Features of the ultrasonic picture of the radius and small joints of the hand in patients with rheumatoid arthritis and erosive variant of osteoarthritis

O.A. Khamidov, A.S. Ametova

Samarkand state medical institute, Samarkand, Uzbekistan

Corresponding author: Obid A. Khamidov, o.xamidov@gmail.com

Abstract.

An ultrasound examination (USG) with Doppler mapping was performed in 25 patients with rheumatoid arthritis (RA) and 25 patients with erosive osteoarthritis (EOA) to clarify the ultrasound picture of hand joint damage. We have revealed the characteristic features allowing to perform differential diagnosis between RA and EOA of the hands joints.

Keywords: ultrasound, rheumatoid arthritis, osteoarthritis


Relevance. Ultrasound examination of the joints (ultrasound) is widely used in the diagnosis of patients with hand disease, which is due to many positive factors. This method is cheaper, because ultrasound machines are available in almost every medical and diagnostic institution, and relatively inexpensive. The absence of an ionizing effect on the body allows an endless number of studies to assess the dynamics of the disease and the results of therapy. In addition, the advantage of ultrasound over radiography is that this method has the potential to detect not only bone and cartilage defects in the joints but also pathological changes in the form of synovitis and periartitis in the soft tissues. It can also be taught. There is evidence in the literature that ultrasound results are not inferior to magnetic resonance imaging in the detection of osteophytes, bone fractures and sinusitis. Often in clinical practice, the question arises about the variability of the diagnosis of hand pain, accompanied not only by inflammation, but also by cutting changes in the joints, of which ultrasound is one of the important method of research based on the information received. Can act as one of. Recently, in different variants of the course of osteoarthritis of the joints of the hands (OA), they have begun to vary between erosive, which in its clinical manifestations, can mimic rheumatoid arthritis (RA). There are very few studies in the modern literature comparing ultrasound image analysis in these diseases.

Objective. To clarify the features of ultrasound imaging of wrist joints and small hand joints in patients with RA and erosive OA.

Materials and Methods. The content of the ultrasonic examination (ultrasound) protocol of the wrist joints and small joints of the hands was studied in 50 patients examined in the first SEM clinic. Group I consisted of 25 (50%) patients with RA, Group II - 25 (50%) patients with erosive osteoarthritis (EOA). The ratio of females to males in both diseases was equal and 33:2, respectively. The mean age of patients with RA was 48.26 ± 13.84 years, and that of patients with EOA was 51.97 ± 13.66. All patients with RA had a combination of medically confirmed RA and OA. The criterion for the diagnosis of RA is the presence of coherent lesions of standard II and III metacarpophalangeal (MPJ), III proximal interphalangeal joint (PMJ) and radiocarpal joints (according to medical guidelines of Rheumatology, 2017).

For statistical analysis, we used recommendations for the diagnosis of OA of EULAR hand joints: II-V-th proximal and distal interphalangeal (PMFS and DMFS), I-th interphalangeal joint and I-th carpometacarpal joint.

Ultrasound was performed using Doppler mapping on Sonoscape S50 and GE Logic F8 devices. This method involves estimating the size of the wrist joint, determining the thickness of the synovial membrane (SD) and its vascularity, the thickness of hyaline cartilage, cuts in bones and cartilage and changes in the shape of osteophytes, synovitis in the joints of the hands. The presence and periartitis in the form of tendonitis and tenosynovitis. We examined the following changes in 25 hand joints: Radio Carpal, 1-st-5th PPJ, 2nd-5th PMPS and DMFS, and the first interphalangeal joint on either side.

For statistical analysis, the STATISTICA program, version 12.0 was used.

Conclusion and discussion thereof. Characteristic changes for group I patients with thickening of the synovial membrane (17.14%) and increased blood flow (28.57%) with the presence of wrist joint sinusitis (91.43%), the association of this lesion was 74.28%. II and III metacarpophalangeal
 joints (MPJ) (57.14%), and II and III proximal interphalangeal joints (PMJ) (14.28%), and synovitis of these joints were -17.14% and 5.71%, respectively. periarticular II and III PFS (71.45%), symmetrical in 40% of cases; Changes in the wrist joints (II, 45%), symmetrical in 2.86% of cases; Reductions in II and III PFS (80%), symmetrical in 68.57% of patients, and symmetrical in II and III PMFS (17.14%), 14.29%.

Synovitis II and III PFS, and II and III PMFS were significantly higher in patients with RA (p < 0.0014 and p < 0.0243, respectively).

In addition, periarticular II and III PFS were significantly predominant in group I patients (p < 0.05).

Skin changes in the wrist joints (p < 0.0594), II and III PMJ (p < 0.0084) and II and III PMJ II (p < 0.0465) group I patients were further evaluated according to ultrasound data. This does not contradict the data of R.A. Osipyan et al., Who established the importance of the erosion process in PMJ II and PMJ III in patients with RA [4].

For group II patients, characteristic symptoms were periartthritis of the wrist joints (80%), symmetrical in 17.14% of patients; Asymmetric periarticular I and 5 PFS (p < 0.0056); Cut-off changes in MFCs 1 and 5 (p < 0.0168) were consistent in 37.14% of cases. In other studies using ultrasound diagnosis (A.V. Sarapulova, 2017) lesion lead was established at SDFM in patients with hand EOA [6].

In group II patients, perineal arthritis of the 1st and 5th MJs (p < 0.0036) and erosive changes in the 1st and 5th MJs (p < 0.0168) were more common.

Despite the fact that a link was found between age and OA (p = 0.56) stage in EOA patients, more pronounced changes in bone tissue and hyaline cartilage in RA patients in the elderly group (r < 0.53).

In the same group of patients, an association was found between the development of synovitis and thickening of the synovial membrane, but this relationship was higher in EOA patients (r = 0.59; r = 0.72, p < 0.0177), who This may indicate an association between the development of synovitis and thickening of the synovial membrane and periarthritis in the form of tendinitis (r = 0.59; r = 0.72, p < 0.0177).

In RA patients, there was a combination of symmetrical tenosynovitis of the first and fifth finger joints and periartitis of these joints (r = 0.63, p < 0.0415), as well as synovitis of the 1st joint. And synovitis of the 5th finger and distal interphalangeal joints (DMFS) (G = 0.46). In EOA patients, there was a link between periartitis of joints 1 and 5 of the fingers and periartitis in the form of tendinitis of the wrist joints (r = 0.72, p < 0.0177).

In RA patients, there was a positive association between symmetric tenosynovitis of the PMF and symmetrical reduction in 2-3 PMJ (r = 0.58). In addition, in this group of patients, there was a combination of symmetrical tenosynovitis of PMJ with a symmetrical decrease in 2-3 PMJ (r = 0.57).

In the OB study, Baluyeva found no significant difference in the total number of osteophytes and cut joints in EOA, which our data confirmed that in only patients with EOA, 1 and 5 MJ cuts were accompanied of the presence of osteophytes in these joints. (r < 0.5)

B. Baluyeva also noted that during EOA, synovitis was detected in almost every fourth joint (27.7%), and the incidence of erosion was very low (6.9%), and in our study, joints with synovitis The total number of and the changes in the cut were the same (97.14%).

It should be noted that this study did not show any significant difference between RA and EOA patients in synovial membrane size, wrist joint cavity size and hyaline cartilage thickness.

**Conclusions.** Thus, in the case of discriminative evaluation ultrasound imaging of the joints of the hands in the presence of erosive changes, it should be noted that for RA, the most common phenomenon is synovitis of the wrist joints that increases the flow of blood. Ay. synovial membrane, symmetrical synovitis of the 2nd and 3rd PFJ and 2nd and 3rd PMJ joints and erosive changes in these joints and tendency to periartitis. EOA is characterized by symmetrical periartthritis of the 1st and 5th MFC with skin changes and the presence of osteophytes in these joints.

**REFERENCES**


Uzbek journal of case reports. 2022. Т.2, №1
Источники финансирования: Работа не имела специального финансирования.

Конфликт интересов: Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.