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REVIEW ARTICLES

DEFINITION AND CHARACTERIZATION OF MUSCULOSKELETAL PAIN AND ASSOCIATED DISEASES

DEFINIÇÃO E CARATERIZAÇÃO DE DOR MUSCULOESQUELÉTICA E DOENÇAS ASSOCIADAS

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ABSTRACT

Musculoskeletal pain is a frequent reason for seeking health care at any age, including pediatric. Semiological accuracy, with a careful anamnesis plus a systematic and detailed physical examination, is mandatory. Only the use of an accurate and standardized language will allow correct communication so as not to incur ambiguities of definition and interpretation and consequent omissions or overvaluations of clinical manifestations, culminating in diagnostic errors.

This manuscript intends to gather and define the multiple concepts of musculoskeletal pain with the aim of standardizing and clarifying medical terminology. Taking into account general concepts, time progression, and location of musculoskeletal pain, the authors gathered 85 concepts, mostly of painful manifestations, that are described in a succinct and practical way.

Keywords: acute; arthralgia; arthritis; chronic; definitions; musculoskeletal pain, polyarthritis; semiology; subacute

RESUMO

A dor musculoesquelética é um motivo frequente de procura de cuidados de saúde em qualquer idade, incluindo a pediátrica. O rigor semiológico, com uma anamnese cuidada e um exame objetivo sistemático e pormenorizado, é obrigatório. Somente a utilização de uma linguagem rigorosa e padronizada permitirá a comunicação correta, evitando incorrer em ambiguidades de definição e interpretação e em consequentes omissões ou sobrevalorização de manifestações clínicas, culminando em erros de diagnóstico.

O presente artigo compila e define os múltiplos conceitos de dor musculoesquelética, com o objetivo de uniformizar e clarificar a linguagem médica. Considerando conceitos gerais, a evolução temporal e a localização da dor musculoesquelética, os autores reúnem 85 conceitos, maioritariamente de manifestações dolorosas, e descrevem-nos de forma sucinta e prática.

Palavras-Chave: aguda; artralgia; artrite; crónica; definições; dor musculoesquelética; poliartrite; semiologia; subaguda

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INTRODUCTION

Musculoskeletal pain (MSP) is very common in pediatric populations, reported in approximately 7% of office visits in primary health care and corresponding to 18% of complaints in emergency services.[1-3] Most complaints are benign and attributable to trauma, "growing pains", development variants, and overuse.[1,2] However, serious conditions as musculoskeletal infections, bone tumors, or malignant diseases can involve bones, muscles, and joints, justifying careful anamnesis and a detailed physical examination.[1,2]

Multiple concepts are associated with MSP. Surprisingly, they are not assembled nor always accurately defined in the literature, as happens with arthritis and arthralgia.[4,6,7] Even in medical dictionaries, including rheumatology-specific, surprising omissions are found in these commonly used terms.[8]

Definitions of the several inflammatory clinical conditions are very different depending on their acute, subacute, or chronic evolution.[6-11] The definition of "chronic pain" itself is different depending on whether it has an infectious or inflammatory etiology, requiring three months or six weeks' duration since onset, respectively, as is the case of juvenile idiopathic arthritis (JIA).[6,9-11]

Confusingly, the same condition can have more than one name and the same name can refer to different conditions. "Growing pains", or "leg aches", a benign condition that affects more than 10% of children, is synonymous of idiopathic bilateral leg pains for pediatricians, with no relationship with growth.[1,2,12-14] However, in a reference textbook with 2481 pages written for orthopedists, "growing pains" or "leg aches" were never mentioned.[15] Therefore, for many orthopedists "growing pains" mean any of several osteochondrosis or osteochondritis.[14-16] These are a large group of heterogeneous conditions characterized by enchondral ossification variations occurring in the epiphysis during growth, involving cartilage and bone.[2,14-16] Over 50 eponymic conditions have been described, the most common being Legg-Perthes disease, Osgood-Schlatter disease, Sever disease, Köhler disease, and Freiberg disease.[2,14-16]

Also, many practitioners are not aware that the definition of arthritis does not require the presence of all the classic signs described by Cornelius Celsus.[10,17]

We have recently conducted an online inquiry to clinicians regarding some MSP definitions: arthralgia, arthritis, myalgia, allodynia, and hyperesthesia. Each concept had five to seven options, with only one correct answer. The results are presented in **Table 1**.

The high percentage of wrong answers (80.8% for arthritis) supports the notion that most clinicians do not evaluate the musculoskeletal system on a routine basis.[18] Additionally, most clinicians are not able to perform an adequate musculoskeletal physical exam at any age, despite the availability of screening tools as the pGALS (Pediatric Gait, Arms, Legs, Spine), a valuable resource in the evaluation of MSP children that can be executed in a few minutes.[18-20] The main reason for this is that all stages of medical education lack specific training in musculoskeletal system.[18]

Table 1 - Online inquiry to medical doctors (58,2% paediatricians, 17,0% rheumatologists, 10,2% general practitioners, 6,2% orthopaedic surgeons) about MSP (n=177)

Concept	Right answer	Wrong answer
Isolated arthralgia	73 (41.2%)	104 (58.8%)
Arthritis	34 (19.2%)	143 (80.8%)
Myalgia	97 (54.8%)	80 (45.2%)
Allodynia	107 (60.5%)	70 (39.5%)
Hyperesthesia	116 (65.5%)	61 (34.5%)

OBJECTIVES

The present manuscript aims to define concepts associated with MSP, enabling terminology standardization, greater diagnostic accuracy, and improved communication between health professionals.

I – Causes of musculoskeletal pain

MSP is present in a number of medical conditions, some of which benign – as "growing pains", myofascial syndromes, and osteochondroses –, but others potentially serious – as malignancies (leukemia, lymphoma, bone sarcoma, neuroblastoma) and several rheumatic diseases.[1,7,12-14,16-18,20,23-25]

Table 2 depicts the classification of MSP in 24 etiological groups, with some examples and respective severity.

II - Musculoskeletal pain and associated conditions

A total of 85 concepts associated with MSP were assembled. Despite having referred to a wide bibliography, exact definitions of a number of concepts were not found. In those cases, the authors chose to provide their own definitions. Examples include "continuous pain" and "continuous pain in crescendo" (**Figure 1**).

Definition of 'polyarticular' differs according to disease: only two joints are considered in acute rheumatism and acute or chronic infections, while five joints are considered in other chronic conditions.[7,10,11,17,18,24,27-29]

Some concepts correspond to somewhat unique entities with particular characteristics. They are easily identified through a detailed anamnesis and careful observation. In those cases, diagnosis can be established without the need for diagnostic tests. Examples include myofascial syndrome (which can occur in any muscle) and neuropathic pain in the context of complex regional pain syndrome.[21,26,30,31]

Myofascial pain involving single or multiple muscle groups is the most common cause of back pain in the otherwise healthy pediatric population, especially in adolescent and early-adult years.30

Table 2 - Etiologic groups of potential causes of MSP[2,7,17,18,20-24]

Etiologic groups	Examples of clinical entities	Severity
Idiopathic pain	Growing pains, restless legs syndrome, lower limb pain as a manifestation of migraine26	Benign
Osteochondrosis	Sever disease, Osgood-Schlatter and Legg-Perthes diseases; Freiberg, Scheuermann, Köhler, Sinding-Larsen-Johansson diseases; epiphysiolysis16	Variable (mostly benign)
Amplified pain syndromes (APS)	Fibromyalgia, complex regional pain type I and type II (with neurovegetative signs), nonspecific APS, chronic fatigue syndrome, myofascial syndromes (can be included in this group)1	Benign
Myofascial syndromes	Low back pain with hyperreactive trigger points, piriformis syndrome, other myofascial gluteal syndromes, trapezius dysfunction, temporomandibular dysfunction, ... (possible in any muscle)	Benign, but pain is limitative
Metabolic diseases	Metabolic myopathies; example Fabry disease	Variable
Endocrine diseases	Myopathy of hypothyroidism and hyperthyroidism, hypovitaminosis D	Variable
Hematologic diseases	Hemophilia, hemarthrosis, sickle-cell crisis (hand-foot syndrome)	Serious
Degenerative diseases	Osteogenesis imperfecta; diaphyseal, metaphyseal and epiphyseal dysplasias	Serious
Benign tumours	Osteoid osteoma, osteochondroma, bone cysts	Variable (mostly benign)
Malignant musculoskeletal tumours	Ewing's sarcoma, osteosarcoma, synovial sarcoma, giant cell tumor	Serious
Malignant systemic diseases / metastasis	Leukemia, lymphomas, neuroblastoma, Wilms tumor	Serious
Autoinflammatory bone diseases	Chronic or recurrent non-bacterial osteitis (CNO), PAPA	Variable (mostly benign)
Other autoinflammatory syndromes	Familial mediterranean fever, TNF receptor associated periodic syndrome (TRAPS)	Variable (mostly benign)
Acute rheumatism	Reactive arthritis, rheumatic fever, post-streptococcal reactive arthritis, serum sickness-like reaction	Serious
Recurrent rheumatism	Reactive arthritis, autoinflammatory syndromes, palindromic rheumatism	Variable
Chronic and / or recurrent rheumatism	Juvenile idiopathic arthritis, connective tissue diseases	Variable
Inflammatory vasculitis	Henoch-Schönlein purpura, Kawasaki disease, polyarteritis nodosa, Takayasu vasculitis, hypocomplementemic vasculitis	Variable
Acute infections	Osteomyelitis, septic arthritis, limb cellulitis, bursitis	Serious
Chronic infections	Osteomyelitis, chronic arthritis	Serious
Acrosyndromes	Perniosis with or without arthropathy, Raynaud's phenomenon, Erythromelalgia	Benign
Overuse	Tendinitis, enthesitis, bursitis, shin splint2	Benign
Allergic	Serum sickness-like reaction, urticaria with joint involvement	Benign
Genetic diseases	Joint hypermobility syndrome, skeletal dysplasias: epiphyseal, metaphyseal, dysfunctional, isolated or in association	Variable
Miscellaneous	Laminar chondrolysis, phalangeal microgeodic syndrome, thorn arthritis	Variable

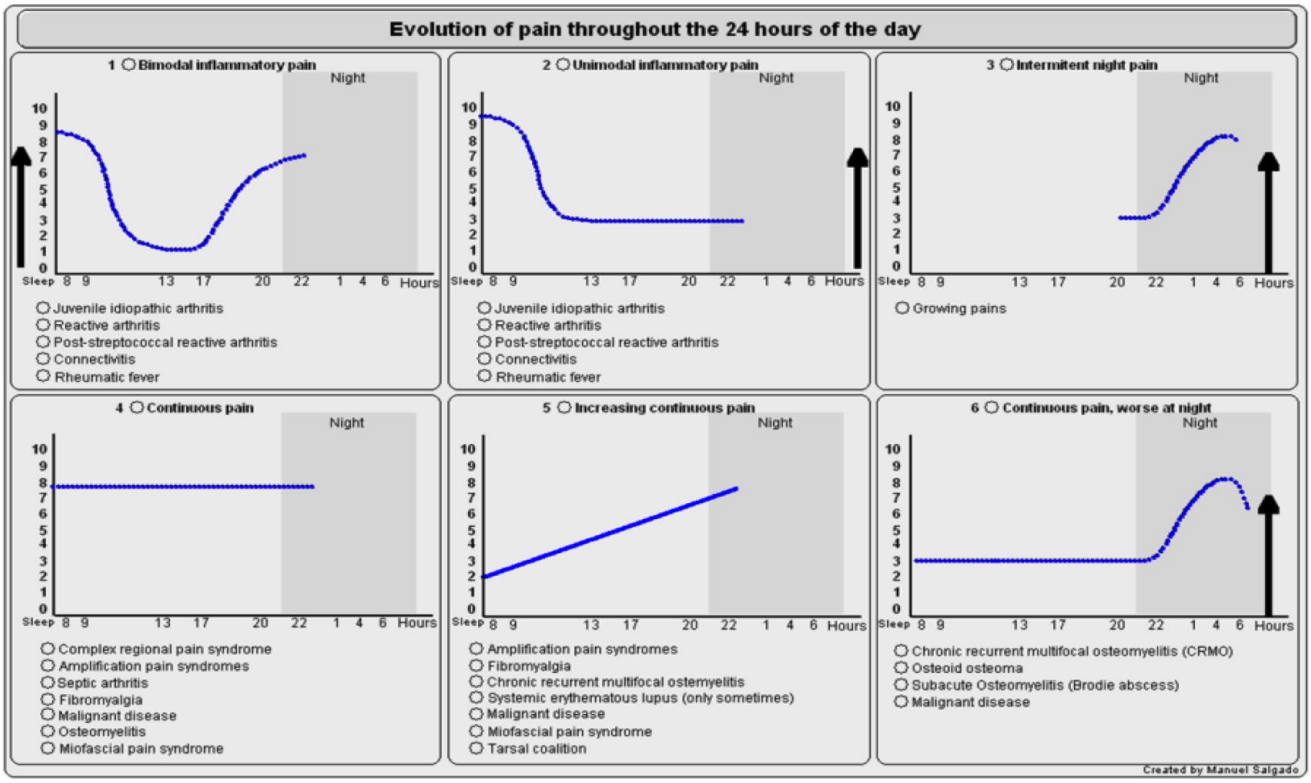

Figure 1 - Graphical representation of the evolution of six patterns of pain throughout the 24 hours of the day, with some of their causes

An accurate characterization of different concepts allows:

1. Standardization of use, avoiding interpretation ambiguities and clinical evaluation asymmetries. Examples: difference between arthralgia and arthritis; misinterpretation of the concept of polyarthritis in acute (≥ two affected joints) or chronic (≥ five affected joints) clinical situations.[1,7,10,11,17,23,27,28]
2. Improved diagnostic acuity, as different MSP concepts are associated with different etiologies. Examples: trigger points are almost exclusively associated with myofascial syndrome or fibromyalgia; neuropathic pain has a limited number of etiologies (as complex regional pain and sensitive neuropathies of toxic, primary and/or secondary vasculitis); migratory polyarthritis is typical of rheumatic fever and also frequent in leukemia; the palindromic pattern suggests arthropathy of inflammatory bowel disease, arthropathy of celiac disease, or autoinflammatory syndromes as familial Mediterranean fever in presence of fever.[9,17,30,32-37]

III - Characterization of musculoskeletal pain and associated conditions

The different MSP types and associated conditions are listed in **Tables 3 to 8**. If the patient presents with more than one MSP type, it should be investigated and the type associated with the most serious condition should be studied first.

Table 3 - General concepts[22]

Concept	Definition, with some comments
Pain	An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.[38]
Musculoskeletal pain	Pain localized to the muscle, ligament, tendon, joint or bone.
Muscle pain / myalgia	Pain with muscular origin or referred to muscle, regardless of its etiology.[39] * *Examples: viral myositis, post-streptococcal polymyalgia, myalgia of Guillain-Barré syndrome.*[39]

Bone pain*	"Deep" pain, originated exclusively from bone. [2,18,23,40] * *Requires exclusion of local or systemic neoplasia.*[2,10,18,40] *Substantial bone pain, particularly nocturnal pain in the extremities, associated with alteration of two cell lines in complete blood count, suggests leukaemia or other malignant disease.*[18]
Periarticular pain	Pain originating from structures outside the joint capsule (synovial bursae, tendon synovial sheaths, ligaments ...).[4]
Arthralgia*	Pain localized to the joint or periarticular structures (tendons, muscles, enthesis, ligaments and nerves).[1,17,40] * *The differentiation of arthralgia from arthritis is often solely dependent on demonstrating a range of motion limited by pain.*[17]
Isolated arthralgias*	Pain localized to the joints in the absence of other inflammatory signs.[1,17,23] * *A completely normal joint examination is required, with no joint limitation or any other inflammatory signs other than pain.*[17] *"The patients refers pain and the physician finds nothing."*
Tenderness	Pain with touch or manipulation.[10]
Arthritis*	Criterion one or criterion two:[10,17,24] 1) Joint swelling or intra-articular effusion. 2) Limitation of joint mobilization associated with at least one of the following: a) Pain b) Tenderness c) Swelling d) Heat * *The diagnosis of arthritis is based entirely on the physical exam*.1 *Having excluded mechanical, traumatic or vascular causes, the definition of arthritis does not require swelling (it can be joint limitation with pain); but the swelling by itself, even in the absence of pain or other inflammatory signs is sufficient for the diagnosis of arthritis.*[10,17] *"The patients refers pain and the physician finds something (usually joint limitation)."* *- Redness is an uncommon manifestation in chronic rheumatic diseases, justifying its absence in the classification criteria for arthritis. Its existence suggests another diagnosis, such as infection, malignant disease or acute "rheumatism"*.[7,22,40] *- Criterion one alone is common in JIA.11,18,41-43 JIAs are painless in 14-36% of patients, particularly in oligoarticular JIAs. 10,41,42 These cases manifest only with swelling or intra-articular effusion associated or not with limping and local heat.18,43 In true chronic childhood rheumatism, joint pain is not the most relevant complaint, having a negative predictive value when it is not the main manifestation*.[41-45] *- Criterion two is typical of acute disorders, such as rheumatic fever and infections, but can also appear in chronic rheumatisms*.[17,18]
Joint flexion	Position of maintained flexion of a joint. Non-reducible flexion: there is a limitation of articular amplitudes in physical examination. Reducible flexion: normal articular amplitudes in physical examination.
Joint stiffness*	Impossibility of the patient to mobilize the joints after a period of inactivity, such as after sleeping or sitting for a long time, often associated with pain and physical incapacity.[2,10,40] * *Morning stiffness is common in chronic inflammatory diseases. Its duration is variable. Stiffness lasting more than 15 minutes denotes a considerable level of joint inflammation*.[10] *Stiffness that lasts all day is suggestive of a pain amplification syndrome.*[10] *In general, "woken up" is determined to be the state where the patient is able to perform daily activities.*[40]

**Gelling* **	Impossibility of the patient to mobilize the joints after a brief period of inactivity, such as sitting for a short time, often associated with pain and physical incapacity. * *Literature unclear. Sometimes used interchangeably with joint stiffness.* ** *Also used as a physiopathological concept. Some authors consider "articular gelling" a possible cause of joint stiffness*.[46]
Joint antalgic posture*	Posture adopted by the patient to decrease the intra-articular pressure (usually in semiflexion), in order to avoid or minimize the pain; in hip arthritis the antalgic position is in abduction and external rotation.[44] * *An intense joint pain with sustained joint extension or in internal rotation of the hip, is paradoxical, suggesting underlying psychological factors and the need to search for secondary benefits.*[44] *In children with transient synovitis of the hip, the mean intracapsular pressure is only 18 mm Hg when the hip is in 45 degrees of flexion, but increases to 178 mm Hg when it is in extension and internal rotation.44 This explains why in a septic or inflammatory condition the hip is kept in a position of flexion, abduction and external rotation.*[44]
Joint blockage*	Sudden interruption of joint mobility, occurring at a particular stage of joint movement. The associated pain can be very intense, and cause the patient to fall. * *Examples: desiccant osteochondritis, discoid meniscus.*
Tendinitis	Inflammation of a tendon.[7]
Fasciitis*	Inflammation of a fascia.[11] * Examples: fascia lata and plantar fasciitis.
Bursitis*	Inflammation of one or more synovial bursae.[7] * *There are over 150 bursae, typically found around large joints.*
Enthesopathy / enthesitis / apophysitis*	Inflammation of tendon or aponeurotic insertion in the bone (the enthesis).[1,7] * *Examples: overuse, osteochondritis associated with bone growth.*
Claudication / Limping/ Gait changes	Deviation from normal gait pattern expected for the patient's age.[7,39,45] * *Examples of gaits: antalgic; Trendelenburg or duck (associated with hip pathology); tip-toe walking or "steppage" (suggestive of central neuropathy if unilateral and of peripheral neuropathy if bilateral and symmetrical); ataxic; myopathic; cautious.*
Growing pains / limb aches*	Symmetrical lower limb pain of short duration, not located at the joints. It can affect one or both limbs, simultaneously or alternately. It usually appears three to four times per month, in the evening or in the first third of the night (waking the child). On the following morning the patient gets back to normal.[1,2,12-14,18,44] * It is a misnomer, having no relationship with body growth. [2,12,13]
Osteochondrosis / osteochondritis *	A group of disorders that occur in areas of ossification, with associated pain and/or tenderness.[2,14,16] * They can be difficult to distinguish from enthesitis.[1,7]
Leg cramps*	Sudden, involuntary and painful contractions of calf muscles. Usually lasting less than 2 minutes, but in some cases up to 10 minutes. Residual tenderness of approximately 30 minutes.[47,48] * *Nocturnal leg cramps are common in children over 8 years of age and adolescents, occurring one to four times a year.47 They can be incorrectly diagnosed as growing pains.48 Channelopathies are a cause of pathologic leg cramps*.[49,50]

Table 4 - Concepts related to temporal evolution[16]

Concept	Definition, with some comments
Acute pain*	Concept difficult to define, but that we assume as pain lasting less than two weeks. * *There is no consensus in literature. The definition we adopted simplifies the concept and therefore its practical use.*
Subacute pain	Concept difficult to define, but that we assume as pain of prolonged duration, usually lasting more than two and less than six weeks.
Chronic pain *	Pain that persists past normal healing time, assumed to be 3 months in the absence of another criterion.[38] * *In some disease classifications it is considered to be of shorter duration (e.g. 6 weeks in JIA).*[10,11]
Intermittent pain	Episodic pain of any intensity, in the absence of pharmacological analgesia, and excluding continuous pain.
Persistent pain	The pain persists continuously over time, although with periods of partial worsening and remission.[23]
Recurrent pain	Pain episodes separated by disease-free intervals.[23]
Continuous pain*	Pain throughout the period (within the 24 hours) in which the patient is awake (Figure 1). * *Absence of anomalies in physical examination suggests psychological factors.*[40] *Abnormal examination is suggestive of systemic neoplasia benign or malignant bone tumor, non-bacterial osteitis chronic osteomyelitis, among other etiologies*.[7,16,17,29]
Continuous pain in crescendo	Pain that intensifies gradually from morning to night. (picture)
Pain of nocturnal predominance*	Pain that arises only during the night, and that may or may not begin before falling asleep. (Figure 1) * *Examples: growth pains, osteoid osteoma, subacute osteomyelitis, non-bacterial chronic osteitis, malignant disease and leg cramps*.[1,2,17,47,48]
Pain of inflammatory rhythm*	Pain that worsens with rest, being worse in the morning and improving with continued movement. * *Absence of antalgic posture. There is prolonged morning stiffness (greater than 30 minutes), and stiffness after rest lasts longer than 5 minutes.*[23] (*Figure 1*)
Unimodal inflammatory pain	The patient wakes up with pain that improves during the morning, not returning until the next day.[51] (Figure 1)
Bimodal inflammatory pain	The patient wakes up with pain that improves during the morning, returning in the evening until falling asleep.[51] (Figure 1)
Pain of mechanical rhythm*	Pain that worsens with continued use of the joint, being worse in the evening and with continuous movement. * *Improves with rest. There is an antalgic posture. If present, morning stiffness has a short duration (less than 10 minutes), and stiffness after rest lasts less than 2 to 3 minutes.*[23]
Pain of mixed rhythm	Pain that has inflammatory and mechanical characteristics, simultaneously.[23]
Non-mechanical non-inflammatory pain	Pain that does not have an inflammatory nor mechanical rhythm.[23]
Acute rheumatic disease*	Rheumatic disease that lasts up to six weeks. * *Examples: rheumatic fever, reactive arthritis, serum sickness-like reactions.*

Table 5 - Concepts related to pain localization[7]

Concept	Definition, with some comments
Localized / regional pain	Pain limited to one region of the body.[52]
Diffuse pain	Pain that affects several regions or the entire body.[52]
Referred pain*	Pain felt in a place other than its place of origin or place of stimulation.[2,7,40,53] * *Examples: pain irradiation of sacro-ileitis or gluteal myofascial syndrome from the posterior aspect of the thigh to the knee; Legg-Perthes disease with pain referred to the knee.*[7,25] *Consequently, the joints and bones above and below of a symptomatic joint must be examined carefully.*[1,2]
Acute polyarthralgia	Acute joint pain affecting two or more joints.[17,27-29]
Chronic polyarthralgia	Chronic joint pain affecting five or more joints.[23]
Low back pain	Pain localized to the lumbar region (the entire back region below the 12th rib, including the gluteal and sacroiliac regions).[23]
Diskitis / discitis	Inflammation (with or without an infectious cause) of the intervertebral disk.[1,17,18]

Table 6 - Arthritis and osteomyelitis classification[19]

Concept	Definition, with some comments
Monoarthritis	Arthritis in one joint.[24]
Oligoarthritis	Arthritis in one to four joints (includes monoarthritis).[7,23,24]
Polyarthritis*	Acute disease: two or more affected joints.[17,24,27] Chronic disease: five or more affected joints.[7,18,23,24] * *Acute polyarthritis (affecting two or more joint) is not exclusive to rheumatic diseases, also occurring in infections.*[9]
Symmetrical polyarthritis	The same joints are affected on both sides of the body (approximately).[23]
Asymmetric polyarthritis	There is no relationship between affected joint on both sides of the body.[23]
Axial arthritis / spondylarthritis	Involvement of the anterior thoracic wall and spine (cervical, dorsal and / or lumbosacral) and sacroiliac joints.[31]
Proximal peripheral arthritis	Preferential involvement of large joints (proximal to the wrist or the ankle, including or not the axial skeleton).[23]
Distal peripheral arthritis	Preferential involvement of small joints (hands and feet, with or without wrist and ankle).[17]
Fixed arthritis *	Arthritis that persists in the same joint for a long time, usually many weeks.[1,10] * *In JIA, the arthritis must persist at least 6 weeks in the same joint or joints*.[1,10,18]
Migratory polyarthritis*	Arthritis that appears in a joint, lasts from two to five days, and then migrates to another one (leaving the previous one free).[7,23,54] * *Characteristic of rheumatic fever.*[17,18] *"The joint that was so harshly painful yesterday … is often painless today, even though some swelling persists".*[11] *Can also occur in leukaemia, inflammatory bowel disease and Mycoplasma pneumoniae infection, among other diseases*.[2,17,35]

Additive polyarthritis	The joints are affected simultaneously, and added together gradually.[17,23]
Palindromic arthritis*	Recurrent transient episodes (usually monoarticular and lasting no more than seven days), affecting three or more joints sequentially.[36,37,55] * *Palindromic means "to come and go". Examples: arthropathies of chronic inflammatory bowel disease and celiac disease, Lyme disease, familial Mediterranean fever*.[17,36,37,55] *Idiopathic cases are common, with only 40% progressing to a chronic rheumatism*.[36,37]
Dactylitis / sausage finger*	Finger oedema due to extensive tenosynovitis associated with involvement of the three finger joints (metacarpophalangeal, proximal interphalangeal and distal interphalangeal).[7] * *Examples: psoriatic arthritis, spondyloarthropathy, reactive arthritis or sickle cell crisis*.[7]
Multifocal osteomyelitis	Osteomyelitis affecting two or more bones.[29,56]
Acute osteomyelitis	Osteomyelitis lasting less than two weeks.[9]
Subacute osteomyelitis	Osteomyelitis lasting between two weeks and three months.[9]
Chronic osteomyelitis	Osteomyelitis lasting three or more months.[9]
Chronic nonbacterial osteomyelitis*	Autoinflammatory chronic osteomyelitis, also known as chronic recurrent multifocal osteomyelitis (CRMO).[29] * *Almost 20% of cases are monofocal*.[29]
Sympathetic arthritis	Sterile, non-pyogenic arthritis due to adjacent bone disease, particularly chronic inflammatory osteomyelitis.[17,57,58]

Table 7 - Idiopathic pain syndromes[5]

Concept	**Definition, with some comments**
Amplified pain	Generic term describing chronic pain syndromes of unconfirmed aetiology, such as fibromyalgia and complex regional pain. They can be acute or chronic and have no obvious cause. Their main characteristic is the disproportionate ("amplified") pain for the clinical history and physical examination. The pain is spontaneously "amplified" without the patient doing it intentionally.[18,21,59]
Complex regional pain	Presence of continuous burning pain, allodynia, or hyperpathia following traumatic nerve damage, associated with vasomotor and sudomotor dysfunction and, later, trophic changes.[1,18,21,31]
Fibromyalgia	Chronic and generalized muscular sensibility accompanied by a subjective perception of pain and joint swelling, and also associated with other types of pain and disturbances of mood, sleep and daily activity.[18,21,23,60]
Myofascial pain	Intense pain, local or referred, that can be reproduced by pressing well-demarcated muscular points (myofascial trigger points), with or without the presence of a small taut band. All muscular zones can have one or more trigger points.[25,30,61]
Myofascial trigger points	Hyperirritability area located in a taut band of skeletal muscle. It is associated with a (usually palpable) nodule that can cause pain, motor dysfunction, and local or referred autonomic phenomena.[25,30,61]

Table 8 - Neuropathic and myopathic conditions[16]

Concept	Definition, with some comments
Neuropathic pain	Pain caused by injury or disease of the somatosensory nervous system, characterized by associated neuropathic manifestations (stinging and/or burning sensations, electric shock) and one or more of the following: allodynia, anaesthesia, dysesthesia, hyperalgesia, hyperpathia, hyperesthesia, hypoesthesia or paraesthesias.[21,38,62]
Allodynia*	Pain resulting from usually non-painful stimulus.[11,21,38,62] * *It is the most characteristic painful manifestation of complex regional pain types I and II.*
Analgesia	Absence of pain in response to stimulation which would normally be painful.[38,62]
Causalgia*	A syndrome of sustained burning pain, allodynia, and hyperpathia after a traumatic nerve lesion, often combined with vasomotor and sudomotor dysfunction and later trophic changes.[38,62] * *Corresponds to complex regional pain syndrome type II (secondary to peripheral nerve injury).*
Hyperalgesia	Increased and intense pain resulting from a mild painful stimulus.[38,62]
Hyperesthesia	Coexistence of allodynia plus hyperalgesia (exaggerated responses to tactile and thermal nociceptive and non-nociceptive stimuli).[1,38,62]
Hyperpathia	Pain of increasing intensity to a repeated stimulus; the pain persists even after removal of the painful stimulus. There is, therefore, progressive amplification in the intensity and duration of the pain as the stimulus is repeated.[38,62]
Dysesthesia	An unpleasant abnormal sensation, whether spontaneous or evoked, described as stinging, etc. [38,62]
Paraesthesia	An abnormal sensation, whether spontaneous or evoked, described as tingling or numbness.[38,62]
Hypoesthesia	Decreased sensitivity to stimulation.[38,62]
Anaesthesia	Absence of sensivity.[62]
Hypoalgesia	Diminished pain in response to a normally painful stimulus.[38,62]
Radiating pain / radicular pain* **	Pain resulting from nerve root compression, but located distally by the patient (at the limb or torso level), usually felt along a dermatome.[29,40,61] * *Example: herniation of intervertebral discs.* ** *Literature unclear. Both terms are sometimes used interchangeably. Some authors describe radicular pain as defined above, and "radiating" as a characteristic of radicular pain.*
Myopathic pain	Pain associated with muscle diseases (including metabolic, infectious, inflammatory, congenital and idiopathic conditions).[39]
Myotonia (muscle stiffness) *	Delayed relaxation (prolonged contraction) of the skeletal muscles after voluntary contraction or electrical stimulation. * *Often described as or manifested by muscle hypertrophy, limited tolerance to exercise, "funny gaits", falls or leg cramps.*[49,50] *It can be present in some skeletal muscle channelopathies: hyperkaliaemic periodic paralysis, hypokaliaemic periodic paralysis and Anderson-Tawil syndrome.*[49,50]
Muscle paralysis *	Loss of muscle function. * *It can manifest by periodic focal or generalized muscle weakness, usually beginning in the first two decades of life. Is often associated with changes in extracellular potassium.49,50 It can be present in some skeletal muscle channelopathies: hyperkaliaemic periodic paralysis, hypokaliaemic periodic paralysis and Anderson-Tawil syndrome.*[49,50]

CONCLUSIONS

The complexity of MSP and underlying conditions compel the clinician for a careful approach, well beyond exhaustive and non-targeted diagnostic tests.

Limb pain is usually benign and self-limited, not requiring medical intervention.[1,2,17] The correct diagnosis can often be established only based on clinical history and physical examination.[1,2] Diagnostic tests (laboratory and/or imagiological) can be avoided in most cases and do not preclude the need for careful clinical history and a systematic and detailed physical examination.

Likewise, due to the simplicity and sensitivity of pGALS screening examination, this method should be known to all clinicians evaluating children in the clinical practice.

The use of a correct and uniform vocabulary allows accurate communication and prevents ambiguities and diagnostic errors, making the use of standard terminology key among health professionals.

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