DIFFERENTIAL DIAGNOSIS BETWEEN HAND OSTEARTHRITIS AND PSORIATIC ARTHRITIS USING INDOCYANINE GREEN-BASED FLUORESCENCE OPTICAL IMAGING

Keywords: Imaging, Osteoarthritis, Psoriatic arthritis

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Background: Fluorescence optical imaging (FOI) provides a measure of inflammation in finger joints and wrists [1,2]. Recognizing specific joint signals and morphologic patterns in FOI may be helpful in differential diagnosis of hand osteoarthritides (OA) and psoriatic arthritis (PsA).

Objectives: To analyze the diagnostic value of the established FOI Activity Score (FOIAS) and predefined morphologic patterns in the differentiation between hand OA and PsA.

Methods: FOIAS has been validated for intra- and inter-reader reliability[3]. FOI sequences were examined by one trained reader (BD). Cases with physical-based diagnosis of hand OA (n=47) and PsA (n=54) were randomly mixed and the reader was blinded to diagnosis. In total, 16 joints (wrist, thumb base, MCP1-5, PIP1-5, DIP2-5) in each hand were evaluated on a semiquantitative scale. Additional predefined morphologic patterns were observed (‘streaky signals’[2], ‘green-blue nail signal’[4], ‘Werner sign’[1.5] and ‘bipolar’s crozier sign’[3]). A collection of example images for joint signals and morphologic findings was previously compiled into an atlas for reference and training[3]. Based on joint signals and morphologic findings, the reader matched each case to diagnosis OA or PsA.

Results: Of 95 cases (79/101) were diagnosed correctly by reading FOI, showing moderate agreement (κ=0.57, p<0.001). For PIP2-5, we found overall statistically significantly higher mean joint sum scores in OA cases (9.0 in OA vs. 20.0 in PsA, p<0.001) as well as for each of the 5 phases (PVM, phase 1, phase 2 first and middle, phase 3). DIP2-5 displayed overall statistically significantly higher mean joint sum scores in OA (16.5 in OA vs. 8.4 in PsA, p<0.001) as well as for each of the 5 phases (PVM, phase 1, phase 2 first and middle, phase 3). Morphologic pattern distribution was assessed with Pearson Chi-Square. Mean sum signals for different joint groups were compared by T test for independent samples. Agreement on diagnosis was calculated using Cohen’s kappa (κ).

Conclusions: The aim of the present study was to compare the US assessment of the retinaculum of ankles in a population of RA and PsA patients with painful ankle.

Methods: This was an observational cross-sectional study. We analyzed consecutive RA or PsA patients with ankle pain. We also analyzed healthy controls (HC), without rheumatic disorders nor ankle pain. The following US features were assessed: presence of synovitis of tibialar or talonavicular joints, presence of teneosynovitis of peroneal or posterior tibial tendons. Two retinaculum: the superior peroneal retinaculum (SPR) and the flexor retinaculum (FR) were also evaluated in mode B (thickness, echogenity and presence of malleolar periositis) and the vascularization at their insertion into bone by using power Doppler (PD).

Results: We analyzed data for 80 consecutive patients (60% women; median age 56 years). Among these patients, 37 (46%), 23 (29%) and 20 (25%) were RA, PsA and HC patients, respectively. A total of 160 ankles were assessed. The evaluation of SPR did not show difference between the two diseases. Regarding the FR, we observed that FR was thicker in PsA patients than in RA (0.96mm ± 0.39 vs. 0.64mm ± 0.15, P<0.001) and HC (0.96mm ± 0.39 vs. 0.56mm ± 0.12, P<0.001) without difference between RA patients and HC. The following US features were more frequently found in PsA than in RA ankles: hypoechoegenicity (46% vs. 7%, P<0.001), positivity of PD (43% vs. 8%, P<0.001) and malleolar periositis (43% vs. 8%, P<0.001). By using ROC curve analysis, we determined that a cut-off of 1mm of FR thickness provided a sensitivity of 49% and specificity of 97% for the diagnosis of PsA. The association of a thickness ≥1mm with hypervascularization of the malleolar insertion of FR, named as “retinaculitis”, was observed in 39% and 3% of ankles in PsA and RA, respectively. The proportion of retinaculitis of SPR was not different between the two diseases.

Conclusion: Ultrasound abnormalities of FR were more frequently observed in PsA than in RA patients and appear to be specific for PsA. Thus, assessment of FR might be useful to distinguish RA and PsA in patients with painful ankles.

REFERENCES: NIL.

Acknowledgements: NIL.

Disclosure of Interests: None Declared.

DOI: 10.1136/annrheumdis-2023-eular.2696

ANKLE RETINACULA ABNORMALITIES AS FEATURES OF PSORIATIC ARTHRITIS: AN ULTRASOUND STUDY

Keywords: Psoriatic arthritis, Ultrasound

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Background: Ankles are frequently involved in rheumatoid arthritis (RA) and psoriatic arthritis (PsA) and can be observed in both diseases. The detection of enthesitis may support the diagnosis for PsA and help to distinguish these rheumatic diseases. At ankle level, retinaculum can be analyzed with ultrasonography (US) and the insertions into bones can be considered as enthesis.

Objectives: The aim of the present study was to compare the US assessment of the retinaculum of ankles in a population of RA and PsA patients with painful ankle.

Methods: Cases with Physiologic and Radiologic arthritis (PsA) and can be observed in both diseases. The detection of enthesitis may support the diagnosis for PsA and help to distinguish these rheumatic diseases. At ankle level, retinaculum can be analyzed with ultrasonography (US) and the insertions into bones can be considered as enthesis.

Results: The aim of the present study was to compare the US assessment of the retinaculum of ankles in a population of RA and PsA patients with painful ankle.

Disclosure of Interests: None Declared.

DOI: 10.1136/annrheumdis-2023-eular.4811