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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.2610

AB1180 ULTRASOUND SEMIOTICS OF DEFEATS OF THE JOINTS IN REACTIVE ARTHRITIS AND OSTEOARTHRITIS

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Background: The most common cause of knee joint damage in people of working age is osteoarthritis. However, in recent years, cases of reactive arthropathy, which often takes a chronic course, have become more frequent [1]. Given the current possible ultrasonic equipment, relevant is the study to study the ultrasonic features of defeat of joints with ReA and OA.

Objectives: To study the ultrasonic features of joint lesions at osteoarthritis and reactive arthritis.

Methods: We studied 55 patients with ReA and 22 patients with OA. Among patients with ReA were 25 women and 20 men, median age was 31 years (18 to 47), the median duration of the current Imple - of 2.86 (0,07-29,0) months. Among patients with OA were examined in 15 women and 7 men, median age was 56.5 years (43-61), the median duration of flow OA - 139 months (12-360 months). All patients with ReA at the time of the study or in history had confirmed genital chlamydial infection. All patients were multiphasic dynamic study of the knee by the ultrasonic device expert class using a sensor with a frequency of 12 MHz.

Results: As a result of the ultrasound examination of the 110 joints with ReA, we have identified: pronounced synovitis in 69 (62.7%) joints, but the absence of pathological vascularization in the projection of the synovial; narrowing of the joint space 73 (66.4%) joint; heterogeneous structure of the ligament in 82 (75%) joints, tenosynovitis in 20 (18%) joints, thickening entheses in 89 (80.9%) joints, hypoechoic entheses in 72 (65.5%) joints, hyperechoic inclusions in projection entheses in 39 (36%) joints; local osteolysis of cortical layer of bone in the fixation entheses with the formation of erosive lesions in 77 (70%) joints, osteitis 26 (23.6%) joints; swelling parenthetically in 81 (74%) joint effusion parenthetically 49 (44.5%) joints (Fig. 1 a,b,c).

a. b. c.

Fig.1(a,b,c) Ultrasound examination of knee joints in a patient with ReA

As a result of the ultrasound examination of the 44 joints with osteoarthritis, we have identified: a decrease in the thickness of the cartilage and narrowing of the joint space of degree 1 in 14 (31.8%) joints, reducing the thickness of the cartilage and narrowing of the joint space of 2 degrees in 22 (50%) of the joints, reducing the thickness of the cartilage and narrowing of the joint space grade 3 in 20 (45.6%) joints; subchondral osteosclerosis and cysts rebuilding bone was detected in 42 (95.5%) joints, the heterogeneity of the cords in 15 (of 34.10%) joints, thickened ligaments in 1 (2.30%) joint; single marginal osteophytes in 26 (59.1%) joint; multiple osteophytes in 20 (45.50%) joints; 29 (65.9%) joints detected a moderate effusion (Fig.2 a,b,c).

b. b. c.

Fig.2 (a,b,c) Ultrasound examination of knee joints in a patient with OA

Conclusion: Ultrasound criteria of joint damage in ReA are: no hypervascularization synovial; pronounced synovitis; narrowing of the joint space; thickening entheses with hypo-anechoic areas; local osteitis with osteolysis of the cortical layer of bone in the fixation entheses and the formation of erosive lesions; parenthetically swelling.

Ultrasound criteria of lesions of the joints in OA are: narrowing of the joint space; thinning hrase; hyperechoic zones of subchondral osteosclerosis; cysts rebuilding of the subchondral bone; hyperechoic marginal osteophytes.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.4616

AB1181 ULTRASOUND PATHOLOGICAL PATTERNS AT CARPAL TUNNEL LEVEL IN RHEUMATOID ARTHRITIS AND IDIOPATHIC CARPAL TUNNEL SYNDROME

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Background: High-frequency ultrasound (US) has proven to be a useful imaging tool for the evaluation of carpal tunnel pathology. US impact in the assessment of idiopathic carpal tunnel syndrome (CTS) has been widely investigated, but only few studies have been carried out with the aim of revealing the pathologic conditions responsible for CTS in rheumatoid arthritis (RA) patients¹.

Objectives: The aim of this study is to evaluate US findings at carpal tunnel level in a cohort of patients with RA, focusing on those with a clinical diagnosis of CTS, and to compare these findings with those observed in a cohort of patients with idiopathic CTS (without RA).

Methods: Fifty-six patients with RA fulfilling the ACR/EULAR 2010 classification criteria were consecutively enrolled. CTS was diagnosed according to the American Academy of Neurology practice parameter for CTS. We also enrolled 19 patients with idiopathic CTS and evaluated 24 symptomatic wrists, excluding those already surgically decompressed. The US assessment was performed using a MyLab ClassC (Esaote SpA) US system, working with a 6-18 MHz linear probe. The power Doppler (PD) frequency was set at 9.1 MHz. The following grey scale (GS) US pathologic findings were assessed at the carpal tunnel level: cross-sectional area (CSA) of the median nerve at the carpal tunnel inlet (at the level of the pisiform and scaphoid bones), presence of finger flexor tenosynovitis and palmar radio-carpal synovitis (both in GS and PD), and marked bone profile irregularities. The median nerve was considered enlarged if its CSA was more than 12 mm². We evaluated the presence of intra-neural PD signals at the carpal inlet and scored its entity (0=no PD signal, 1=one single vessel within median nerve, 2=two or three single or two confluent vessels and 3=more than three single or more than two confluent vessels).

Results: CTS was diagnosed in 21 out of 112 wrists (18.75%) and in 14 out of 56 RA patients (25%).

Enlarged median nerve was found in 4 out of 21 wrists with RA and CTS (19%), in 6 out of 84 wrists of patients without CTS (7.1%) and in 22 out of 24 wrists of patients with idiopathic CTS (91.7%). Flexor tenosynovitis was found in 6 out of 21 wrists with RA and CTS (28.6%), in 8 out of 84 wrists of patients without CTS (8.2%) and in 4 out of 24 wrists with idiopathic CTS (16.7%). Palmar radio-carpal synovitis was found in 4 out of 21 wrists with CTS (19%), in 10 out of 84 wrists of patients without CTS (11.9%) and in 1 out of 24 wrists with idiopathic CTS (4.2%). Marked bone profile irregularities were detected in 3 out of 21 wrists with CTS (14.3%), in 22 out of 84 wrists without CTS (26.2%) and in none of the patients without RA. In RA patients, positive intra-neural PD signal was found in 9 out of 21 wrists with CTS (42.8%) and

in 12 out of 84 wrists without CTS (14.3%). In idiopathic CTS, PD signal was found in 15 out of 24 wrists (62.5%).

Conclusion: US allowed a detailed identification of the pathological findings at carpal tunnel in both RA and idiopathic CTS patients. When CTS was diagnosed, different US patterns were distinguished being median nerve less frequently enlarged and synovitis more frequently detected in RA patients. Finally, a positive association was found between the presence of intra-neural PD signal and clinical diagnosis of CTS independently of the diagnosis of RA.

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Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.5725

AB1182 THE CORRELATION BETWEEN THE ULTRASOUND-DETECTED SYNOVITIS OF SMALL JOINTS AND THE DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: In patients with rheumatoid arthritis (RA), small joints, especially metacarpophalangeal (MCP), and interphalangeal (PIP) joints are frequently affected. Ultrasound (US) is a sensitive method for detecting joint inflammation in patients with RA. So far, what degree does the synovitis of every small joint contribute to the disease activity in RA was not clear.

Objectives: The purpose of the present study was to compare the correlation between the ultrasound-detected synovitis of small joints and the disease activity in RA.

Methods: 211 RA patients with DAS28-ESR >2.6 were included in this study. Thirty joints, including bilateral metacarpophalangeal (MCP) 1-5, proximal interphalangeal (PIP) 1-5 and metatarsophalangeal (MTP) 1-5 joints, were evaluated by ultrasound scan in all patients. Disease activity was assessed by DAS28-ESR, DAS28-CRP, CDAI, SDAI. Synovitis was detected by using semi-quantitative scoring systems (0-3) for grey scale (GS) and power Doppler (PD). All correlations among US variables and clinical variables were assessed using Spearman's rank correlation test.

Results: Their median age was 51.82 years, median disease duration was 60 months, with 84.3% females. The mean (SD) DAS28-ESR and DAS28-CRP were 4.59±1.51 and 4.18±1.39, respectively. The whole GS scores of MCPs (MCP1-5 joints) showed highest correlation with the disease activity ($r=0.403-0.452$, $p<0.01$), including DAS28-ESR, DAS28-CRP, CDAI and SDAI, followed by PIPs ($r=0.318-0.331$, $p<0.01$) and MTPs ($r=0.277-0.301$, $p<0.01$). Similarly, the whole PD scores of MCPs also showed highest correlation with the disease activity ($r=0.332-0.396$, $p<0.01$), followed by PIPs ($r=0.211-0.242$, $p<0.01$), and then the least MTPs ($r=0.198-0.222$, $p<0.01$). In individual joint, GS score showed better correlation with disease activity than PD score. In 30 joints, MCP3 joint exhibited the highest correlation between GS score and DAS28-ESR ($r=0.411$, $p<0.01$), DAS28-CRP ($r=0.459$, $p<0.01$), SDAI ($r=0.444$, $p<0.01$). MCP2 joint exhibited the highest correlation between GS score and CDAI ($r=0.421$, $p<0.01$). While MCP5 joint exhibited the highest correlation between PD score and DAS28-ESR ($r=0.353$, $p<0.01$), DAS28-CRP ($r=0.399$, $p<0.01$), CDAI ($r=0.368$, $p<0.01$), SDAI ($r=0.377$, $p<0.01$). In 30 joints, PIP1 showed lowest correlation between GS ($r=0.166-0.199$, $p<0.01$)/PD ($r=0.134-0.143$, $p<0.01$) score and disease activity.

Conclusion: In small joints of RA patients, the ultrasound-detected synovitis of MCPs had best correlation with disease activity, compared with PIPs and MTPs. In individual joint, MCP2, MCP3, and MCP5 joint had the best correlation between ultrasound-detected synovitis and disease activity, while PIP1 joint showed lowest correlation.

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Acknowledgement: The authors thank all the colleagues in our department for kind cooperation in this project and the patients for participating in this study.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2019-eular.5549

AB1183 ULTRASOUND POWER DOPPLER AND GREY-SCALE JOINT INFLAMMATION: WHAT DO THEY REVEAL ABOUT RHEUMATOID ARTHRITIS?

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Background: Grey-scale (GS) and Power Doppler (PD) imaging are routinely performed when assessing rheumatoid arthritis (RA) joint inflammation using ultrasound (US). While PD vascularity is often regarded as an US feature of more active joint inflammation, the true clinical significance of GS joint inflammation in RA is less understood.

Objectives: To gain further insight into US PD and GS joint Inflammation through studying their relationship with two distinct, yet important outcome measures: (i) DAS28 – a disease activity measure and (ii) US-detected erosion – a structural joint damage measure.

Methods: In this cross sectional study, US PD and GS joint inflammation were graded semi-quantitatively (0-3), while bone erosion(s) was scored dichotomously (1=yes/0=no) at each joint recess. At the patient level, PD and GS scores were correlated with DAS28 and US erosion scores respectively using Pearson's correlation coefficient, while linear regression was used to characterize the relationship between variables.

Results: 1080 joints and 1800 joint recesses from bilateral elbows, wrists, MCPJs, thumbs' IPJs, PIPJs, ankles and MTPJs were scanned in 30 adult RA patients (baseline characteristics: 76.7% Chinese; 93.3% female; mean (SD) DAS28, 3.58 (1.20); mean (SD) disease duration, 70.3 (61.2) months). PD scores were correlated ($r=0.46$, $P<0.0104$) with DAS28 but not with US erosion scores. GS scores were correlated ($r=0.64$, $P<0.0001$) with US erosion scores but not with DAS28 (table 1). Scatter plots for these variables are presented in Figure 1. Results of simple linear regressions showing PD as a predictor of DAS28 (coefficient (95% CI), 0.167 (0.048, 0.286); $P=0.0104$) and GS as a predictor of US erosion (coefficient (95% CI), 0.223 (0.125, 0.322); $P=0.0001$) are summarized in table 2.

Figure 1: Scatter plots for the ultrasound and clinical variables

Figure 1

Conclusion: US PD and GS joint inflammation in RA were characterized using disease activity and structural joint damage outcome measures. PD joint inflammation is associated with disease activity and has moderate