

Localization of Referred Pain in Patients with Craneocervical Muscles Trigger Points

Localización de Dolor Referido en Pacientes
con Punto Gatillo en Musculatura Cráneocervical

João Pedro Moniz Galvão de Albuquerque^{*}; Iván Claudio Suazo Galdames^{**} & Antonio Sergio Guimarães^{***}

ALBURQUERQUE, G. J. P. M.; SUAZO, G. I. C. & GUIMARÃES, A. S. Localization of referred pain in patients with craneocervical muscles trigger points. *Int. J. Odontostomat.*, 2(2):171-174, 2008.

ABSTRACT: The pain for miofascial point triggers it can refer to distant territories. Was carried out a retrospective descriptive study of the referred pain presence starting from trigger miofascial points located in masseter, temporalis, trapeze and sternocleidomastoid (SCM) muscles in 50 patients. The masseter was the muscle that presented pain referred with more frequency (n=32; 64%), followed by the temporalis (n=18; 36%), then the SCM (n=17; 34%) and that of smaller frequency was the trapeze (n=2; 4%). The presence of two cases of contralateral reference of the masseter is commented and some mechanisms that explain these situations, described in the literature, they are discussed.

KEY WORDS: trigger points, miofascial pain, referred pain, muscle pain.

INTRODUCTION

The trigger points are areas of hypersensitivity in skeletal muscles, clinically appear as strained bands that produce pain when applied pressure on them and can be found in adults or children (Simons, 1990; Gerwin, 1994; Fine, 1987).

The miofascial trigger points can occur in any striated muscle and its evaluation and diagnosis is controversial (McNulty *et al.*, 1994; Gerwin & Duranleau, 1997), however, the clinical evaluation of the strained band through digital pressure appears how the most validated for the identification of trigger points (Delaney & McKee, 1993; Gerwin *et al.*, 1997; Sciotti *et al.*, 2001).

The pressure on strained bands can cause pain in the area where it is or refer pain to other territory (Hong, 1996), usually being the cause of this patient consultation pain.

The miofascial trigger points in present craniocervical muscles can be found assets or latent condition and referred pain can be perceived in muscles, joints, den-

tal, skin, mucous and membranes structures, usually ipsilaterals (Abu-Bakra & Jones, 2001; Capuano *et al.*, 1984; Wright, 2000).

The projection areas of referred pain from muscles in the craneocervical region have been described in the American population (Simons *et al.*, 1992), however there are no studies indicating that such descriptions are valid for the Brazilian population.

The purpose of this study is to analyze the areas of localization of referred pain from miofascial trigger points in the masseter, temporal, trapeze and sternocleidomastoid muscle.

MATERIAL AND METHOD

A descriptive retrospectively study was conducted, based on records of the medical records of patients seen during the years 2006 and 2007 in the temporomandibular dysfunction clinic Postgraduate

^{*} Magister en Odontología Centro de Post Graduación en Odontología São Leopoldo Mandic, Campinas, Brasil.

^{**} Universidad de Talca, Chile.

^{***} Coordinador Magister en Odontología, Área de concentración Disfunción Temporomandibular y Dolor Orofacial Centro de Post Graduación en Odontología São Leopoldo Mandic, Campinas, Brasil.

Centre of the Universidad São Leopoldo Mandic, Campinas, Brazil.

RESULTS

Were included in this study the records of patients who showed signs and symptoms of TMD for more than six months with the presence of active trigger points, evaluated according to the questionnaire of the Academy of orofacial pain and through the Research Diagnostic Criteria for Temporomandibular disorders (RDC / TMD), whose adaptation and validation has been previously reported (Pereira *et al.*, 2004). There were sheets patients with neurological disorders or subjected to pharmacological medication.

We analyzed 50 records of patients who met the selection criteria, 43 women and 7 men, brasilians, aged between 8 and 70 years, with an average of 39 years old (SD 15.5).

We analyzed the story of the presence of pain reported by trigger point, rated by digital palpation of the masseter, temporal, trapeze and sternocleidomastoid muscle on the left side and saw the region or anatomical structure where the pain was projected.

Of the 50 selected cases, the masseter muscle was submitted referred pain more frequently (n = 32; 64%), followed by temporal muscle (n = 18; 36%), then the sternocleidomastoid muscle (n = 17; 34%) and the lowest frequency was the trapeze muscle (n = 2; 4%).

A full detail of the areas concerned pain and the frequency with which they were presented from miofascials trigger points in the masseter, temporal, trapeze and sternocleidomastoid muscle found in Table I.

DISCUSSION

The pain from miofascial trigger points is a common symptom in patients with temporomandibular dysfunction (Han & Harrison, 1997) is more prevalent in the 4 th decade of life (Fricton *et al.*, 1985).

This study evaluated records of prevalent cases of a heterogeneous group of patients who were diagnosed

Table I. Areas of pain reference and frequency with which they were presented from miofascials trigger points in the masseter, temporal, trapeze and sternocleidomastoid muscle in patients treated during the years 2006 and 2007 2007 in the temporomandibular dysfunction clinic Postgraduate centre of the Universidad São Leopoldo Mandic, Campinas, Brazil.

Region / Muscle	Masseter	Temporal	Trapeze	Sternocleidomastoid
Submandibular region	11	3		2
Parotid region	9	4		1
Frontal region	8	3	2	1
Masseteric region	9	9		6
Inferior eyelid	6	3		
Auricular	5	1		3
Zygomatic arch	4	1		
Genian region	3			
Lateral cervical	3	2		
Contralateral masseteric	2			
Sternocleidomastoid	1	2		3
Mental	1			
Temporal	9	4		7
Nasal				1
Mastoid				1
Upper cervical posterior			2	5
Coger posterior cervical				1

of pain trigger point that was submitted as referred pain. The limited number of registration of men and high dispersion of the age of the sample hamper the statistical comparison of these data with those reported in the literature. Notwithstanding the foregoing, the distribution of areas of pain from miofascials trigger points reproduced as described in classical studies for the American population (Simons *et al.*).

The referred pain, or also called atypical, in the territory of the trigeminal system can be explained by the high nociceptive convergence of primary afferent neurons are on the spinal trigeminal nucleus, they stem from different territories, not only innervated by the trigeminal, and by these projections they generated different categories of clinical interest as referred pain and reflexes nociceptive (Sessle *et al.*, 1986; Piovesan *et al.*, 2001).

A special situation is the discovery of two cases

in which the pain for a trigger point located in the left masseter muscle referred pain in the right masseter muscle, even when there is little reporting of cases of reference contralateral pain, there are grounds to believe that to spinal trigeminal nucleus level, reticular substance of the brainstem or of the ventroposteromedial thalamic nucleus the interneurons can generate alternative mechanisms of conduction across the tracks of pain (Mumford & Newton, 1974; Kemler *et al.*, 2000; Mailis-Gagnon & Bennett, 2004).

For the clinician generally, to be carried out by the differential diagnosis, is very useful know the areas of reference in the pain, there is every reason conducting clinical cross studies to analyze the prevalence of referred pain in the muscles of the craneocervical region and sites where it is located more frequently, however this information must be evaluated considering atypical driving mechanisms of pain as discussed in this study.

ALBURQUERQUE, G. J. P. M.; SUAZO, G. I. C. & GUIMARÃES, A. S. Localización de dolor referido en pacientes con punto gatillo en musculatura cráneocervical. *Int. J. Odontostomat.*, 2(2):171-174, 2008.

RESUMEN: El dolor por punto gatillo miofascial puede referirse a territorios distantes. Se realizó un estudio descriptivo retrospectivo de la presencia de dolor referido a partir de puntos gatillo miofascial ubicados en los músculos masétero, temporal, trapecio y esternocleidomastoideo (ECM) en 50 pacientes. El masétero fue el músculo que presentó dolor referido con mayor frecuencia (n=32; 64%), seguido del temporal (n=18; 36%), luego el esternocleidomastoideo (n=17; 34%) y el de menor frecuencia fue el trapecio (n=2; 4%). La presencia de dos casos de referencia contralateral del masétero es comentada y algunos mecanismos que explican estas situaciones, descritos en la literatura, son discutidos.

PALABRAS CLAVE: Punto gatillo, dolor miofascial, dolor referido dolor muscular.

REFERENCIAS

- Abu-Bakra, M. & Jones, N. S. Does stimulation of nasal mucosa cause referred pain to the face? *Clin. Otolaryngol. Allied. Sci.*, 26:430-32, 2001.
- Capuano, A.; Di Massa, A. & Salvini, M. Cases of referred pain due to pathology of dental interest. *Minerva Stomatol.*, 33(1):35-40, 1984.
- Delaney, G. A. & McKee, A. C. Inter- and intra-rater reliability of the pressure threshold meter in measurement of myofascial trigger point sensitivity. *Am. J. Phys. Med. Rehabil.*, 72:136-39, 1993.
- Fine, P. G. Myofascial trigger point pain in children. *J. Pediatr.*, 111:547-8, 1987.
- Fricton, J. R.; Kroening, R.; Haley, D. & Siegert, R. Myofascial pain syndrome of the head and neck: a review of clinical characteristics of 164 patients. *Oral Surg. Oral Med. Oral Pathol.*, 60:615-23, 1985.
- Gerwin, R. D. Neurobiology of the myofascial trigger point. *Baillieres Clin. Rheumatol.*, 8:747-62, 1994.
- Gerwin, R. D. & Duranleau, D. Ultrasound identification of the myofacial trigger point. *Muscle Nerve*, 20:767-8, 1997.
- Gerwin, R. D.; Shannon, S.; Hong, C. Z.; Hubbard, D. & Gevirtz, R. Interrater reliability in myofascial trigger point examination. *Pain*, 69:65-73, 1997.

- Han, S. C. & Harrison, P. Myofascial pain syndrome and trigger-point management. *Reg. Anesth.*, 22: 89-101, 1997.
- Hong, C. Z. Pathophysiology of myofascial trigger point. *J. Formos. Med. Assoc.*, 95:93-104, 1996.
- Kemler, M. A.; Schouten, H. J. & Gracely, R. H. Diagnosing sensory abnormalities with either normal values or values from contralateral skin: comparison of two approaches in complex regional pain syndrome I. *Anesthesiology*, 93:718-27, 2000.
- Mailis-Gagnon, A. & Bennett, G. J. Abnormal contralateral pain responses from an intradermal injection of phenylephrine in a subset of patients with complex regional pain syndrome (CRPS). *Pain*, 111:378-84, 2004.
- McNulty, W. H.; Gevirtz, R. N.; Hubbard, D. R. & Berkoff, G. M. Needle electromyographic evaluation of trigger point response to a psychological stressor. *Psychophysiology*, 31:313-6, 1994.
- Mumford, J. M. & Newton, A. V. Trigeminal convergence from human teeth: influence of contralateral stimulation and stimulus frequency on the pain perception threshold. *Arch. Oral Biol.*, 19:145-9, 1974.
- Pereira, J. F. J.; Favilla, E. E. & Huggins, K. Critérios diagnósticos para pesquisa das disfunções temporomandibulares (RCD/TMD): tradução oficial para a língua portuguesa. *J. Bras. Clin. Odontol Integ.*, 8(47):384-95, 2004.
- Piovesan, E. J.; Kowacs, P. A.; Tatsui, C. E.; Lange, M. C.; Ribas, L. C. & Werneck, L. C. Referred pain after painful stimulation of the greater occipital nerve in humans: evidence of convergence of cervical afferences on trigeminal nuclei. *Cephalalgia*, 21:107-9, 2001.
- Sciotti, V. M.; Mittak, V. L.; DiMarco, L.; Ford L. M.; Plezbert, J.; Santipadri, E.; Wigglesworth, J. & Ball, K. Clinical precision of myofascial trigger point location in the trapezius muscle. *Pain*, 93:259-66, 2001.
- Sessle, B. J.; Hu, J. W.; Amano, N. & Zhong, G. Convergence of cutaneous, tooth pulp, visceral, neck and muscle afferents onto nociceptive and non-nociceptive neurones in trigeminal subnucleus caudalis (medullary dorsal horn) and its implications for referred pain. *Pain*, 27:219-35, 1986.
- Simons, D.; Travel, J. & Simons, L. *Myofascial Pain and Dysfunction. The Trigger Point Manual, Upper Half of Body*. Baltimore, Williams & Wilkins, 1992.
- Simons, D. G. Trigger point origin of musculoskeletal chest pain. *South Med. J.*, 83:262-3. 1990.
- Wright, E. F. Referred craniofacial pain patterns in patients with temporomandibular disorder. *J. Am. Dent. Assoc.*, 131:1307-15, 2000.

Correspondence to:
Prof. Dr. Antonio Sergio Guimarães
Rua Visconde da Luz #60/31
Zip Code: 04537 070
São Paulo/SP
BRAZIL

Phone: 55- 11- 30456145

Email: asgadm@uol.com.br

Received: 07-11-2008

Accepted: 28-11-2008