Oral Rehabilitation Using Osseointegrated Implants in a Patient with Idiopathic Torsion Dystonia

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Idiopathic torsion dystonia is a motor syndrome characterized by dystonic movements and postures in the absence of other neurologic deficits. The condition involves prolonged spasms of muscle contraction that distort the body into typical postures. Such distortions involving the head and the neck make conventional denture use in edentulous patients very difficult. The present paper reports on a patient with idiopathic torsion dystonia who was treated with a mandibular overdenture supported by endosteal implants, which enabled the establishment of a stable occlusion and improved the dynamics of the masticatory muscles for chewing. (Int J Oral Maxillofac Implants 2001;16:433–435)

Key words: *dental implants, idiopathic torsion dystonia, implant-supported dental prosthesis*

Torsion dystonias constitute a heterogeneous group of diseases characterized by involuntary slow turning and torsion movements of the neck, trunk, and limbs produced by potent muscle contractions that lead to sustained abnormal postures.[1–4] Idiopathic torsion dystonia (ITD) is most commonly an autosomal dominant disorder with reduced penetrance and variable expression.[2] A locus on the distal long arm of chromosome 9 has been identified in one large non-Jewish family and several Jewish families.[2] Although younger patients are more likely to report a family history of dystonia, patterns of spread have been found to be the same for familial and sporadic patients in the same age range.

The clinical manifestations can be either generalized or limited to a part of the body. The patients described in the present study presented generalized involvement and spasms of the facial, lingual, and masticatory muscles. Such patients usually become edentulous, with severe masticatory problems and difficulties in wearing conventional dentures. In effect, the spasmodic movements greatly complicate stability of the mandibular denture; therefore, such patients may benefit from rehabilitation with implant-supported overdentures.[5]

The present report describes a patient with ITD rehabilitated with a mandibular removable overdenture supported by endosteal implants to improve prosthetic stability, mastication, phonetic function, and esthetic appearance.

CLINICAL REPORT

A 52-year-old female had been diagnosed with ITD 10 years previously. For the past 5 years she had been completely edentulous. The patient presented with conventional removable complete dentures that showed marked instability. Clinical examination revealed dystonic torsion movements of the neck and upper limbs, with intense spasms and contractions of the facial, masticatory, and lingual muscles (Figs 1a and 1b). According to the patient, these dystonic orofacial movements had worsened with the loss of teeth, to the extent of preventing stability and functioning of her complete dentures. Moreover, the movements made chewing and speech difficult; as a result, mandibular implant treatment was undertaken to improve retention of the mandibular prosthesis.

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Fig 1a *(Left)* Facial appearance of the patient showing the dystonic movements of the facial muscles.

Fig 1b *(Below)* Hands of the patient, with manifest dystonia of the fingers.

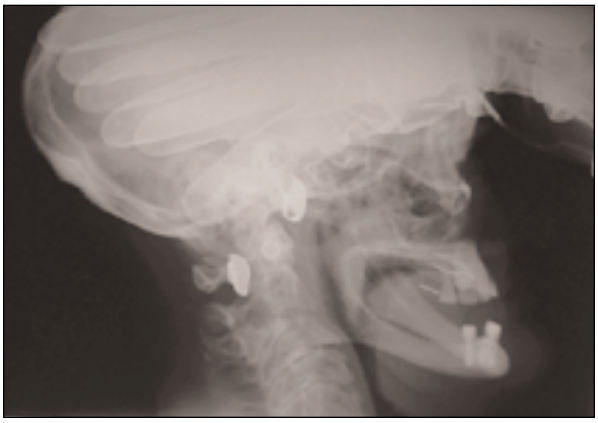

Fig 2 Lateral radiograph of the head showing the endosteal implants. Note the hands holding the head of the patient to stabilize her.

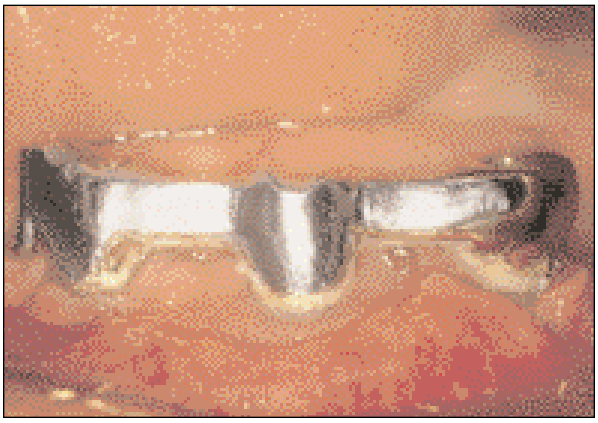

Fig 3 Intraoral photograph of the implants and bar for overdenture support.

Fig 4 The removable overdenture.

Clinical and radiographic examinations revealed a maxillomandibular Class III relationship. A lateral radiograph of the head was obtained with difficulty, since involuntary movements made panoramic radiography impossible. Three solid threaded ITI implants (Institut Straumann, Waldenburg, Switzerland) measuring 4.1 mm in diameter and 8 mm in length were placed in the interforaminal region of the mandible. A lateral radiograph of the head shows the implants in the mandible (Fig 2). The postoperative course was uneventful. Four months later, a bar was fabricated to connect the 3 implants (Fig 3), and a mandibular overdenture supported by the 3 endosteal implants was fabricated (Fig 4). A maxillary removable complete denture provided the opposing occlusion. Masticatory and phonetic function improved considerably as a result of treatment, although the dystonic movements

persisted without change. The dystonia made it impossible for the patient to maintain adequate oral hygiene. Nevertheless, 3 years after placing the implants, the restoration showed continued osseointegration with denture stability and the maintenance of adequate occlusion.

DISCUSSION

The significance of the dental alterations observed in patients with torsion dystonia is unclear. While the loss of teeth with increasing age is seen consistently in the general population, for patients with torsion dystonia—who have difficulties with the manipulation of instruments for routine oral hygiene—tooth loss seems to be inevitable. Trauma, specifically dental trauma (particularly extractions), can induce and worsen oromandibular dystonia.[6] Edentulism would subsequently lead to a decrease in afferent proprioceptive impulses and to alterations of the modulation mechanisms of the central nervous system, thereby triggering or exacerbating the dystonia.[6] A similar phenomenon can be observed in similar conditions, such as Brueghel's syndrome (oromandibular dystonia with blepharospasm)[7] or Meige's syndrome (idiopathic orofacial dystonia),[8,9] in which the orofacial dystonic movements are worsened by a lack of stable occlusion, which prevents correct modulation of these nervous impulses. Likewise, orofacial dystonia complicates adequate fabrication of denture prostheses and contributes to the loss of stable occlusion.

The fitting of conventional complete dentures in these patients poses serious stability problems, because of the dystonic movements. This situation can be improved by the placement of endosteal implants, which provide adequate stability and occlusion and thereby help the patient to achieve a stable mandibular position and adequate muscular rest. Kelleher-Martin and associates[5] were able to improve the involuntary movements of a patient with late dyskinesia as a result of implant rehabilitation. For the present patient, the lingual and masticatory dystonic movements were not improved by treatment, although chewing function and occlusion improved markedly. Despite her poor oral hygiene, both the implants and overdenture satisfied the criteria for success after 3 years of follow-up. No other similar case involving implant rehabilitation has been found in the literature by the authors to date.

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