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Periodontal management in patients with Charcot Marie tooth syndrome: Clinical case

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Abstract

This article refers to a clinical case for dental management with a periodontal approach in Charcot Marie Tooth syndrome. This syndrome is an inherited neuromuscular disorder, characterized by chronic progressive muscular atrophy, as well as sensory and motor disorders in all 4 limbs. Although there is a large number of publications in the medical field, the information on this disease is very limited with respect to the dental area and may have similarities with the management of other diseases where there are muscular atrophies, for which the emphasis of the management of the disease not only goes from periodontal therapy but also to plaque control through the use of adequate hygiene devices and proper brushing technique. These patients usually have advanced periodontal disease due to an accumulation of dental plaque in large quantities, because of the impossibility of good oral hygiene due to motor limitations.

Keywords: Charcot Marie tooth, hereditary sensory and motor neuropathy, syndrome in dentistry

Introduction

Charcot Marie Tooth syndrome is a hereditary neuromuscular disorder ^[1], which is not usually the subject of study in dentistry ^[2], however, it is more common within the population than might be thought ^[3], for which it is imperative to know it for proper dental management. This is also known as hereditary sensory and motor neuropathy, the onset of the disease usually occurs in the first two decades of life and subsequently shows a slow progression over decades, encompasses a group of clinically and genetically heterogeneous disorders characterized by muscle atrophy, weakness and sensory loss, generally more severe in the distal part ^[4]. The chronic nature of motor neuropathy will result in foot deformity (eg, pes cavus), hammer toes, and bow feet. Hand involvement may continue as the disease progresses. Charcot Marie Tooth syndrome is caused by changes in genes that code for proteins with different residences, including compact and non-compact myelin, Schwann cells and axons, and which are involved in very different functions ^[3].

Charcot Marie Tooth syndrome can be classified as autosomal dominant, autosomal recessive, or X-linked, depending on the transmission pattern ^[1]. They are traditionally classified into two types: CMT1 (demyelinating) and CMT2 (axonal), however, the clinical characteristics do not distinguish between the demyelinating or axonal forms ^[5]. The classification criteria for each type vary, and the clinical symptoms also present in different ways ^[1].

In order to detect and classify this syndrome, auxiliary diagnostic tests are used, including electrophysiological studies and sural nerve biopsy. Electromyography and nerve conduction studies are extremely useful in the clinical classification of hereditary peripheral neuropathies and in guiding genetic testing ^[4]. The demyelinating form is characterized by a symmetrically slower nerve conduction velocity, and the axonal form is associated with normal or subnormal nerve conduction velocity and reduced compound muscle action potential ^[4]. The benefits to patients of a genetic diagnosis include a more accurate prognosis and the availability of predictive, prenatal, and preimplantation diagnostics. An important benefit of a genetic diagnosis in the "sporadic" patient includes the limitation of invasive tests (eg, nerve biopsies) and trials of maximal treatments with serious side effects (eg, immunosuppressants) ^[5].

Medical treatment for Charcot Marie Tooth Syndrome may be supportive or etiologic. Physical therapy and occupational therapy help maintain range of motion and thus aid in proper functioning. Symptomatic treatment can have a substantial impact on quality of life. Non-steroidal anti-inflammatory drugs can help relieve pain in the lower back or legs [4].

The objective of this article will be to know the dental management with a focus on periodontics of patients with Charcot Marie Tooth syndrome through the presentation of a clinical case.

Case Report

A 44-year-old male patient comes to the consultation referring gum pain, he does not refer to systemic diseases or allergies, however, he mentions being diagnosed with Charcot Marie Tooth syndrome, on intraoral examination (fig. 1) the patient presents absence of multiple teeth dental, in the rest there are restorations with amalgam deposits of plaque and calculus, on probing, pockets are present, mostly greater than 4mm in more than 30% of the pieces, on radiographic exploration a severe loss of bone tissue is observed with horizontal as well as vertical losses.

Diagnosis

Once the radiographic study was analyzed (fig. 3) and in conjunction with the previous periodontal probe (fig. 2), stage IV grade C periodontitis was diagnosed [6].

Figure format



Fig 1: Initial intraoral photographs

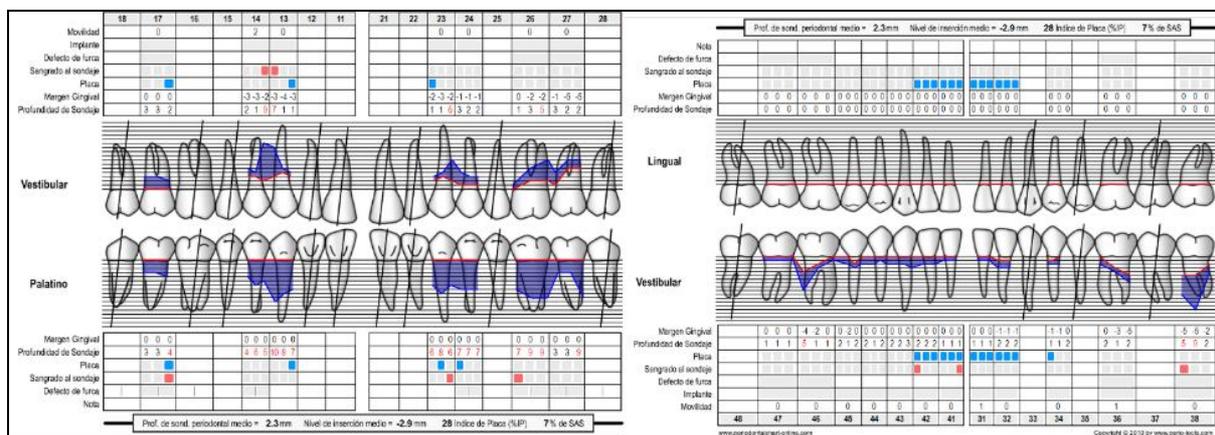


Fig 2: Initial periodontogram

Procedure

As part of the treatment, it was ensured that the patient did not have other medical complications, measuring blood pressure at each appointment, in this case being normal values. The periodontal treatment plan consisted of a hygienic phase where the patient was given instructions on an adequate brushing technique with the use of an electric toothbrush, this due to the muscular problems of this syndrome that could prevent a good brushing technique with the use of a toothbrush. Manual, in terms of technique, it is recommended to place a small amount of toothpaste along the head, and not turn on the brush until it has been positioned inside the mouth. All four quadrants should be cleaned in a systematic order, from back to front, until reaching the midline. The effect of brushing and the potential for injury will depend on the brush head and the angle of oscillation [7, 8]. Along with the technique, the use of other attachments such as interdental brushes or dental floss was suggested to complement it; Following the oral hygiene instructions, scaling was performed and the use of 0.12% Chlorhexidine rinses was prescribed for a period of one week until his next appointment. Continuing with the hygienic phase, scaling and root planning of the four quadrants is indicated, as well as extractions of teeth 1.6, 1.5, 1.3 and 4.6 with poor periodontal prognosis. A period of 2 months will be expected for a first reassessment [9], however, the patient tends to miss his appointments, so the treatment may have undesirable results.

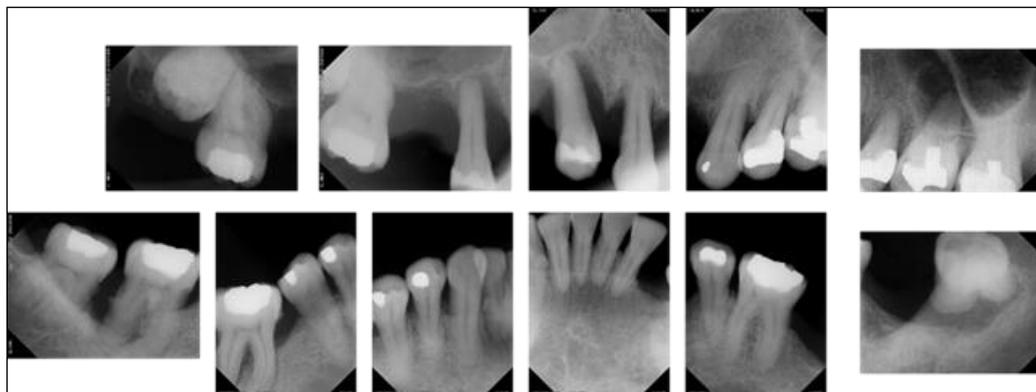


Fig 3: Radiographic series.

Discussion

Physical and mental disabilities are determining factors in the incidence, prevalence and severity of oral diseases such as dental caries and periodontal disease. These two entities are closely linked because their appearance and severity depend on the effective control of dental plaque, which implies specific movements that require high fine motor skills, impossible to perform for a patient with dexterity problems [8]. Within the present clinical case, it is perceived that the patient has problems to adequately grip the toothbrush, for which modifications can be made to the toothbrush handles to increase the volume and grip capacity can be achieved by inserting the toothbrush. Handle inside a rubber ball, wrapping the handle around the hand with Velcro strips and placing silicone caulk on the patient's hand to accommodate the retention of a toothbrush. Electric toothbrushes, sonic cleaning devices, and oral irrigation devices can reduce oral biofilms [2].

Conclusion

The success in periodontal therapy, as well as in patients without systemic diseases, will depend a lot on cooperation, despite presenting motor limitations, it will be important for the operator to indicate the appropriate instruments to support them with their dental cleaning, for this, as support, recommends the use of electric toothbrushes and, depending on the degree of involvement, even a second person can help you with oral hygiene. Charcot Marie Tooth syndrome does not present direct symptoms in the oral cavity, however, there will be especially periodontal consequences due to the lack of an adequate brushing technique due to motor limitations.

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Author's Contribution

Not available

Conflict of Interest

Not available

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References

1. Ohshita N, Oka S, Tsuji K, Yoshida H, Morita S, Momota Y, *et al.* Anesthetic Management of a Patient with charcot-marie-tooth disease. *Anesth Prog.* 2016;63(2):80–3.
2. Brooks JK, Porter NC, Bisordi KA, Miclat CE, Greene

CL. Review of general and head and neck/oral and maxillofacial features of Charcot-Marie-Tooth disease and dental management considerations. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 133(6):e170–e177.

3. Pareyson D, Marchesi C. Diagnosis, natural history, and management of Charcot–Marie–Tooth disease. *Lancet Neurol.* 2009;8(7):654–67.
4. Szigeti K, Lupski JR. Charcot–Marie–Tooth disease. *Eur J Hum Genet.* 2009;17(6):703–10.
5. Reilly MM, Murphy SM, Laurá M. Charcot-Marie-Tooth disease. *J Peripher Nerv Syst.* 2011;16(1):1–14.
6. Caton JG, Armitage G, Berglundh T, Chapple ILC, Jepsen S, Kornman KS, *et al.* A new classification scheme for periodontal and peri-implant diseases and conditions – Introduction and key changes from the 1999 classification. *J Periodontol.* 2018;89(S1):S1–8.
7. Serrano MEP, Limeres Posse J, Fernandez Feijoo J. Manual de higiene oral para personas con discapacidad. p. 141.
8. Marulanda J, Betancur JD, Espinosa S, Gómez JL, Tapias A. Salud oral en discapacitados; c2014.
9. Díaz BF, Pomarino SG. Reevaluación del paciente periodontal: intervalo de tiempo adecuado para reevaluar sus parámetros. *Acta Odontológica Colomb.* 2017;7(2):65–7.

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