

# Interdisciplinary treatment of a nonsyndromic oligodontia patient with implant-anchored orthodontics

Shingo Kuroda,<sup>a</sup> Mitsuhiro Iwata,<sup>b</sup> Nagato Tamamura,<sup>c</sup> Khaliunaa Ganzorig,<sup>d</sup> Natsuko Hichijo,<sup>d</sup> Yuko Tomita,<sup>b</sup> and Eiji Tanaka<sup>e</sup>

*Tokushima, Okayama, and Amagasaki, Japan*

We successfully treated a nonsyndromic oligodontia patient with implant-anchored orthodontics and prosthetic restorations. A woman, age 18 years 11 months, had a straight profile and a skeletal Class I jaw-base relationship but had spaced arches because of 7 congenitally missing teeth. After leveling and alignment of the dentition, a titanium miniscrew was temporarily placed at the distal alveolus of the mandibular right first premolar, and the posterior teeth were mesialized to reduce the restorative spaces. After determination of the incisor positions, 3 dental implants were respectively inserted at the sites of the maxillary canines and the mandibular left lateral incisor with guided bone regeneration procedures. Then, screw-retained temporary prostheses were delivered after subepithelial connective tissue grafting and used for molar mesialization as absolute anchorage. After 36 months of active orthodontic treatment, an acceptable occlusion was achieved, both functionally and esthetically, with the 3 dental implants. The maxillary and mandibular molars were mesialized, but the changes of incisor position were minimal. As a result, a proper facial profile was maintained, and an attractive smile was achieved. The resultant occlusion was stable throughout a 3-year retention period. In conclusion, interdisciplinary treatment combined with orthodontics, implant surgery, and prosthodontics was useful for a nonsyndromic oligodontia patient. Especially, the new strategy—implant-anchored orthodontics—can facilitate the treatment more simply with greater predictability. (*Am J Orthod Dentofacial Orthop* 2014;145:S136-47)

**O**ligodontia refers to the congenital absence of many but not all permanent teeth; it is a rare finding.<sup>1-4</sup> However, orthodontists might encounter this condition because management often requires an integrated orthodontic and restorative approach.<sup>4</sup> The orthodontic treatment of oligodontia is

difficult in general because only a few anchorage teeth are available to support tooth movement.

Recently, implant anchorage has been shown to be effective in treating a wide variety of malocclusions. Dental implants, miniplates, and titanium screws have been used as anchorage for orthodontic treatment, and they are often referred to as temporary anchorage devices.<sup>5-10</sup> Temporary anchorage devices can provide absolute anchorage for tooth movement without the patient's compliance. The use of miniscrews has gained acceptance among orthodontists and patients because there is little discomfort, they are relatively noninvasive, and there are fewer limitations in placement.<sup>11,12</sup> Despite their small diameter and short length, miniscrews can provide stable anchorage for various types of tooth movements, including intrusion, retraction, and protraction.<sup>11,13,14</sup> Use of temporary anchorage devices is helpful in treating oligodontia patients. As for molar mesialization, we previously reported the successful outcome in an oligodontia patient with titanium screws and extended anchorage wires placed in the retromolar area.<sup>15</sup> However, the mechanics were complicated, and the wires were sometimes

<sup>a</sup>Associate professor, Department of Orthodontics and Dentofacial Orthopedics, Institute of Health Biosciences, Graduate School, University of Tokushima, Tokushima, Japan.

<sup>b</sup>Private practice, Okayama, Japan.

<sup>c</sup>Private practice, Amagasaki, Japan.

<sup>d</sup>Postgraduate student, Department of Orthodontics and Dentofacial Orthopedics, Graduate School of Oral Sciences, University of Tokushima, Tokushima, Japan.

<sup>e</sup>Professor and chair, Department of Orthodontics and Dentofacial Orthopedics, Institute of Health Biosciences, Graduate School, University of Tokushima, Tokushima, Japan.

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

Address correspondence to: Shingo Kuroda, Department of Orthodontics and Dentofacial Orthopedics, University of Tokushima Graduate School, Institute of Health Biosciences, 3-18-15 Kuramoto-Cho, Tokushima 770-8504, Japan; e-mail, [kuroda@tokushima-u.ac.jp](mailto:kuroda@tokushima-u.ac.jp).

Submitted, May 2013; revised and accepted, June 2013.

0889-5406/\$36.00

Copyright © 2014 by the American Association of Orthodontists.

<http://dx.doi.org/10.1016/j.ajodo.2013.06.023>



**Fig 1.** Pretreatment facial and intraoral photographs.

difficult to adjust. Thus, a more simple mechanism was needed.

Dental implants are now considered an effective and reliable modality for the rehabilitation of a dentition with missing teeth. However, severely reduced bone quantity caused by the congenital absence of multiple teeth is often found in patients with oligodontia.<sup>4,16</sup> Therefore, bone augmentation procedures to establish appropriate bone quantity are required in most cases. The surgical procedures should be carefully planned on an individual basis, and their timing is considerably important to facilitate the interdisciplinary treatment. It occasionally makes treatment planning difficult and complicated.

In this case report, we demonstrate the successful outcome of interdisciplinary treatment in a nonsyndromic oligodontia patient. Dental implants were placed with bone augmentation immediately after the leveling

and alignment phase, and the implants and a miniscrew were used for absolute anchorage during mesial movement of the posterior teeth.

#### **DIAGNOSIS AND ETIOLOGY**

A woman, age 18 years 11 months, had a chief complaint of missing maxillary canines. Her facial profile was straight, and the frontal view was almost symmetrical (Fig 1). The molar relationships were Angle Class I on both sides (Fig 2). Overjet and overbite were both 2.5 mm. Spaced arches were observed in the both dentitions because of the 7 congenitally missing permanent teeth: the maxillary canines, a mandibular incisor, and all second premolars. The maxillary left deciduous canine and all deciduous second molars showed prolonged retention. As for the maxillary first premolars, the right side was rotated distally, and the left was rotated mesially.

Download English Version:

<https://daneshyari.com/en/article/3115925>

Download Persian Version:

<https://daneshyari.com/article/3115925>

[Daneshyari.com](https://daneshyari.com)