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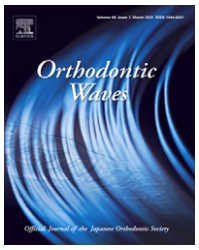

Case report

Nonsurgical treatment of adult skeletal Class III malocclusion with crowding and missing four premolars corrected with extraction of mandibular first molars

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ABSTRACT

An adult male patient was present with anterior cross bite. He was referred to Orthodontic Clinic of Niigata University Medical and Dental Hospital for recommendation of surgical orthodontic treatment by general practitioner. The patient was diagnosed as skeletal Class III with anterior crowding and missing four premolars. To correct anterior cross bite and crowding, surgical orthodontic treatment was considered, but the patient refused orthognathic surgery. We therefore determined that nonsurgical treatment with mandibular bilateral first molar extraction would be indicated.

After treatment, suitable overjet, overbite and proper functional occlusion were attained with Class I molar relation. Active treatment was 34 months, and the treatment result remained stable 2 years and 4 months after debonding.

1. Introduction

Japanese orthodontists are often faced with various types of Class III malocclusions. Class III malocclusion can be corrected by either orthopedic, camouflage orthodontic, or surgical orthodontic treatment.

Concerning so-called "borderline case" between surgical orthodontic treatment and orthodontic treatment alone, it is important that not only maxillo-mandibular relationship and occlusal statement [1,2], but also patients' demands for facial profile and psychosocial state around the patient are sufficiently considered and treatment plan should be designed.

In this report, we demonstrate nonsurgical orthodontic treatment in adult skeletal Class III with anterior crowding and bilateral absence of maxillary and mandibular premolars. The patient did not accept drastic change of facial appearances by orthodontic remedy. Therefore, nonsurgical treatment with mandibular bilateral first molar extraction was planned and performed.

2. Case report

2.1. History and diagnosis

The patient was 34-year one-month-old Japanese male with chief complaint of anterior cross bite. The patient was referred to Orthodontic Clinic of Niigata University Medical and Dental

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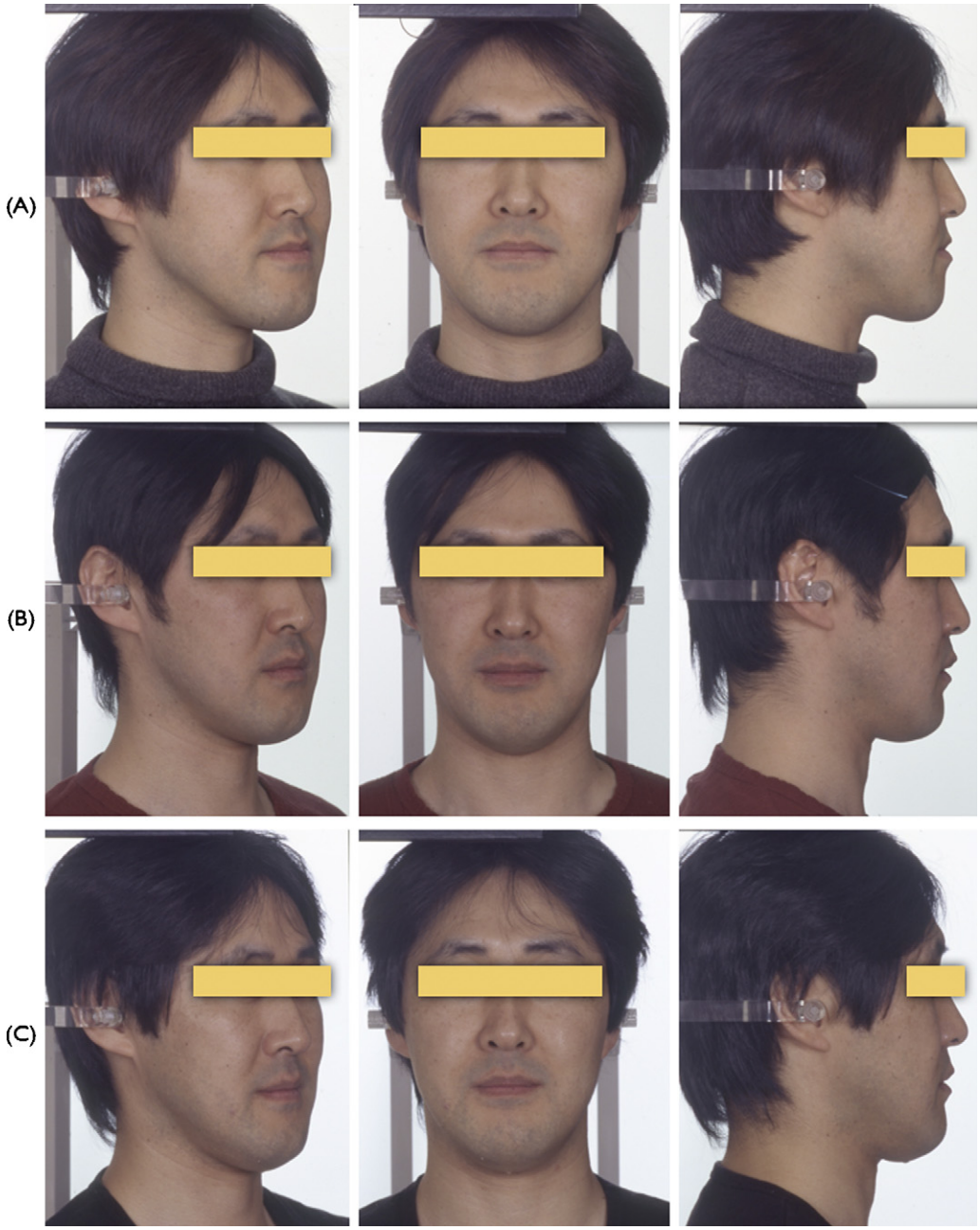

Fig. 1 – Facial photographs: (A) pretreatment; (B) posttreatment; (C) postretention.

Hospital for recommendation of surgical orthodontic treatment by general practitioner. He was in good health and possessed no contraindications to dental treatment. No facial asymmetry was evident in the frontal view of the face. He had straight facial profile with increased anterior lower facial height and lower lip protrusion with incompetent lip (Fig. 1A). He had no history of orthodontic treatment, but his four premolars were extracted in childhood due to severe crowding. The intraoral view showed anterior cross bite and lateral cross bite on the right posterior region and lingual tipping of the mandibular molars on the left side. The molar relations were Angle Class III bilaterally. Overjet and overbite were −4.0 mm and 0.5 mm, respectively (Fig. 2A). The third molars of the mandible had been fully erupted (Fig. 3A). The cephalometric analysis revealed skeletal Class III (ANB, −2.0°) with long facial type, especially thin and long morphology of the mandibular symphysis. While the axial inclination of the maxillary incisors was almost adequate (U1 to SN, 100.5°), the mandibular incisors showed lingual inclination (IMPA, 76.0°) (Table 1).

The patient was diagnosed as skeletal Class III with anterior crowding and missing four premolars.

2.2. *Treatment plan and progress*

The treatment objective was to correct the anterior cross bite and crowding and to achieve suitable functional occlusion. The surgical orthodontic treatment was considered, but the