CASE HISTORY REPORT

ABSTRACT

Dystonia is a neurological disorder that can cause constant muscle contractions and motor limitations. This work reports a clinical case of periodontal treatment in a patient with generalized idiopathic dystonia. The intraoral clinical examination was focused on the presence of caries and periodontal diseases. The plaque index (PI), probing depth (PD), and bleeding on probing (BOP) were measured. Initially, oral hygiene instruction was provided using a soft conventional toothbrush and dental floss, but the clinical results achieved using these methods were inadequate. Alternative methods of plaque removal were offered, such as the use of a power toothbrush and a dental floss fork, which resulted in improvement in the PI, PD, and BOP and allowed the patient to undergo periodontal surgery for the restoration of subgingival caries. Our results suggested that generalized idiopathic dystonia leads to motor limitations that may cause difficulty with regard to plaque control, but adaptations of the methods used for oral hygiene may improve the oral health conditions in these patients.

KEY WORDS: dystonia, plaque control, periodontal diseases, oral health

Periodontal treatment in a patient with generalized idiopathic dystonia

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Introduction

Dystonia is a prevalent neurological disorder characterized by muscle contractions, which often cause repetitive movements of torsion and abnormal posturing. Additionally, dystonia is classified according to the age of onset (childhood, adolescence, or adulthood), etiology (idiopathic or symptomatic), and distribution (focal, segmental, generalized, multifocal, or hemidystonia).[1]

The treatment of idiopathic dystonia is classified into specific and symptomatic strategies. Treatment may be local, using botulinum toxin, or systemic, using oral medications. Cholinergics and benzodiazepines are the most commonly prescribed drugs, and the generalized forms of idiopathic dystonia are associated with a worse treatment response.[2] The involuntary movements that characterize idiopathic dystonia may be broadly distributed and have focal manifestations in the orofacial region, but they can also exclusively affect the orofacial region.[3] Therefore, dentists must be adequately trained to address these patients and recognize the oral manifestations.[3]

Oromandibular dystonia consists of prolonged spasms of the mouth and contraction of the jaw muscles, which may involve the chewing muscles and affect facial expression or language. It is important for dentists to be aware of the possibility that mandibular dystonia may develop after dental treatment and is often confused with a dental problem, which may lead to considerable functional and psychosocial impairment. Traumatic conditions in the mouth, such as the use of poor aligned dentures or the extraction of multiple teeth, may cause an impairment of proprioception in the oral cavity, leading to the development of dystonia.[4]

The etiology of orofacial dystonia is not completely understood, but neurophysiological studies indicate that sensory impairment could have an important role in the pathophysiology of focal dystonia.[5] Several common dyskinesias, including Tourette's syndrome, Huntington's disease, dystonia associated with idiopathic torsion, oral dyskinesias, and Parkinson's disease, are described in a study in which the authors emphasize that dyskinesias can have far-reaching dental implications.[3] When dystonia involves the lingual, pharyngeal, and

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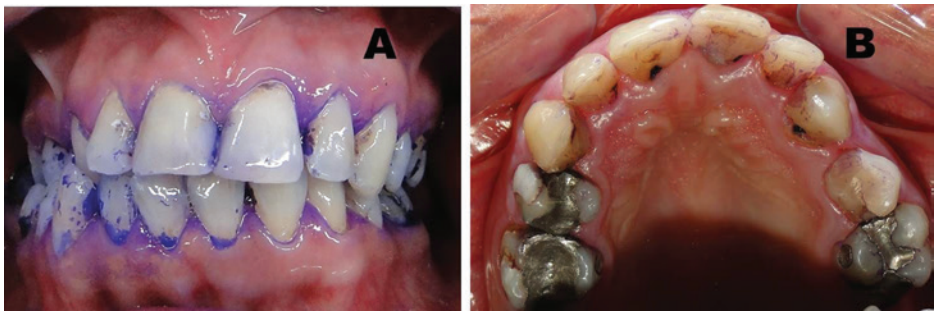

Figure 1. (A) Initial aspect of the frontal teeth; (B) occlusal aspect of the teeth with subgingival caries on the palatal faces.

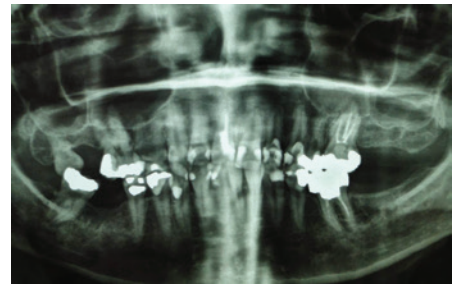

Figure 2. Panoramic radiography.

masticatory muscles, it is referred to as oromandibular dystonia (OMD), which may involve jaw-opening (O-OMD) and jaw-closing (C-OMD).[6] However, there have been few studies regarding the dental implications of movement disorders.

Considering the scarceness of studies in the literature and considering the importance of the knowledge of dental surgeons, this work aims to report a clinical case demonstrating the steps of periodontal treatment in a patient with generalized idiopathic dystonia.

Case report

A 34-year-old female patient presented at the Periodontics Clinic of the University of the Education Foundation of Barretos (UNIFEB) for dental treatment. The patient reported muscular problems since adolescence, which hindered the movement of her upper limbs and produced involuntary movements of the neck, which were readily apparent. The patient reported ingesting Parkinsol (2-mg biperiden hydrochloride; four tablets per day) to alleviate these clinical signs. In addition, she received frequent applications of botulinum toxin in the neck region. The patient reported having sought medical expertise, and the records were requested to verify her clinical history, which included the diagnosis of generalized idiopathic dystonia. The extraoral examination revealed the presence of involuntary movements of the neck and motor limitations.

Intraoral examinations showed the presence of dental plaque accumulation, gingival bleeding, and caries. A complete clinical periodontal examination was performed to measure gingival recession (the distance from the cement-enamel junction to the gingival margin), probing depth (PD; distance from the gingival margin to the bottom of the periodontal pocket/sulcus), bleeding on probing (BOP; present or absent after probing), and the clinical attachment level (distance between the cement-enamel junction to the bottom of the periodontal pocket/sulcus). The plaque index (PI) revealed that 100% of the dental faces were colored,[7] particularly on the cervical and proximal surfaces (Figure 1A). The PI was determined according to the criteria of O'Leary (1972),[6] using the following formula: (number of teeth with colored surfaces × 100)/total number of teeth. The PI was expressed as a percentage. Several teeth were decayed (Figure 1B). The radiographic examination revealed a satisfactory alveolar bone crest level, with the majority of the teeth presenting a distance between the cementoenamel junction to the bone crest ≤2 mm (Figures 2 and 3).

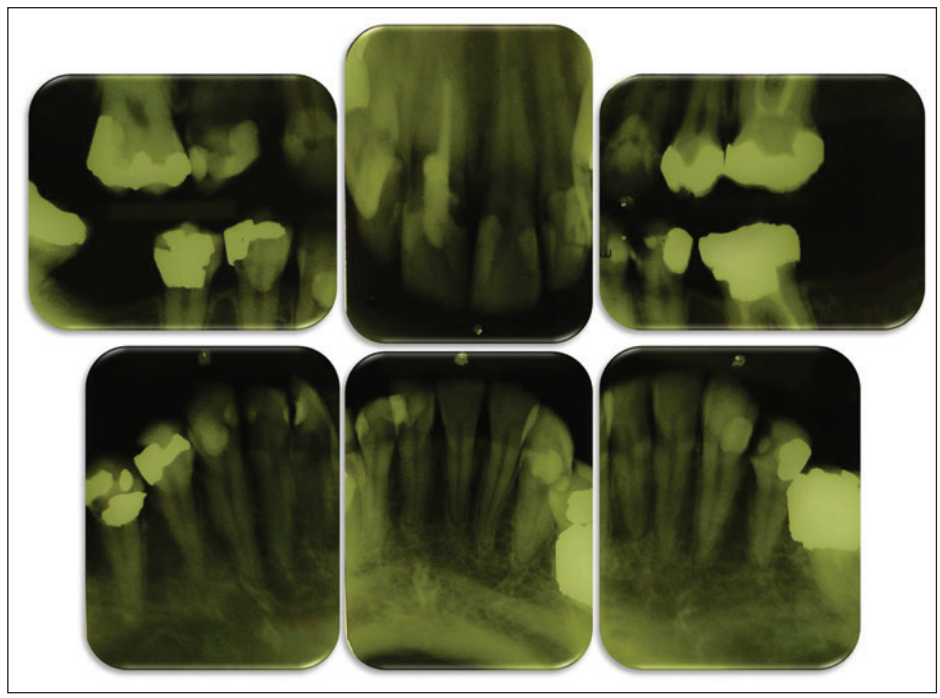

Figure 3. Periapical and interproximal radiographs.

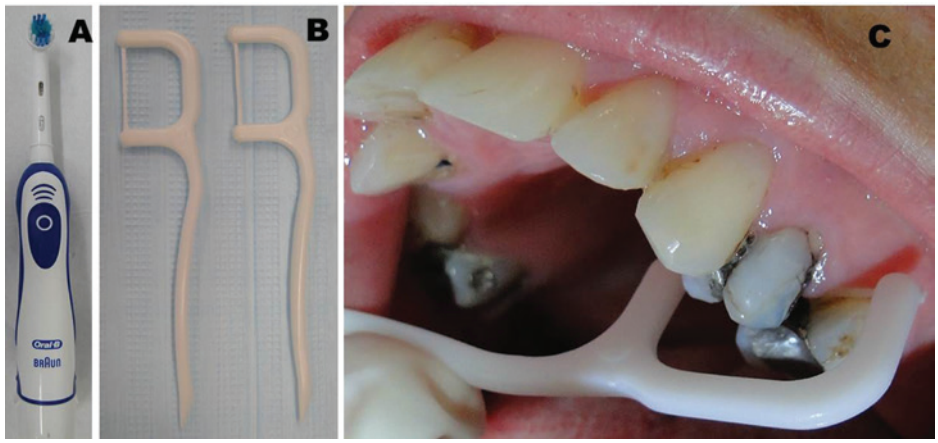

Figure 4. (A) Electrical toothbrush; (B) dental floss fork; (C) clinical use of the dental floss fork.

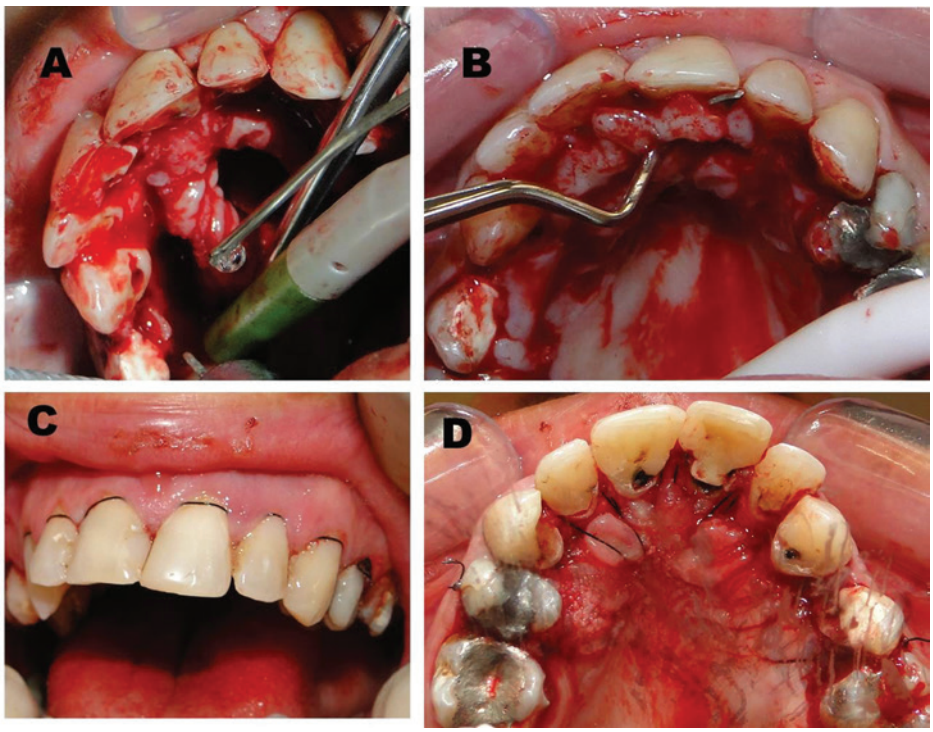

Figure 5. (A) to (B) Internal incision with removal of the hyperplasic tissue and osteotomy; (C) to (D) immediate postoperative aspect with suspended suture.

Oral hygiene instruction (OHI) was established with the conventional brushing technique described by Bass,[8,9] and the use of dental floss on the interproximal surfaces. The colored dental surfaces were shown to the patient through a hand-held mirror. The brushing technique and the use of dental floss were explained using a dental manikin and demonstrated directly in the patient's mouth. After the orientation, we requested that the patient brush her teeth with her own toothbrush in order to verify her understanding of the OHI. The patient was advised to use a toothbrush with soft bristles.

In a second session, the PI remained high (97.6%). Thus, other methods of oral hygiene were adopted because of the patient's motor impairment. An electrical toothbrush was recommended instead of a manual toothbrush (Oral B®, Ohio, USA), and the use of a dental floss fork was suggested for interproximal cleaning (Figures 4A to C). These measures resulted in a plaque reduction over the subsequent weeks (79.7%, 66.6%, and 25%, respectively, after 1, 2, and 3 weeks of use).

In the re-evaluation after the completion of nonsurgical periodontal treatment, the patient followed-up with a high PI (62%), which demonstrated a need for frequent visits at short, regular intervals of one to three months. There was a reduction in the bacterial plaque control and BOP, and the PD was ≥4 mm. These results allowed for an increase in the dental crown in teeth with subgingival caries, using an internal bezel incision through the palatine region (Figures 5A to D). After performing the periodontal surgery, the teeth were submitted to restorative treatment.

Figure 6 shows the postoperative aspect after 15 days (Figure 6A) and 1-year after periodontal surgery (Figure 6B). After the restorative treatment, we lost contact with the patient due to personal reasons. Therefore, periodontal monitoring was performed for 1 year, during which the health of the periodontal tissues was monitored (Figure 6B). A high PI (90%) and the presence of BOP at 44.2% of the sites were recorded; however, there was a reduction in the percentage of periodontal pockets with a probing depth <4 mm (0.8%).

The plaque indexes recorded at each clinical session are presented in Figure 7. Figure 8 shows the percentage of sites with BOP and a PD <4 mm at the initial session, the re-evaluation, after nonsurgical periodontal treatment, and 1 year after periodontal surgery.

Discussion

The patient described here was diagnosed with generalized idiopathic dystonia based on her age at the onset of the impairment (adolescence) and the

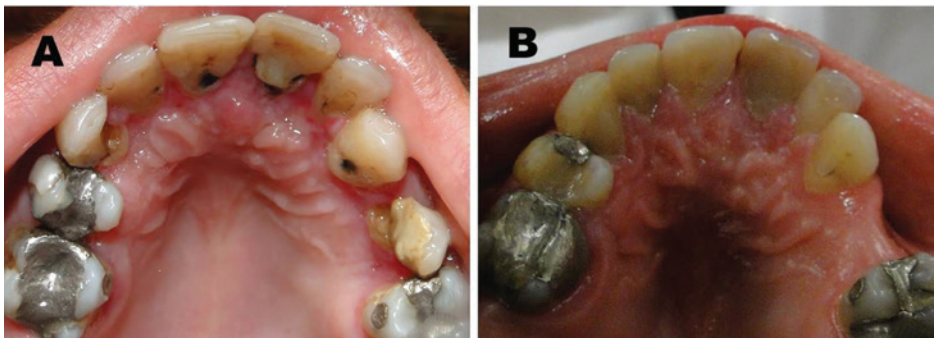

Figure 6. (A) Postoperative aspect after 15 days; (B) palatal aspect after 1 year, showing results of the restorative treatment and the gingival health.

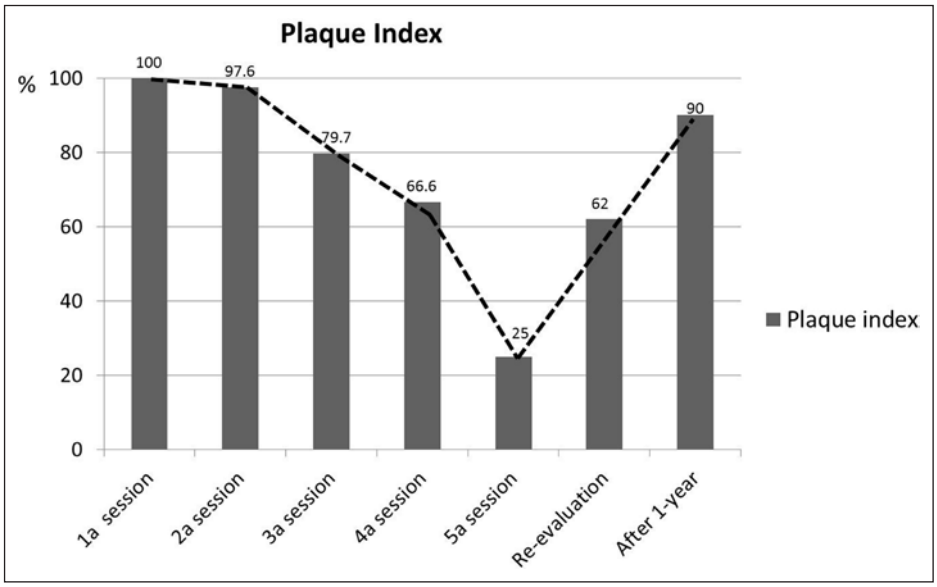

Figure 7. Plaque index expressed as a percentage during different periods of evaluation.

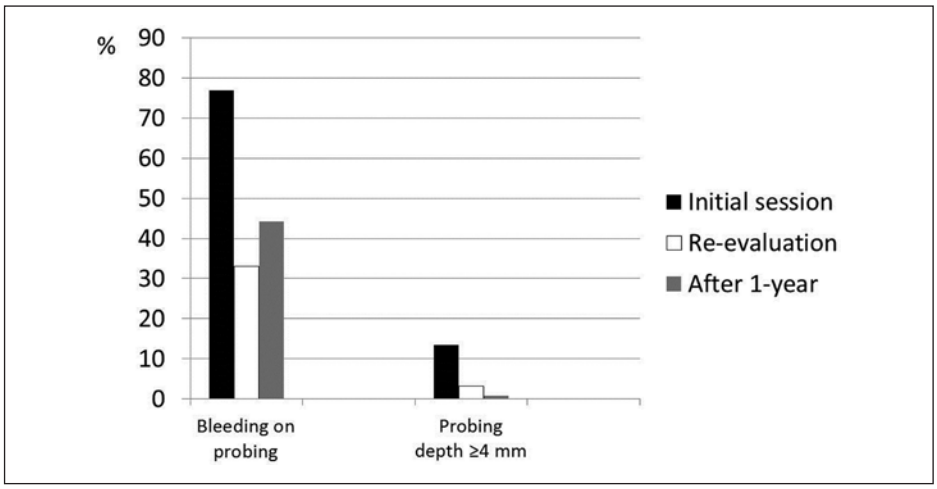

Figure 8. Percentage of teeth with bleeding on probing and probing depth ≥4 mm during different periods of evaluation.

etiology (idiopathic, that is, without apparent cause) and distribution (generalized) of the disease.[1]

The patient was treated with anticholinergic drugs and regular applications of botulinum toxin in the cervical region. This treatment strategy is in agreement with that proposed by several authors[2] who have stated that idiopathic dystonia can be treated locally with the use of botulinum toxin, or systemically with oral medications, where cholinergics and benzodiazepines are most commonly used. The authors also noted that the response to the medical treatment is poor in the generalized forms of idiopathic dystonia.[2] In the present clinical case, the patient had been following the medical treatment correctly, but she continued to experience muscle contractions, torsions, and motor limitations.

The patient presented a high dental PI and numerous tooth caries in the initial consultations; these findings can be explained by the medical diagnosis of generalized idiopathic dystonia, which is a prevalent neurological disorder characterized by muscle contractions, twisting movements, and motor difficulty.[1] As a result of these symptoms, this patient experienced difficulty in handling a conventional toothbrush and dental floss. Consequently, the motor difficulty can directly cause larger dental plaque accumulation and caries.

The most effective method for plaque control is the mechanical removal of bacterial biofilm, particularly using the Bass technique.[8,9] Although some authors have not observed statistically significant differences between the use of electrical and manual toothbrushes,[10] in this clinical case, the use of a power brush resulted in improved plaque control in comparison to the use of a conventional dental brush. These findings are in agreement with another recent study,[11] which reported that powered brushes are safe and significantly more effective than the standard manually controlled brush in reducing plaque.

While these results do not undermine the effectiveness of the

manual toothbrush, in specific cases, such as in patients with dystonia and motor difficulties, the use of a power brush is more effective. Ciancio[12] reported that although the power brush is not superior to the manual brush, its use is recommended in populations with problems related to dexterity and cognition. In addition, in agreement with other authors,[13] the use of a power brush can facilitate the reduction of plaque and calculus, even in patients who receive no instruction in formal oral hygiene.

Conclusion

Patients with generalized idiopathic dystonia and motor limitations may achieve periodontal health through adaptation of the methods of plaque control and by performing periodontal maintenance at short and regular intervals.

Conflict of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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