Preliminary Evidence That Subclinical Enthesopathy May Predict Psoriatic Arthritis in Patients with Psoriasis

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J Rheumatol 2011;38;2691-2692
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The Journal of Rheumatology is a monthly international serial edited by Earl D. Silverman featuring research articles on clinical subjects from scientists working in rheumatology and related fields.
The importance of enthesitis as the key pathological lesion underpinning the pathogenesis of psoriatic arthritis (PsA) has been increasingly recognized. Studies for more than 3 decades have shown a high frequency of osseous and enthesal abnormalities in patients with psoriasis without clinical signs of arthritis. From a clinical viewpoint, about 10% of patients with psoriasis develop PsA over a decade, so there is a need to better define predictive factors for the identification of future PsA in patients with psoriasis. The ability to accurately predict development of PsA in subjects with psoriasis could have implications for prevention of the morbidity associated with PsA and also for studies aimed at elucidation of the early phases of disease.

We previously used ultrasound (US) to show a high frequency of subclinical enthesal involvement in patients presenting with psoriasis but without clinically evident arthritis. We investigated whether subclinical enthesopathy in patients with psoriasis predicted the future development of PsA.

A longitudinal evaluation was performed in a cohort of 30 cases of psoriasis with a mean duration of 3.5 years using clinical and repeat ultrasound assessment of lower-limb tendons, using the Glasgow Ultrasound Enthesitis Scoring System (GUESS). Of the 30 patients originally evaluated, 28 returned for a re-evaluation. No patient received systemic treatment with a disease-modifying antirheumatic drug. The criteria of the Classification of Psoriatic Arthritis (CASPAR) study group were used to define the presence or absence of PsA. Evidence for osteoarthritis (OA) was also sought, as this can affect the same joints involved in PsA, including distal interphalangeal (DIP) joints and spine. All patients had evaluation for Psoriasis Area and Severity Index (PASI) score and nail disease status according to standard procedures. Patients had a repeat ultrasound scan using the Glasgow Ultrasound Enthesitis Scoring System (GUESS) score, by the same sonographer that carried out the original study. Once again the sonographer was blinded to the patient’s clinical status or joint symptoms and was unaware of the original US scan findings. On followup imaging, ultrasonography was performed using a LOGIQ 5 instrument (GE Healthcare) with a 10–15 MHz probe, whereas an ALT HDI3000 machine with a 10–15 MHz linear probe was used in the baseline assessment. On followup imaging, the power-Doppler settings were standardized, with a pulse repetition frequency of 750 Hz, a color-mode frequency of 9.1 MHz, and low-wall filters. The color gain was increased to the maximum level not generating power-Doppler signals under the bony cortex. All US assessments were performed using a multiplanar scanning technique. US assessment of structure, thickness, bony erosions, and bursitis of quadriceps, patella, and Achilles tendons, and plantar aponeurosis was scored using the GUESS as described. US examination was performed in a darkened air-conditioned room. Unfortunately, we have not calculated the coefficients of variation for measurements using the 2 machines at the same time point because of the unavailability of the previous machine.

At clinical followup, 7 of 28 patients (23%) fulfilled the CASPAR criteria for the diagnosis of PsA, 5 having active disease at the time of assessment (Table 1). These patients (5 men, 2 women) had a median age of 54 years (range 51–60) and there was a median period of 13 months (range 3–24) between baseline GUESS evaluation and development of PsA. The pattern of joint involvement was polyarticular in 2 patients and oligoarticular in 5, with 3 cases reporting plantar fasciitis and 2 Achilles tendinitis. Skin psoriasis was present in all these patients at baseline (mean PASI 5.5) and in 6 patients it was still present after 3.5 years (mean PASI 2.6); nail disease was present in 4 patients (57%) both at baseline and after 3.5 years, in patients developing PsA. Four patients were also diagnosed as having hand OA based on the development of Heberden’s and Bouchard’s nodes, with 2 of these being asymptomatic at the time of evaluation. At baseline these patients did not complain of hand joint symptoms or DIP swelling.

The GUESS scores remained remarkably stable over the followup peri...
best predictor of the development of PsA. An important expansion of this study will be identification of a cutoff value of the GUESS and a power-Doppler GUESS in a larger cohort of psoriasis and PsA patients. We will attempt to replicate these findings and to ascertain whether the inclusion of power-Doppler is diagnostically useful to detect active PsA in contrast to patients with OA and psoriasis. The group of patients who developed hand OA also had a higher GUESS score. This is noteworthy because degenerative arthritis of the DIP joint and spine as determined by magnetic resonance imaging (MRI) is associated with enthesal abnormalities; indeed there is good evidence that OA of small joints of the hand has a ligament-related microanatomical basis similar to enthesal PsA. Moreover, it may be difficult to distinguish between OA and PsA, as both may affect the DIP joint and the axial skeleton and may show similar enthesal changes on MRI. We therefore combined the PsA and OA groups and examined a link to GUESS scores. The association between baseline GUESS score and development of combined OA and PsA was stronger. The role of psoriasis as a modifier in the expression of hand OA warrants further evaluation in larger studies.

Our study has several strengths, including the complete characteristic of the dataset, the ability to adjust for multiple confounders, and the prospective observation of the patients with psoriasis, which had not to our knowledge been done previously. However, the study has the limitation that the limited number of patients could have attenuated the power of the association between enthesopathy and development of PsA.

We suggest that subclinical enthesopathy deserves further investigation as a predictor for the development of PsA in patients with chronic plaque psoriasis.

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