

Orthodontic treatment of a patient with unilateral orofacial muscle dysfunction: The efficacy of myofunctional therapy on the treatment outcome

Yasuyo Sugawara,^a Yoshihito Ishihara,^b Teruko Takano-Yamamoto,^c Takashi Yamashiro,^d and Hiroshi Kamioka^e
 Okayama, Sendai, and Suita, Japan

The orofacial muscle is an important factor in the harmony of the occlusion, and its dysfunction significantly influences a patient's occlusion after craniofacial growth and development. In this case report, we describe the successful orthodontic treatment of a patient with unilateral orofacial muscle dysfunction. A boy, 10 years 0 months of age, with a chief complaint of anterior open bite, was diagnosed with a Class III malocclusion with facial musculoskeletal asymmetry. His maxillomandibular relationships were unstable, and he was unable to lift the right corner of his mouth upon smiling because of weak right orofacial muscles. A satisfactory occlusion and a balanced smile were achieved after orthodontic treatment combined with orofacial myofunctional therapy, including muscle exercises. An acceptable occlusion and facial proportion were maintained after a 2-year retention period. These results suggest that orthodontic treatment with orofacial myofunctional therapy is an effective option for a patient with orofacial muscle dysfunction. (*Am J Orthod Dentofacial Orthop* 2016;150:167-80)

The harmonization between the teeth and the orofacial muscles is an important factor in an adequate occlusion, and suitable occlusal forces have been reported to play a significant role in keeping the teeth in balance.^{1,2} This stabilizing effect was evident in a patient who could not squeeze his teeth together: the absence of occlusal forces allowed the teeth to extrude and tip, and to be generally unmanageable.^{3,4}

The masticatory muscles influence craniofacial growth and development.⁵ Strong muscles form the face, whereas the facial form in persons with weak muscles is more varied because the muscles exert less

influence.^{5,6} Some studies have shown morphologic improvements in children with open bites who practice chewing exercises.^{7,8} Therefore, facial exercises are useful, to some extent, in reversing the adverse effects of a lack of adequate orofacial muscle force on facial skeletal growth.

Orofacial myofunctional therapy (OMT) or other muscle training and habituation exercises for patients have been a major proactive intervention modality that a dentist or an orthodontist can use. Although the efficacy of OMT is still unclear,⁹⁻¹⁸ it is thought to facilitate remediation for open-bite patients.^{10,19,20} In this case report, we present the treatment of a patient with an anterior open bite and weak facial muscle force, particularly on the right side, treated with orthodontic appliances combined with OMT. The treatment results were satisfactory, and the patient achieved a good smile and occlusion. An acceptable occlusion and facial proportions were maintained after the 2-year retention period.

DIAGNOSIS AND ETIOLOGY

A boy, 10 years 0 months of age, came to the outpatient clinic of Okayama University dental hospital. His chief complaint was an anterior open bite. The facial photographs showed a symmetric face and a straight profile. However, when he smiled, he could not lift his lip on the right side, which was in a flaccid state (Fig 1). Although the origin of his facial soft tissue

^aSenior assistant professor, Department of Orthodontics, Okayama University Hospital, Okayama, Japan.

^bAssistant professor, Department of Orthodontics, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Okayama, Japan.

^cProfessor and chair, Division of Orthodontics and Dentofacial Orthopedics, Graduate School of Dentistry, Tohoku University, Sendai, Japan.

^dProfessor and chair, Department of Orthodontics and Dentofacial Orthopedics, Graduate School of Dentistry, Osaka University, Suita, Japan.

^eProfessor and chair, Department of Orthodontics, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama University, Okayama, Japan.

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

Address correspondence to: Yasuyo Sugawara, Department of Orthodontics, Okayama University Hospital, 2-5-1 Shikata-Cho, Kita-ku, Okayama, 700-8525, Japan; e-mail, yasuyo_s@md.okayama-u.ac.jp.

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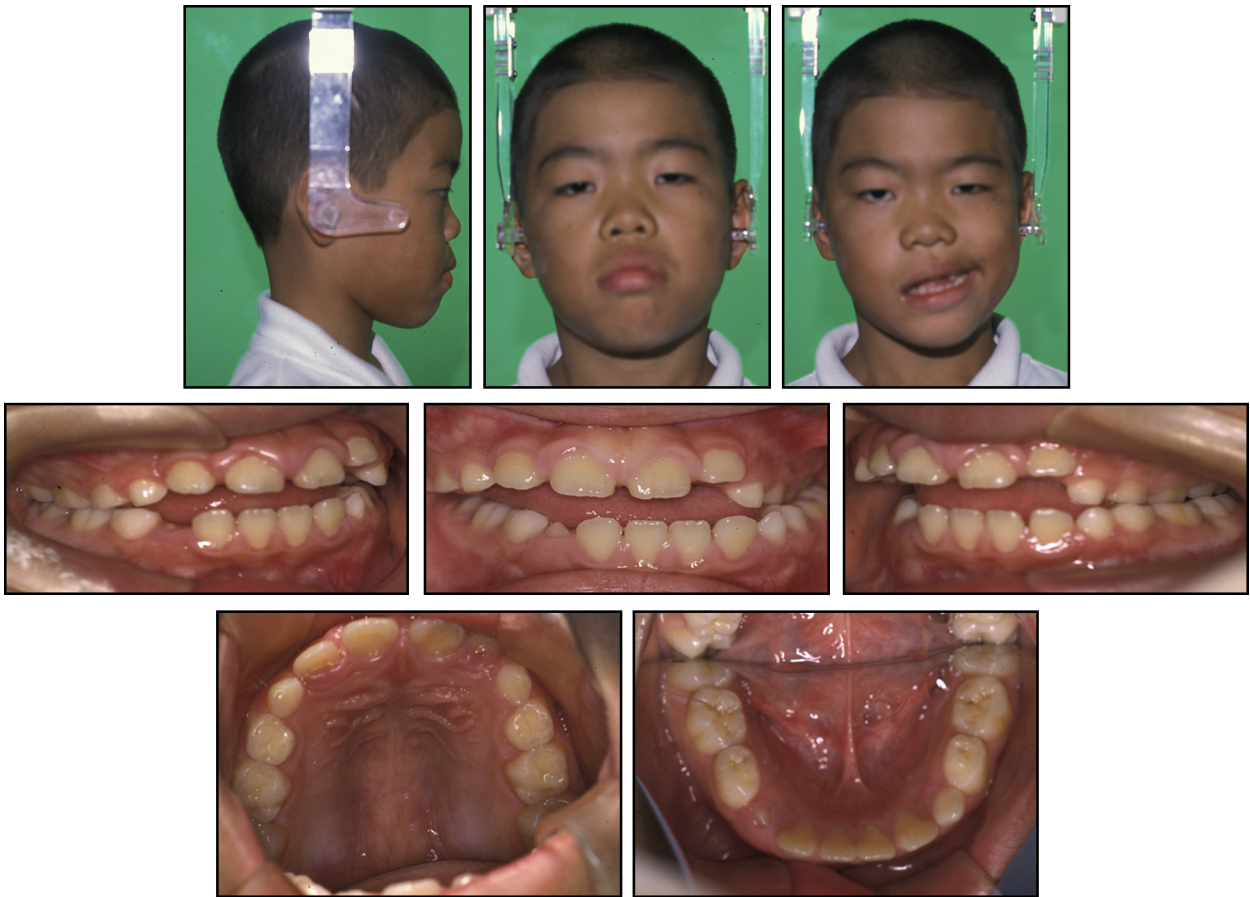


Fig 1. Pretreatment facial and intraoral photographs. The patient's occlusion was unstable, and he had a left posterior crossbite when he pulled the retractors because of weakness of his right orofacial muscles.

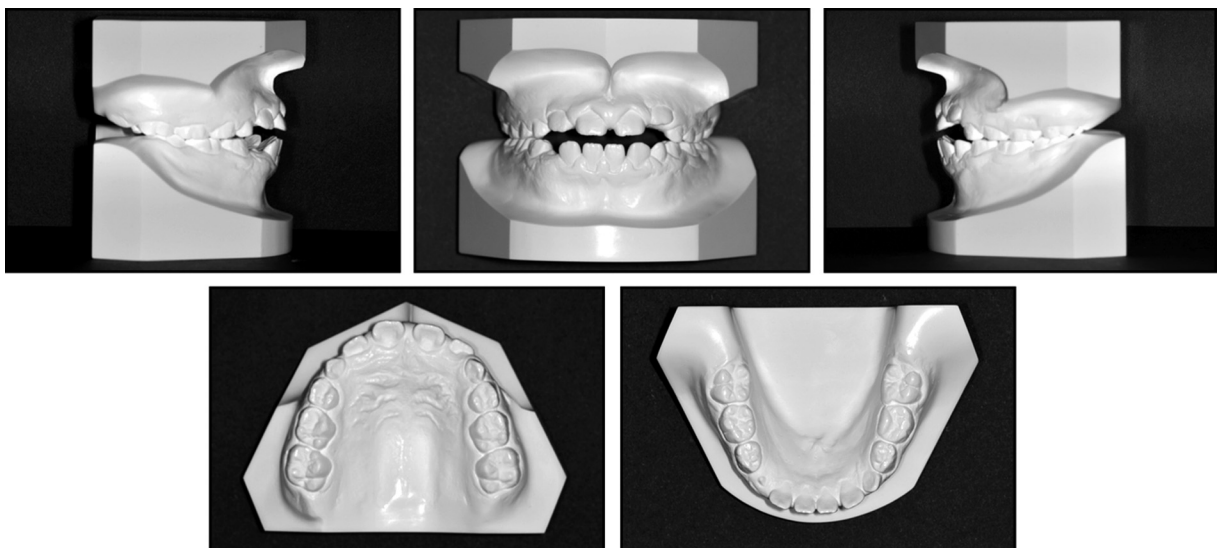


Fig 2. Pretreatment dental casts in centric occlusal position.

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