

Orthodontic-surgical retreatment of facial asymmetry with occlusal cant and severe root resorption: A 3-year follow-up

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Our objective was to report the orthodontic and surgical retreatment of a patient who had undergone a prolonged orthodontic treatment with extractions, but who had unsatisfactory results and persistent side effects. The man, aged 25 years 3 months, sought treatment with major complaints of facial and smile asymmetries. The clinical examination showed a mandibular deviation to the right and a maxillary occlusal cant. A Class II Division 1 subdivision right was observed. Radiographic examination showed extensive root resorptions in the maxillary second premolars and absence of the 4 first premolars. The maxillary midline was deflected 2 mm to the left, and the mandibular midline was shifted 5 mm to the right. Aligning and leveling were performed with orthodontic fixed appliances, with a standard edgewise system (0.022 × 0.028 in), followed by LeFort I maxillary impaction and bilateral sagittal split osteotomy with asymmetrical advancement. Retreatment showed outstanding results that remained stable after 3 years of follow-up. Root resorption in the second premolars did not seem to increase. Orthodontic-surgical intervention is the main choice for correcting esthetic and functional problems in facial asymmetry, particularly in cases of retreatment. (*Am J Orthod Dentofacial Orthop* 2017;152:268-80)

Facial asymmetry is characterized by an imbalance between the homologous parts that comprise the craniofacial complex.¹ It can be caused by skeletal disorders of genetic origin such as developmental hemifacial microsomia (arising during growth) or acquired hemifacial microsomas due to fractures, traumas, or injuries that compromise facial growth.²⁻⁴

The accurate diagnosis of asymmetries is fundamental and must be made through clinical examination, functional analysis, photographic analysis, and especially imaging tests, including frontal cephalograms or computed tomography.⁵

Small facial asymmetries, defined as slight differences between the right and left sides of the face, are common, and conventional orthodontic treatment is generally effective in correcting them.^{3,5-8} However, in more severe cases, orthodontic-surgical treatment is indicated to ensure better functional and esthetic results.⁷⁻⁹

We report a case of orthodontic-surgical retreatment performed in a man with considerable facial asymmetry and an occlusal plane cant.

DIAGNOSIS AND ETIOLOGY

This patient, aged 25 years 3 months, sought treatment in the Department of Orthodontics, Universidade Federal Fluminense, Niterói, Rio de Janeiro, Brazil, because he was dissatisfied with his previous orthodontic treatment. His major complaints were facial asymmetry, midline deviation, and unsatisfactory esthetic and functional results.

Upon clinical examination, restorations were found on several teeth with deficient aspects as well as the results of previous orthodontic treatment, which had involved extraction of the 4 first premolars.

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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 photographs.

The frontal face evaluation showed facial asymmetry, with the right side larger than the left, pronounced inclination of the occlusal plane, and unsatisfactory exposure of the teeth on smiling. Furthermore, there was a deviation in the mandibular closure pattern with occlusal interferences. The patient had a pleasant but slightly concave facial profile (Fig 1).

He presented a dental Class II Division 1 subdivision right relationship (Angle), 3.5-mm overjet, 4.5-mm overbite, maxillary midline diverted to the left by 2 mm, mandibular midline shifted to the right by 5 mm, and a marked inclination of the maxillary occlusal plane. A crossbite on the right second molar, and spaces of approximately 3.5 mm between the mandibular teeth and 1.5 mm between the maxillary teeth caused by relapse of extraction spaces were also observed (Fig 2).

The radiographic examination showed absence of the 4 third molars and 4 first premolars, extensive root

resorption primarily in the maxillary second premolars, and endodontic treatment of the mandibular left first molar (Fig 3).

Lateral cephalometric radiography and cephalometric tracings (Fig 4; Table) showed mandibular and maxillary retrusion (SNA, 78°; SNB, 79°), with a slight maxillomandibular discrepancy (ANB, -1°), increased vertical dimension (SN.GoGn, 39°; FMA, 29°; y-axis, 60°), and slight retraction of the lips (S-LS, -1 mm; S-LI, -1.5 mm).

Ricketts' frontal cephalometric analysis (Fig 4; Table) showed skeletal asymmetry of the mandible (8-mm deviation) and mandibular dental asymmetry (5-mm deviation).

TREATMENT OBJECTIVES

The treatment objectives were to (1) improve the frontal facial aspect with the correction of asymmetry,

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