Original Article

Differential diagnosis of orofacial pain II: associated with neurovascular, vascular and musculoskeletal disorders

Diagnóstico diferencial del dolor orofacial II. Asociado a desórdenes neurovasculares, vasculares y musculoesqueléticos

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ABSTRACT

This article is the second of three articles which describes the different pathologic conditions that should be considered in the establishment of a correct differential diagnosis in the patients presenting pain in the orofacial region. Neurovascular (migraines, cluster headaches, paroximal hemicranea), vascular (temporal ateritis, carotidinya) and musculoskeletal (tension type headache, temporomandibular disorders, myofascial pain, fibromyalgia, spinocervical disorders) disorders will be reviewed.

Keywords: *pain, orofacial pain differential diagnosis, headache, migrane, tension type headache, cluster headache, cranial arteritis, carotidyna, temporomandibular disorders, myofascial pain, fibromyalgia.*

RESUMEN

Este es el segundo de tres artículos que tienen como propósito presentar una revisión de la literatura de las condiciones que se han considerado para el establecimiento del diagnóstico diferencial del dolor orofacial. Los desórdenes neurovasculares (migrañas, cefaleas tipo clúster, paroxismo hemicraneano), vasculares (arteritis temporal, carotidinia) y musculoesqueléticos (cefaleas de tipo tensional, desórdenes temporomandibulares, dolor miofascial, fibromialgia, desórdenes espinocervicales) serán revisados.

Palabras clave: *dolor, dolor orofacial, diagnóstico diferencial, cefaleas, migrañas. Cefaleas tipo tensional, arteritis temporal, carotidinia, desórdenes temporomandibulares, dolor miofascial, fibromialgia.*

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INTRODUCTION

This is the second article in a series of three describing the different pathological conditions that should be considered to establish an accurate differential diagnosis in patients with painful conditions in the orofacial region [1]. Neurovascular, vascular, and musculoskeletal disorders will be discussed.

NEUROVASCULAR AND VASCULAR DISORDERS

This category includes headaches such as migraine, cluster, paroxysmal hemicrania and others such as temporal arthritis and carotid arthritis that are considered merely vascular (Table 1). The main characteristics of these disorders are summarized in tables 2 and 3.

Migraines

Migraine is a common disorder affecting general population and although epidemiological values vary over a wide range, they occur more frequently in women than in men, with a prevalence of 18% and 6%, respectively[2-5]. Nevertheless, this difference between sexes does not appear before the puberty. Prevalence in women increases after menarche and diminishes for both sexes after forty, remaining more prevalent in women[2,4]. Onset age for migraines is generally between 6 and 25 years old, with the highest incidence peaks at 12 years old[2,4]. This type of headache is characterized by the presence of unilateral pain (75% of the cases), throbbing, or palpitating that can vary considerably in intensity, frequency and duration. Pain is usually accompanied by photophobia, phonophobia, sonophobia, nausea and/or vomiting, and the individual usually asks to rest or sleep in a dark, quiet place.[6]

Table 1. Neurovascular and vascular disorders

Neurovascular
Migraines
Cluster headaches
Paroxysmal hemicrania
Vascular
Temporal arteritis
Carotidynia

Source: by the authors

Table 2. General characteristics of the main neurovascular disorders

Headache type	Migraines	In cluster	Paroxysmal hemicrania
Average onset age	Adolescence	Fourth decade	Third decade
Pain type	Throbbing	Stabbing	Stabbing
Predominant gender	Women 3 to 1	Men 6 to 1	Women 2 to 1
Location	Unilateral (75%)	Unilateral	Unilateral
Pain triggering factors	Certain foods (wines, cheeses)	Sleep	Neck movement

Associated symptoms	Photophobia, phonophobia, nausea, vomiting, visual disturbances	Autonomic: lacrimation, nasal congestion	Autonomic: lacrimation, nasal congestion
Drugs used as diagnostic treatment	Ergotamine and triptans (imitrex)	Antimigraine and 100% oxygen	Indomethacin

Source: by the authors

Table 3. General characteristics of the main vascular disorders

Condition	Temporal arteritis	Carotidynia
Average onset age	Sixth decade	Third decade
Pain type	Throbbing	Dull, throbbing
Predominant gender	Slightly in women	It does not exist
Location	Uni or bilateral	Unilateral
Pain triggering factors	Mandibular movement	Carotid bifurcation pressure
Associated symptoms	Visual changes, pain with mastication, generalized weakness	Swelling and increased carotid pulse
Drugs used as diagnostic treatment	Corticosteroids	Antimigraine, nsaid

Source: by the authors

There are two quite common forms of migraine: migraine without aura (common) and migraine with aura (classic). The term "aura" refers to focal neurological symptoms accompanying the migraine episode that evolve over a period of 5 to 20 minutes, and usually last a little less than an hour. These symptoms can occur in the form of visual disturbances (black or blind spots, flashing lights, or colors with zigzag patterns), motor disturbances (weakening) and speech disturbances. These disturbances should not be confused with the prodrome, which refers to the early symptoms that appear in approximately 40% of patients. These symptoms are usually vague, and include lethargy, excessive yawning, depression, hyperactivity, mood swings, fluid retention and increased appetite. Both prodrome and aura should be considered in the patient management strategy[6].

Factors such as the intake of alcoholic beverages, caffeine, certain types of food (cheese, canned food, Chinese food), smoking, weather changes and other less specific factors such as physical activity, stress and tension are recognized as worsening factors of migraine and hence should be considered in the patient integral management[7]. On the other hand, there is evidence supporting genetic and hormonal (menstruation) factors in the pathogenesis of this condition[8,9].

Migraine treatment can be pharmacological and non-pharmacological[10-12]. Non-pharmacological therapy includes relaxation techniques, biofeedback, hypnosis, psychotherapy, and occlusal plates. Pharmacological treatment can be preventive or abortive, depending on the severity, duration, and frequency of the pain episodes. The most frequently used drugs are non-steroidal anti-inflammatory drugs (NSAIDs), Ergot derivatives and beta-blockers and calcium channel blockers. Given that current evidence suggests that disorders in the neural activity of the serotonergic system are important precursors of migraines, serotonin agonist drugs such as Dihydroergotamine and Sumatriptan are frequently used in severe cases where the painful episode is intended to be aborted. Due to their high effectiveness, these drugs are considered an important tool to corroborate the diagnosis when administered[13].

Cluster headache (CH)

This type of headache is rare, with an estimated prevalence ranging from 0.0005% to 2.4%. Unlike migraines, it is more frequent in men than in women with an approximate ratio of 5 to 1. The onset age of this disorder is generally between 20 and 40 years of age[14,15]. The pain is of high intensity with unilateral localization and generally occurs in the ocular, frontal or temporal region. It has also been reported to occur in the following regions: infraorbital, maxillary, posterior neck area, mandible, auricular area, suboccipital region and the area of the carotid artery located in the anterior region of the neck[16,17]. Pain episodes occur abruptly; pain reaches its maximum intensity in approximately 10 to 15 minutes, and then lasts for a period of 15 minutes to 3 hours, with an average duration of 1 hour. Episodes of pain or "cluster" may occur for periods of four to eight weeks, with frequency of one to eight attacks per day and remission periods of painful attacks between six months and two years. Headache usually occurs at the same time of the day and in more than 50% of patients it occurs during sleep. This suggests hypothalamic structures are associated with its etiology, especially given the response of headache to oxygen therapy and the occurrence of pain with changes in altitude and the presence of sleep apnea. These conditions are associated with the circadian rhythm and the regulatory centers of oxygen consumption, which could explain the exact periodicity of the pain onset and the positive response to oxygen therapy[18-21]. CH do not display aura or prodrome, they are characterized by autonomic symptoms such as epiphora, nasal congestion, rhinorrhea, frontal or facial sweating, miosis, ptosis, ocular edema, conjunctival hyperemia, face or scalp sensitivity, and bradycardia, etc.[17,18] Other disorders recognized as CH variants due to the presence of autonomic symptoms and unilateral localization are paroxysmal hemicrania and SUNCT (short-lasting unilateral neuralgiform headache with conjunctival injection and tearing). These conditions should be considered in differential diagnosis[17,22]. Factors such as the consumption of alcoholic beverages in small quantities (high consumption causes the opposite effect), histamine and nitroglycerin are identified as provoking pain and constitute an additional diagnostic tool. Genetic predisposition and smoking are conditions that appear to be associated with this painful disorder.

Recognizing a CH can be a complicated task due to the varied location of pain, sporadic onset, and associated symptoms, and unnecessary (iatrogenic) treatment is not uncommon. Treatment in pharmacologic, like that of migraines. Oxygen inhalation and using intranasal lidocaine are also part of the treatment therapy[25].

Paroxysmal hemicrania (PH)

This type of headache has similar characteristics to CH and for that reason some authors refer to it as a CH variant. PH is a rare condition with an estimated prevalence of 0.0021. It displays a slight tendency to occur more in women than in men with an approximate ratio of 2 to 1 (especially in chronic cases)[22,23]. The onset age of this disorder averages 33 years, although the literature reports cases between 6 and 81 years of age. There is no evidence of family history in this condition[26]. Pain is unilateral, with moderate to severe intensity, throbbing, pulsating, and sometimes migrates to the opposite side. It is usually localized in the ocular, temporal, maxillary and frontal regions. Other areas such as the posterior neck, occipital and retro-orbital areas are also affected. Generally, neck movement is a frequent trigger for painful episodes[26,28].

Pain episodes occur 1 to 40 times per day (average 15/day), with a duration of 5 to 20 minutes (on a range of 2 to 120 minutes), which is less than in CH[26]. PH can occur in chronic or episodic form. Episodic form is more easily confused with CH due to the similarity in the periodicity of the painful episodes; therefore, it could be misdiagnosed[29,30]. However, in any PH case, there is a clear and absolute response to indomethacin therapy, which helps to differentiate these from other painful conditions and becomes a decisive part of the diagnostic process[31].

Cranial arteritis (Giant cell arteritis)

Cranial arteritis or giant cell arteritis is caused by granulomatous inflammation of the arteries of the orofacial region. It usually involves the temporal artery, hence the name (temporal arteritis, TA). TA occurs in individuals over 50 years of age, and its prevalence increases exponentially after the age of 60 years, with a higher incidence in women than in men (3 to 1)[32,33]. Pain appears in 80% of cases and is the first symptom in 40% of patients. It is characterized by being varied, dull, throbbing, burning, accompanied by short episodes of sharp pain[33]. The location is unilateral or bilateral in the temporal region, increases gradually and involves areas such as head, face, or jaw. Clinically, it shows enlargement, redness and tortuosity in the temporal artery area, with decrease or lack of pulse and sensitivity of the scalp to palpation or touch (contact with sleeping pillows or actions such as combing the hair or wearing a hat can produce pain)[33,34]. Intermittent obstruction of the innervation of the mandibular muscles is frequently encountered, which explains that mastication can be a very common worsening factor[35]. Other signs such as intermittent obstruction of the innervation of the tongue, tongue or scalp necrosis, mild febrile state, mouth ulcerations and anorexia may also be present. The diagnosis is corroborated mainly by a temporal artery biopsy, along with an elevated erythrocyte sedimentation rate (ESR) and C-reactive protein. TA should be rapidly and carefully differentiated from trigger points in myofascial pain and/or temporomandibular disorders, due to the irreversible consequences associated with this condition. Once the diagnosis is established, the patient should be urgently referred to an ophthalmologist to initiate corticosteroid therapy and avoid serious complications in the ophthalmic arteries, a situation that causes blindness in 50% of patients[36,37]. Other vascular disorders such as polymyalgia rheumatica (PR) and carotidynia can occur concomitantly; however, their relationship is poorly understood[38-40].

Carotidynia

Carotidynia is a nonspecific and idiopathic disorder that affects the neck. The pain is reported to be dull, pulsating, sharp, with varied intensity, generally localized in the lateral region of the neck and area of the common carotid (especially in the bifurcation and its big branches), referring pain to face, head, or jaw. There are no findings that evidence obvious organic disease and usually no signs of systemic infection[42]. Simultaneously, nasal congestion, cold sensation, moderate pharyngeal erythema, increased erythrocyte sedimentation levels, tinnitus and/or vertigo may occur. Factors such as chewing, head movements, yawning, coughing, and sneezing have been reported to worsen the condition.[43-44]

Although duration is imprecise, literature reports chronic and acute cases. When the pain is acute, it may last from 1 to 2 weeks and then disappear without any intervention. Treatment is pharmacological, with medications including antimigraine agents, steroids and/or aspirin[45-46].

MUSCULOSKELETAL DISORDERS

This category features tension headache, temporomandibular disorders, myofascial pain/fibromyalgia and spinocervical disorders (Table 4). The general characteristics of the main musculoskeletal disorders are summarized in table 5.

Tension headaches (TH)

This type of headache is commonly associated with muscle tension. However, its pathogenesis has generated controversy and it is currently considered that this pathology not only involves muscular mechanisms, but also shares some of the pathophysiological mechanisms of migraine headaches. For this reason, some authors associate these two conditions and even propose that the changes at muscular level are a response to the painful condition and not the real source of the pain, which was accepted in the past.6,[10,47] These are the most frequent headaches in the general population, representing approximately 60% of the headaches treated in specialized clinics. Its estimated prevalence is 30 to 70%. It occurs more frequently in women, decreasing with age in both sexes, and the onset age varies[48]. TH are classified as episodic (15 episodes per month or 180 per year) and chronic (more than 15 days per month with a minimum duration of 6 months). Episodic TH have an estimated prevalence of 71% in women and 56% in men, while chronic cases have a 5% and 2% 49. In general, pain is bilateral, with variable intensity, usually mild or moderate, dull, non-throbbing (70% of cases), squeezing (pressure feeling in the head) and the patient usually describes it as: "having a band or hat compressing my head"[6,10]. The duration of pain ranges from minutes to days, and unlike migraines, there is no aura or prodrome. When symptoms such as photophobia, nausea, phonophobia and anorexia occur, they do so individually, especially in chronic cases. Factors such as sleep disruption, stress, caffeine consumption, bruxism, depression, and anxiety have been considered as worsening factors of this painful condition, while others like pregnancy are a relieving factor. Unlike migraine, this type of headache is generally not affected by physical activity, which for some clinicians is an important determinant in the diagnosis[50]. Traditional treatment has been pharmacological, similar to that of migraines. However, other therapies have been used successfully, including biofeedback, relaxation therapies and occlusal plates, especially when conditions such as tension, bruxism or temporomandibular disorders are involved in the progression of the headache. These disorders are more difficult to diagnose because disorders with similar symptomatology often overlap. In many cases, this situation also makes their management dependent on the clinician's training rather than on the actual source of the problem[49].

Table 4. Musculoskeletal disorders

Tension headaches
- Episodic and chronic
Temporomandibular disorders (TMD)
- Muscular and articular (TMJ)
Myofascial pain and fibromyalgia
Cervicogenic disorders
- Cervicogenic headache
- Neck-tongue syndrome
- Cervical vertebrae degeneration

Source: by the authors

Table 5. General characteristics of the main musculoskeletal disorders

Condition	Tension headache	TMD	Myofascial pain	Fibromyalgia	Cervicogenic headache	Neck-tongue syndrome
Average onset age	Third decade	Second decade	Second decade	Fifth decade	Third decade	Adolescence
Pain type	Squeezing	Dull	Dull	Dull	Sharp	Sharp
Predominant gender	Slightly in women	Women 5 to 1	It does not exist	Women 9 to 1	Women	It does not exist
Location	Bilateral	Uni or bilateral	Uni or bilateral	Bilateral	Unilateral	Unilateral
Pain triggering factors	Stress, mental strain	Mandibular movement	Pressure in trigger points and referred pain	Pressure in painful points	Neck movement	Neck rotation
Associated symptoms	Photophobia, phonophobia or isolated nausea.	Headaches, otological symptoms	Paresthesia, gastrointestinal disorders	General fatigue and sleep problems	Photophobia, phonophobia and nausea	Numbness and tingling of half the tongue

Source: by the authors

Temporomandibular disorders (TMD)

TMDs are the most common cause of non-dental pain in the orofacial region. They are considered a group of musculoskeletal/rheumatologic disorders of the orofacial region directly that directly involve the masticatory system. They are characterized primarily by pain —localized in the masticatory muscles, preauricular area and/or temporomandibular joint (TMJ)—, TMJ noises and movement limitation and irregularity. Within the epidemiological aspects[51], it is known that TMDS signs and symptoms are very frequent in the general population, occurring more in women than in men in a ratio of approximately 6 to 1. Around 65% of the general population has at least one sign —abnormality in jaw movements, TMJ noises (clicks or crackling), muscle or joint tenderness on palpation— and 35% of it have at least one symptom —limitation of mandibular opening, muscle, or joint pain. Pain is usually dull, tensioning with a sensation of stiffness. On some occasions there are episodes of sharp and/or electric pain that lasts a couple of seconds, especially when the source of pain is the TMJ. Factors that generally worsen pain are chewing, dental clenching, muscle tension, prolonged jaw opening and other oral habits (chewing gum). Although morphological (occlusal and skeletal relationships), psychological, trauma (direct, indirect and microtrauma), pathophysiological (local and systemic) factors have been considered as contributors to TMD development, the etiology

of these disorders is unclear because there is currently no evidence to prove a causal relationship for any of these[52].

The gold standard for TMD diagnosis is medical records and physical examination, aided with TMJ imaging when necessary. TMDs are usually diagnostically divided into TMJ arthropathies and masticatory muscle disorders (Table 6). Tables 7 and 8 present the general characteristics found in medical records, physical examination, and the definition of the main conditions within DTMs. When these diagnostic criteria have been applied to the general high-risk population (women aged 20 to 40 years), it has been estimated that approximately 69% of that population have some type of joint or muscle disorder. These disorders include muscular problems (especially myofascial pain), which represent 32% of the cases, joint problems (especially disc displacements) represent 28% and 40% of cases are caused by a combination of joint and muscular disorders[53,54]. However, only 7 to 10% were considered to have problems severe enough to need treatment.

It is common to find TMDs associated with other pain conditions, such as headaches, which are one of the most frequently reported conditions by this type of patient[55]. It is estimated that individuals with TMD have a 50% higher incidence of headaches (especially tension headaches) compared to the general population. This condition becomes a determining factor in differential diagnosis establishment[52,56]. Although these are factors without much scientific validity, in order to establish a possible relationship between headache and TMD the patient should be asked about the association of headache with mastication, mouth opening, morning symptoms manifestation (especially face muscles tension, which could suggest nocturnal bruxism), constant dental clenching during the day, TMJ noises, masticatory muscles tenderness on palpation (especially the temporalis muscle) and excessive tooth wear[57]. Systemic, neurological, and sympathetic symptoms do not manifest in TMDs, unless these are associated with conditions such as TH, migraines or fibromyalgia[58,59]. Other conditions frequently reported by this type of patients[60,61] are otologic symptoms such as tinnitus, sensation of fullness in the ears and referred otalgia of the TMJ.

Table 6. Diagnostic classification of temporomandibular disorders

Muscle Disorders	TMJ Disorders
Myalgia	Congenital or developmental (hypoplasia, hyperplasia)
Myositis	Disc displacements (with and without reduction)
Spasm	Condylar dislocation
Rigid protective reflex	Inflammatory (capsulitis, polyarthritis, rheumatoid arthritis)
Myofascial pain	Non-inflammatory (osteoarthritis)
Contracture	Ankylosis (osseous and fibrous)
Neoplasia	Fracture

Source: by the authors

Table 7. General characteristics of the main muscle-type temporomandibular disorders

Condition	Definition	History	Examination
Myalgia	Localized muscle discomfort or pain	Dull, continuous, or intermittent pain localized in a muscle area.	Mild to moderate pain on muscle palpation with or without movement limitation. Easy mandibular stretching
Myositis	Generalized painful swelling, usually of an entire muscle.	Moderate to severe pain with a history of trauma or infection.	Pain on palpation of the entire muscle with visible swelling and movement limitation secondary to pain and swelling. Easy mandibular stretching

Spasm	Painful involuntary muscle contraction	Involuntary sharp painful shortening of a muscle area	Moderate to severe pain with serious movement limitation. Stiffness upon mandibular manipulation or stretching.
Rigid protective reflex (Trismus)	Limitation of muscle movement to protect the masticatory system.	Chronic movement limitation. Pain could occur in involved muscles.	Movement limitation secondary to a pathology (abscess, TMJ disorder). When the cause is eliminated, the trismus is eliminated as well. Stiffness upon mandibular manipulation or stretching.
Myofascial pain	Regional muscle pain and/or referred autonomic trigger point phenomenon associated with dysfunction.	Dull pain, continuous or intermittent, localized in a muscle area.	Presence of trigger points that duplicate the pain complaint on palpation. Movement limitation may be present, with easy mandibular stretching.
Contracture	Involuntary progressive shortening without motor activity, usually due to changes in the collagen fibers within the muscle.	History of a chronic disorder that reduces vertical range of motion (myofascial pain, myositis, ankylosis).	Serious movement limitation and opening not modified (or being minimal) after mandibular stretching.

Source: by the authors

Table 8. General characteristics of the main TMJ (articular-type) temporomandibular disorders

Condition	Definition	History	Examination
Disc displacement with reduction	Structural alteration of the disc-condyle relationship that is recovered during condylar translation.	TMJ problems associated with noise or interference during work.	Reproducible clicking on the TMJ at opening and closing. Mandibular deviation that is corrected after the opening click. Normal opening rank
Disc displacement without reduction	Mandibular blockage that is caused by structural alteration of the disc-condyle relationship maintained during condylar translation.	TMJ problems associated with a history of noise that ceases after mandibular blocking.	Limitation in mandibular opening that is not modified (or minimally) after mandibular stretching. Ipsilateral deviation and limitation of laterality to the opposite side of the affected TMJ.
Capsulitis/retrodiskitis	Inflammation of the synovial layer due to an immune condition or infection secondary to trauma or articular cartilage degeneration.	Localized pain in the TMJ at rest that increases with function.	Pain on palpation of the TMJ with opening limitation secondary to pain. Mandibular stretching is possible, but it increases TMJ pain.
Polyarthritis (rheumatoid arthritis)	Joint inflammation and structural changes caused by rheumatologic conditions in both TMJs and other joints (knees, elbows, or phalanges).	Pain, joint noises (crackling), and jaw movement limitation (secondary to pain and increasing with work).	Pain on palpation and TMJ crackling. Anterior open bite that increases with disease progression. Radiographic changes and positive serological laboratory tests.
Osteoarthritis (inflammatory phase of osteoarthritis)	Degenerative process of the soft joint tissues with changes at bone level with radiographic changes.	Localized pain and TMJ noise (crackling).	Pain on palpation, crackling and ipsilateral mandibular deviation towards the affected TMJ. Opening limitation secondary to trismus that increases with mandibular stretching.
Ankylosis (osseous and fibrous)	Immobilization due to TMJ bone or cartilaginous union usually caused by trauma.	Loss of mandibular mobility. Opening is extremely limited when both TMJs are affected.	Limitation of mandibular opening with deviation ipsilateral to the affected

	Radiographically, obliteration of the articular spaces is observed.		TMJ. Limitation of laterality to the opposite side of the affected TMJ. Limitation is not modified (or minimally) after mandibular stretching.

Source: by the authors

Myofascial Pain (MFP) and Fibromyalgia (FM)

Although these two conditions are different, they clinically appear to be the same one, which is why they are often misdiagnosed[62]. MFP is one of the most frequent conditions in patients suffering from pain syndromes and one of the most common causes of persistent regional pain. MFP is characterized by muscle tenderness and pain on palpation and is associated with pain in areas such as the back, shoulders, and neck. It is also associated with conditions such as TH and TMD[63]. There is no difference between males and females and literature reports that in general internal medicine consultation, 29.6% of patients have been diagnosed with MFP[64]. Other studies have reported that MFP is responsible for 85% of chronic back pain and 55% of headache, neck, and masticatory system pain[65,66]. Pain is characterized by dullness, bilateral or unilateral localization and the presence of "trigger points" in muscle bands (the most important feature of this condition). These can produce pain on palpation of the trigger point and thus duplicate the patient's complaint and/or refer pain to other distant areas (referred pain). Conditions such as paresthesia, gastrointestinal problems, visual disturbances and otological symptoms are associated with MFP[66]. When MFP is part of a TMD, the patient often reports weakness, fatigue, stiffness, as well as pain and restriction in jaw movement. It becomes difficult in many cases to establish the differential diagnosis[67,68] because this is a condition frequently associated with other disorders such as TH and TMD, which in turn share certain contributing factors such as a trauma history, sleep disturbances, oral habits, postural habits, emotional or psychological stress. Treatment for this type of conditions has a multidisciplinary approach comprising palliative care, neural therapy, physical therapy, relaxation therapies and occlusal splints among others[69].

FM is a rare condition, with an estimated prevalence of 2-4% and an approximate incidence of 583 per 100.000 people in the general population aged 18-79 years. It displays a higher than 90% tendency to manifest itself more in women than in men, especially after the fifth decade, possibly due to the post-menopausal period[70]. In primary care clinics, FM is estimated to account for 5% of patients, while rheumatology clinics report an average of 17% of new patients[71].

FM is characterized by a decreased pain threshold with the presence of painful points (PP), which like TP are sensitive to palpation.[72] However, the difference between these two is that PP do not cause referred pain and there is no evidence of local contraction response. The American College of Rheumatology has identified 18 PPs that are in different body areas. There must be at least 11 PPs present for diagnostic purposes, and thus corroborate the presence of real FM[73]. These should be accompanied by one or more symptoms such as sleep disturbances, fatigue, morning muscle stiffness, depression, headaches, paresthesia, anxiety, irritable bowel syndrome, urinary disorders, overactive bladder, history of dysmenorrhea and Raynaud's phenomenon. Other physical findings that occasionally appear are swelling, neurogenic inflammation, reactive hyperemia (presence of erythema on the skin after a mechanical (palpation) or chemical (capsaicin) stimulus) among others.[71, 74-76.]

It is important to bear in mind that due to the lack of longitudinal studies allowing us to know the progression of the disease, in many patients whose symptomatology is not very specific and where there are not enough PP, the diagnosis is often made by ruling out other rheumatological conditions (arthritis) that display similar symptoms such as generalized pain, fatigue and/or sleep disturbances, among others[77, 78].

Cervical Spine Disorders (CSD)

These disorders are difficult to describe because different tissues and structures such as cervical muscles, spine, arterial vessels, and cervical nerves can suffer localized pathologies in the neck area. For this reason, certain previously described conditions such as MFP and occipital neuralgia should be ruled out in the differential diagnosis[79-82]. CSDs include cervicogenic headache, neck-tongue syndrome, and cervical degenerative disc diseases. Cervicogenic headache[83-84] is characterized by being generally unilateral, non-throbbing, with occasional episodes of sharp or electric pain localized in the neck. It may refer pain to the shoulders and/or arms and be associated with other symptoms such as numbness or tingling, especially when there are pinched nerves. Pain can also be ipsilaterally referred to distant sites such as the frontal area, orbital region, temporal area, vertex, and ears, making this condition easily misdiagnosed and inadequately treated. The pain is worsened by specific movements or by a sustained neck posture with the presence of muscular alterations such as limitation in range of motion, abnormal sensitivity to palpation, with pain response to active and passive neck stretching. Additional symptoms such as conjunctival hyperemia, epiphora and erythema in the frontal area may appear (there are no displays of Horner's syndrome). Some patients also report other symptoms such as vomiting, photophobia, phonophobia, nausea, blurred vision, dizziness, and difficulty swallowing.

Tongue-neck syndrome[85,86] is a disorder characterized by acute pain and unilateral numbness of the occipital region and/or posterior neck area. In turn, it is accompanied by tingling or numbness of the ipsilateral half of the tongue and is initiated or increased by sudden head movements, especially rotational movement. Apparently, this condition is caused by a temporary subluxation of the atloido-axial joint, which pinches the connections of the lingual nerve and the cervical C2 branch through the hypoglossal nerve.

Degenerative disorders of the cervical vertebrae should always be considered as an etiologic factor, hence being necessary to use radiographs to evaluate this type of disorders. These are important aids in the diagnosis of abnormal postures, fractures, congenital abnormalities, and arthritic conditions, among others. Imaging combined with anesthetic blocks are decisive in the diagnosis of CSD[79, 81, 83].

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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