ANKLE RETINACULA ABNORMALITIES AS FEATURES OF PSORIATIC ARTHRITIS: AN ULTRASONOGRAPHIC 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 2 rheumatic diseases. At ankle level, retinacula can be analyzed with ultrasonography (US) and their insertions into bones can be considered as enthesis.

Objectives: The aim of the present study was to compare the US assessment of the retinacula 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 tibial or talonavicular joints, presence of tenosynovitis of peroneal or posterior tibial tendons. Two retinacula: the superior peroneal retinaculum (SPR) and the flexor retinaculum (FR) were also evaluated in mode B (thickness, echogenicity and presence of malleolar peristosis) 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 peristosis (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 ‘retenoculitis’, 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: US 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.

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ANALYSIS OF THE PERFORMANCE OF AN ARTIFICIAL INTELLIGENCE ALGORITHM FOR THE DETECTION OF RADIOGRAPHIC SACRITOLISITIS IN AN INDEPENDENT COHORT OF AXSPA PATIENTS INCLUDING BOTH NR-AXSPA AND R-AXSPA

Keywords: Artificial intelligence, Imaging, Spondyloarthritis

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Background: Conventional radiography of the sacroiliac joints is the first imaging method if axial spondyloarthritis (axSpA) is suspected. The presence of definite radiographic sacroiliitis is needed to classify as radiographic (r-axSpA) based on the modified New York Criteria (mNYc). However, the reliability of radiographic sacroiliitis assessment is low, especially if performed locally. Expert central reading for classification purposes in clinical trials is time-consuming and still has high inter-reader variability. A possible solution to detect radiographic sacroiliitis with consistent reproducibility, could be the use of an artificial intelligence analysis of radiographs. Recently an artificial neural network showed an expert-level performance for classification and diagnostic settings[1,2].

Objectives: The aim of this study was to evaluate the performance of this previously trained artificial network in a completely new cohort of patients previously evaluated as r-axSpA or nr-axSpA by central readers.

Methods: Artificial intelligence, Imaging, Spondyloarthritis