

Nonsurgical treatment of an adult with an open bite and large lower anterior facial height with edgewise appliances and temporary anchorage devices

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A woman was referred to the orthodontic clinic for treatment. She was diagnosed with a skeletal Class II malocclusion, a steep mandibular plane, and an anterior open bite. Conventional orthodontic treatment was considered to correct the maxillary protrusion and anterior open bite, but the patient also requested improvement of her facial esthetics. We therefore decided that nonsurgical treatment consisting of 4 premolar extractions combined with temporary anchorage devices was indicated. Satisfactory improvement of the overjet and overbite, and proper functional occlusion were obtained, resulting in a Class I molar relationship. Active treatment was completed in 2 years 10 months, and the result remained stable at 2 years 6 months after debonding. (*Am J Orthod Dentofacial Orthop* 2016;149:889-98)

Orthodontists often encounter various types of open-bite malocclusions in adult patients. Open-bite malocclusion can be corrected by conventional orthodontic methods, orthodontic treatment combined with temporary anchorage devices (TADs), or orthognathic surgery. Recently, TADs have been developed and are indicated for various orthodontic conditions.^{1,2} The major applications of TADs in orthodontic treatment are intrusion or distal movement of the molars. The morphologic characteristics of open bite are a steep mandibular plane, thin and long morphology of the mandibular symphysis, and increased anterior facial height. Orthodontic treatment combined with TADs, as well as surgical orthodontic treatment, might improve facial esthetics without increasing the anterior facial height.

In this case report, we demonstrate a nonsurgical orthodontic treatment of an adult with a skeletal Class II anterior open bite and a large Frankfort-mandibular plane angle (FMA). Since the patient desired improvement of her facial esthetics along with a suitable occlusion by undergoing orthodontic treatment alone, nonsurgical treatment combined with TADs was applied.

DIAGNOSIS AND ETIOLOGY

The patient was a 28-year-old Japanese woman with an anterior open bite and crowding. She was in good health and had no contraindications for dental treatment. No facial asymmetry was evident in the frontal view of the face. She had a convex facial profile with increased anterior lower facial height and upper lip protrusion with incompetent lips (Fig 1). She had an anterior open bite and anterior crowding in both arches. The molar relationship was Angle Class II subdivision on the right. Overjet and overbite were +2.5 and -0.5 mm, respectively. Both arches were narrow in the molar regions (Fig 2). The cephalometric analysis showed a skeletal Class II malocclusion (ANB, 7.0°) with a long face, and the morphology of the mandibular symphysis was thin and long. The maxillary and mandibular incisors had a lingual inclination (maxillary central incisor to SN, 92.5°) and an incisor-mandibular plane angle (IMPA) of 82.0° (Table). The patient was

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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.



Fig 2. Pretreatment dental casts.

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