



## DISEASES WITH ARTICULAR SYNDROME

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### Abstract:

Articular syndrome is a clinical symptom complex expressed by pain in the joints, morning stiffness, deformation and deformation of the joints, limitation of their mobility, pathological changes in the tissues surrounding the joint. The most important components of diagnosing the disease underlying the patient's articular syndrome are a correctly collected anamnesis, a medical examination, and a set of laboratory tests and radiological imaging methods. The purpose of this article is to help the doctor in the early diagnosis of the joint disease underlying the patient's syndrome. The article discusses the main components of such a syndrome, characteristic symptoms and key manifestations of common rheumatic diseases (RD), which are based on articular syndrome, and presents modern approaches to its diagnosis. Timely assessment of articular syndrome contributes to the correct formation of a program of laboratory and instrumental research methods for patients, allows one to suspect RD at an earlier stage of its development and refer patients for consultation with a rheumatologist. Early prescription of basic therapy by a rheumatologist for patients with articular syndrome will improve the quality of life and prognosis of RD in these patients

**Keywords:** Rheumatic Diseases, Articular Syndrome, Diagnostics, Radiography, Ultrasound Diagnostics, Magnetic Resonance Imaging.

### INTRODUCTION

Joint syndrome is a clinical symptom complex manifested by pain in the joints, morning stiffness, deformation and deformation of the joints, limitation of their mobility, and pathological changes in the tissues surrounding the joint [1, 2].

The most important components of diagnosing the disease underlying the patient's articular syndrome are a correctly collected anamnesis, a general examination, examination of the musculoskeletal system, cardiovascular, respiratory, digestive and genitourinary systems, as well as a complex of laboratory tests and radiological imaging methods [3, 4].

The purpose of this article is to help the practitioner in diagnosing the joint disease underlying the patient's articular syndrome at an earlier stage of its development. Timely, competent assessment of articular syndrome contributes to the correct formation of a program of laboratory and instrumental research methods for patients for the purpose of early diagnosis of rheumatic disease (RD).

### CLINICAL MANIFESTATIONS OF ARTICULAR SYNDROME

Clinical manifestations of joint disease are non-specific and include pain, morning stiffness, local signs of inflammation such as hyperemia, hyperthermia,

swelling, as well as pain determined during examination of the joints, changes in the shape of the joints and limited range of motion in the joints [1, 3, 4].

One of the main parameters of articular syndrome is pain. The cause of pain may be damage to the muscles or periarticular tissues (ligaments, tendons, bursas), damage to the skin, blood vessels, peripheral nerves, or damage to the joint. An important step in the differential diagnosis of pain is determining its nature. Pain can be inflammatory or degenerative (mechanical) in nature [1, 3, 5, 6].

Inflammatory pain is characteristic of arthritis, for example rheumatoid arthritis (RA), spondyloarthritis (SpA). It is constant, often symmetrical, more pronounced at rest, and worries patients more in the morning; combined with morning stiffness lasting more than half an hour; decreases or disappears in the evening or after physical activity [6–9]. SpA is a group of inflammatory diseases, divided into peripheral (psoriatic arthritis (PsA), arthritis in ulcerative colitis and Crohn's disease, undifferentiated SpA, reactive arthritis (ReA)) and axial SpA (ankylosing spondylitis (AS) and axial SpA without radiological signs of AS) [8–13]. This group of diseases is characterized by inflammatory back pain lasting more than 3 months. and the presence of at least four out of five signs, such as gradual onset,



onset at a young age (before 40 years), pain that bothers you in the early morning and at night, pain at rest and its decrease after exercise [6, 9, 10, 14 -16]. Pain of a degenerative (mechanical) nature is characteristic of osteoarthritis (OA). Occurs under the influence of physical activity. At rest it decreases or does not bother. Quiets during the night. OA is also characterized by short-term "starting" pain, which occurs when the patient begins to move, after a period of rest, and goes away within 15–20 minutes from the start of movement [6, 17].

A valuable symptom for the differential diagnosis of articular syndrome is morning stiffness syndrome - a feeling of stiffness in the affected joints, requiring their "development", especially in the morning. Thus, the symptom of morning stiffness in the hands lasting more than 30 minutes is characteristic of RA. It usually bothers you at rest, increases in the second half of the night, towards the morning, and can be observed in various joints. The symptom of morning stiffness in the spine in the form of a feeling of "stiffness" is characteristic of SpA [3, 15, 16]. On the contrary, patients with OA rarely complain of morning stiffness, the duration of which can be no more than 30 minutes; its presence may indicate ReA in these patients [1, 5, 17].

The localization of the pathological process and the distribution of pathological changes - symmetry - are of great importance for making a diagnosis. Symmetrical simultaneous damage to the same articular zones on the right and left is characteristic of RA. Thus, a patient with RA has symmetrical damage to the proximal interphalangeal, metacarpophalangeal and wrist joints [3–5, 18]. Asymmetric arthritis predominantly of the lower extremities, sacroiliitis combined with spondylitis, arthritis of all three joints of one finger with a "sausage-shaped" change in the shape of the joint are characteristic of the SpA group [1, 3, 10–12, 15]. In case of acute arthritis of the first metatarsophalangeal joint, manifested by severe pain and discoloration of the skin over the painful joint, exclusion of gout is required [19].

It is important to determine the number of affected joints: monoarthritis - damage to one joint, oligoarthritis - two or three joints, polyarthritis - more than three joints [4].

The early stage of arthritis is characterized by joint defiguration—a reversible change in its shape. It occurs due to effusion into the joint cavity, thickening of the synovial membrane, and swelling of the periarticular tissues. The late stage of arthritis is characterized by joint deformation, manifested by an irreversible change

in their shape due to changes in bone tissue, the formation of subluxations and ankylosis [4, 6].

### **DIAGNOSIS OF THE CAUSES OF ARTICULAR SYNDROME**

If articular syndrome is present, the patient's medical history should be carefully examined. In 70% of cases it allows one to reliably establish a diagnosis. It is necessary to establish a connection between the disease and trauma, infections or other provoking factors [1, 3, 5]. A history of trauma and chronic microtrauma may be indicative of OA [1, 17]. A previous streptococcal infection (angina, pharyngitis, scarlet fever) can be the cause of the development of acute rheumatic fever, which will be indicated by the presence of articular syndrome, rheumatic carditis, chorea minor and an increase in the titer of streptococcal antibodies [22]. Acute joint pain, the cause of which could be the consumption of alcohol or a large meat and fatty meal the day before, or prolonged use of diuretics, indicate an acute gout attack. A gout attack can also be triggered by prolonged walking, trauma, or surgical procedures [19]. If there is a clear chronological connection between asymmetrical arthritis, predominantly of the joints of the lower extremities, sometimes even sacroiliitis, with an intestinal or urogenital infection, it is necessary first of all to exclude ReA [1, 12].

In case of arthritis, a thorough examination of not only the musculoskeletal system, but also other organs and systems is necessary, since arthritis can be an early manifestation of not only RD, but also infectious and oncological diseases [3, 5, 23].

Modern laboratory diagnostics are an important part of the examination of a patient with possible RD. However, there is no single laboratory indicator sufficient to make a diagnosis, determine the prognosis of the disease, its stage and activity. All results should be interpreted in accordance with the clinical picture [5, 23].

The erythrocyte sedimentation rate (ESR) and the content of C-reactive protein (CRP) make it possible to assess the activity of inflammation and the severity of RD [23, 24]. Detection of rheumatoid factor (RF) and antibodies to cyclic citrullinated peptide (CCP) in blood serum are diagnostic criteria for RA. RF is a sensitive but not specific marker. For the early diagnosis of RA, including for differential diagnosis with other RDs, the determination of ACCP as a more highly specific diagnostic marker is of great importance [6, 18, 23, 24]. Antinuclear antibodies (ANA) are detected in many patients with RD, in particular in all patients with SLE and SSc. Antibodies to double-stranded DNA are a serological marker of SLE. SpA is characterized by an association with the histocompatibility antigen HLA B27,



negative RF and ANA in the blood serum [6, 23, 24]. With OA, a moderate increase in ESR and CRP is possible, which is characteristic of secondary synovitis; their pronounced increase requires the exclusion of other pathologies [6, 17, 23, 24].

Of the instrumental methods for diagnosing diseases underlying articular syndrome, the most commonly performed are radiography, ultrasound (US) and magnetic resonance imaging (MRI) of joints [2, 11, 25, 26].

The "gold standard" for diagnosing RD is x-ray examination. However, at the onset of RD, radiography does not allow one to see early pathological changes in the joints [24], therefore, currently, ultrasound and MRI are the advanced methods for early diagnosis of RD [26].

Ultrasound examination of joints helps to identify subclinical synovitis, bone erosions that are not yet visible on X-ray examination, and to evaluate the ligamentous apparatus. Ultrasound allows you to visualize a decrease in thickness and uneven contours of hyaline cartilage, characteristic of a degenerative-dystrophic process; verify synovial proliferation (significant thickening of the synovial membrane due to granulation growths with the formation of large villi) and hypervascularization of the synovial membrane, characteristic of inflammatory arthritis [27–29]. Ultrasound of joints also makes it possible to identify syndromes associated with arthritis of inflammatory origin: tenosynovitis, tendinitis, fasciitis, polymyositis [27].

The use of MRI in rheumatology makes it possible to visualize signs of active inflammation of peripheral joints (effusion, synovial changes, bone marrow edema), subsequent structural changes (damage to the articular surface, cortical bone erosions), signs of active inflammation in the sacroiliac joints (bone marrow edema, capsulitis, synovitis, enthesitis) and structural changes (subchondral sclerosis, bone erosions, periarticular fat deposits, bone bridges, ankylosis) in them, inflammatory and post-inflammatory changes in the intervertebral joints (signs of active inflammation, aseptic spondylodiscitis, atlanto-axial/atlanto-occipital structural changes), tenosynovitis and enthesitis [30–32]. Ultrasound and MRI have comparable sensitivity in determining RD activity. The sensitivity of ultrasound in detecting erosions is low, since it is technically impossible to examine the entire joint [30, 31].

### **CONCLUSION**

Thus, articular syndrome is a clinical symptom complex that includes any possible abnormalities of the joints. A competent assessment of the articular syndrome (the nature and localization of pain, morning stiffness,

deformation, limitation of movement and other parameters) contributes to the correct formation of a program of laboratory and instrumental research methods for patients, allows one to suspect articular disease at an earlier stage of its development and promptly refer patients for consultation with a rheumatologist. Timely diagnosis of RD and early prescription of basic therapy by a rheumatologist for patients with articular syndrome can improve the quality of life and prognosis of RD in these patients.

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