieve the treatment objectives. The successful attainment of treatment goals was achieved for this patient with an interdisciplinary approach.<sup>20,23</sup>

This article describes the treatment of a Class III patient including the combination of 2 jaw surgeries. Bilateral sagittal split osteotomy procedures were performed to set back the mandible and correct the occlusal cant; a LeFort I osteotomy was performed for advancement and anterior inferior repositioning to correct the maxillary anterior vertical tooth display, the smile anatomy, and the fullness of the upper lip. The esthetics and occlusal results achieved and their stability are shown in a 10-year follow-up. See [Supplemental Materials](#) for a short video presentation about this study.

## DIAGNOSIS AND ETIOLOGY

A male patient, aged 19 years, came for orthodontic treatment at the dental school in Associação Brasileira de Odontologia, Porto Alegre, Rio Grande do Sul, in Brazil with the chief complaint of the unesthetic appearance of his teeth. He also complained of chewing difficulties and impaired nasal function. He reported that he had undergone orthodontic treatment

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All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest, and none were reported.

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**Fig 1.** Pretreatment facial and intraoral photographs. Facial photograph shows occlusal cant to the left.

when both maxillary first premolars were extracted because of lack of space for the canines. The facial photographs showed an increased lower facial third, a concave profile, and incompetent lips in a relaxed position.<sup>4,15-18</sup> The upper lip was retruded by 1.5 mm, and the lower lip was protruded by 5 mm in relation to the S-line. The intraoral photographs and dental casts showed Class II molar and Class III canine relationships, 3.5-mm negative overjet, 1-mm overbite, and occlusal cant. The maxillary arch was relatively constricted, and a midline diastema could be seen. Posterior and anterior crossbites, extending from the right first molar to the left second molar, were associated with the transverse maxillary deficiency (Figs 1 and 2).

The cephalometric analysis showed a Class III jaw-base relationship (ANB angle,  $-1^\circ$ ; Wits appraisal,  $-7$  mm). The maxillary incisors were relatively well positioned, whereas the mandibular incisors were protruded (1: NA, 6 mm and  $19^\circ$ ; 1: NB, 10 mm and  $32^\circ$ ; IMPA,

$90^\circ$ ). The Steiner<sup>26</sup> (SNA angle,  $86^\circ$ ; SNB angle,  $85^\circ$ ) and McNamara<sup>27</sup> analyses showed both maxillary and mandibular protrusion in relation to the cranial base (Co-A, 102 mm; A-NPerp, 5 mm; Co-Gn, 145 mm; Pog-Nperp, 11 mm). A remarkable maxillomandibular discrepancy was noticed, with Co-A to Co-Gn of 43 mm, when the normal range is 30 to 33 mm. The measurements also highlighted an increased lower facial height (82 mm). The panoramic radiograph showed all teeth, except for the third molars and maxillary first premolars (Fig 3; Table).

#### TREATMENT OBJECTIVES

The treatment objectives were to (1) correct the maxillomandibular discrepancy to obtain a normal occlusion, (2) resolve the crossbite, and (3) achieve ideal overjet and overbite, thus improving function and esthetics.

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