



# Is there any Room for the ‘Enthesitis Psoriatic Arthritis’ Subtype Existence

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## Abstract

Psoriatic Arthritis (PsA) is defined by well-established diagnostic and classification criteria. Enthesitis has been suggested as the initial involvement for triggering the pathological process. We aim to present an isolated Achilles tendon enthesitis Psoriatic Arthritis patient and discuss whether an isolated-enthesitis subtype of PsA has not been considered in those abovementioned criteria. We also aim to discuss how joint ultra sonography would help to show this evidence.

## Introduction

Psoriatic arthritis (PsA) is an inflammatory arthropathy, belonging to the spondyloarthropathies, and is characterized by an association of arthritis and psoriasis. However, it may present with a variety of forms, overall summarized as a combination of the arthritic features of rheumatoid arthritis (RA) and sero negative spondyloarthropathies [1].

In PsA, entheses are the initial sites of joint inflammation, which might be accompanied by tendonitis in up to 40% of patients, being the Achilles Tendon (AT) the first to be involved [2]. Enthesitis is the inflammation at sites where tendons, ligaments and joint capsules attach to bone, and, indeed, may be the origin of PsA pathogenesis [3].

Besides the arthritis, enthesitis, is also commonly seen, especially at the insertions of AT and plantar fascia into the calcaneus [4-5]. It is clinically manifested by the onset of spontaneous pain, tenderness upon pressure, limited range of motion, or even may be asymptomatic [6]. Actually, when treating PsA with etanercept, the absence of thickness of the Achilles tendon is observed and only the phlogogenic chronic outcomes of enthesopathy remain, such as calcifications, erosions and enthesophytes [7].

Ultrasound (US), a low cost, harmless, non-invasive and easily repeatable technique, is the promising best technique for studying periarticular soft tissues, for detecting both the early-stage (edema and thickening) and late-stage alterations (erosion and calcification) [5]. The identification of enthesopathy of the AT by Ultrasound (US) may precede by years the diagnosis of PsA [2,8-10].

The current problems we find when assessing AT (and other tendons) by US is the variability between individuals, the lack of well-defined 'normal values', and the reliability within the same patients among different US observers (inter-observer bias) and within the same US observer (intra-observer bias), besides the changing thickening through time in growing patients. Despite all, several efforts have been made in order to add information about the thickening values (normal-abnormal) of AT by US. A study by Özçakar et al. [5] aimed to assess AT measurements in 30 Psoriasis patients and 20 healthy controls. A total of 36% of Psoriasis patients had known history of arthritis, and 53% of patients had radiological evidence of enthesopathy, being only seven (44%) symptomatic. Mean thickness observed between psoriasis and healthy controls were statistically different, showing thicker AT patients with psoriasis ( $4.44 \pm SD 0.64$  vs.  $4.09 \pm SD 0.26$  mm). Psoriasis patients with enthesitis showed larger AT than psoriasis patients without it ( $4.69 \pm SD 0.73$  vs.  $4.15 \pm SD 0.36$ ). Balint et al. [11] reported a single case of PsA that they had followed for more than a year from when the acute stage of AT inflammation until the clinical findings had resolved. They monitored the changes and found that whilst the thickness changes of the contralateral healthy tendon was 0.01 cm, the involved AT differed by 0.35 cm between the two observations.

In another interesting US study the AT was thicker when enthesitis was present and increased

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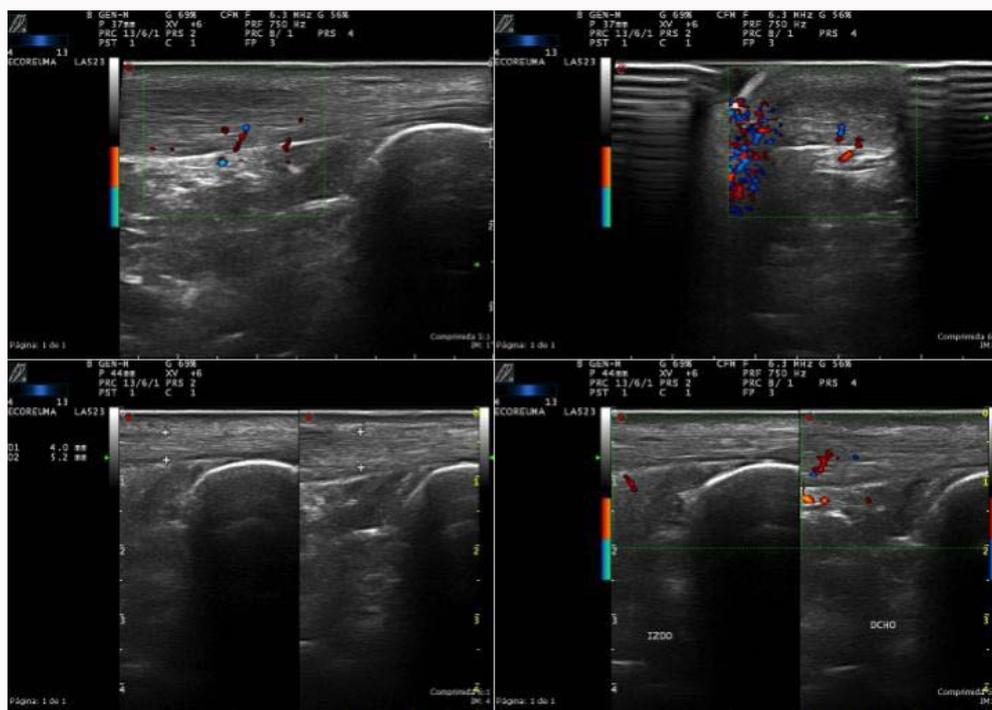
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**Figure 1:** Longitudinal and axial views of right (abnormal) and left (normal) Achilles Tendon (AT) from a Psoriasis male patient; enhanced Power Doppler signal is observed within the right tendon fibers; mild enlargement in right AT is observed when compared to left AT in longitudinal view.

further in those with PsA. However, this finding was only significantly different between PsA patients with enthesitis and control subjects without it. It is interesting to mention that tendon loading was not influenced by the body mass index. They observed mean thickness for AT in PsA patients with enthesitis was  $4.6 \pm SD 1.3$  [12]. They also studied biomechanics in PsA patients and concluded that PsA enthesitis patients had significantly lower ankle joint power than control subjects with and without enthesitis. Moreover, they found AT force was also significantly reduced in PsA patients with enthesitis in comparison to control subjects without enthesitis. They demonstrated that PsA patients with enthesitis subject their AT tendon to lower stresses, yet possess the thickest tendons. This was best explained by the overall reduction in walking speed, and might be a compensatory strategy to reduce heel pain because age, disease duration, severity, and the levels of global and foot-specific impairment and disability were comparable between the PsA patients with and without AT enthesitis.

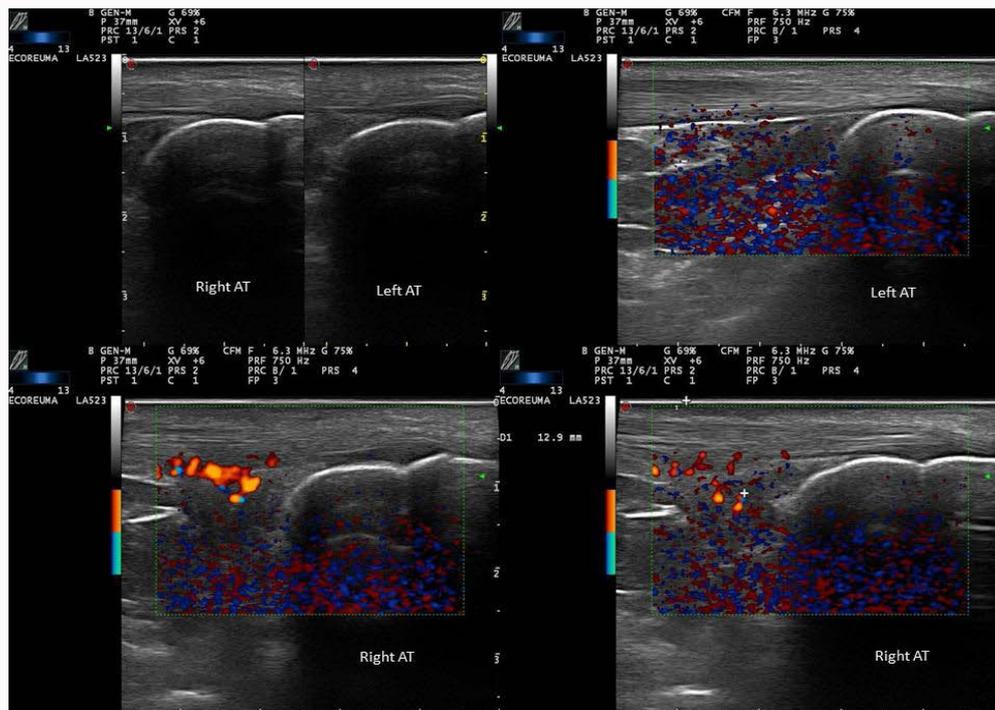
In 2002, the Ultrasound Enthesitis Scoring System (GUESS), an assessment method, was validated by Balint et al. [13], and was standardized for the detection and evaluation of alterations in enthesitis of the lower limbs. The thickness of the AT was determined as normal thickness value  $<5.29$  mm. The GUESS score was significantly higher in those patients with psoriasis than in the controls. Besides, an association was found between ultrasound abnormalities and severity of psoriasis. This work confirmed a higher incidence of subclinical enthesitis in the AT in patients with chronic plaque psoriasis, among a larger population in a different geographical area, and according to GUESS criteria, the AT thickness was significantly higher than that found among the control patients representing an early ultrasound enthesitis. Patients with increased AT thickness and other abnormalities (such as bursitis, peritendinitis) had PASI  $>10$ .

Similarly as occur in children, where arthritis with enthesitis

in the absence of frank psoriasis is usually grouped under the term enthesitis-related arthritis (ERA) [14], we consider the possibility to 'define' a 'sole Enthesitis'-PsA patients in absence of overt arthritis. Implications in symptoms, health-related quality of life, treatment decisions and outcome should be measured in order to establish the impact of this, from our point of view, specific PsA subtype.

When classifying a patient with PsA, the presence of arthritis is mandatory for the CASPAR criteria completion [15], and Moll & Wright criteria allow PsA diagnosis in those patients who suffer of arthritis, mainly, although patients without arthritis may also be diagnosed (Spondylitis-like subtype) [16]. There is no option to either diagnose or classify a patient with overt (or even mild) psoriasis with inflammatory enthesitis (symptomatic or not) of PsA by none of all these criteria. The latter becomes more important with the knowledge that in approximately 70% of the patients psoriasis is present many years before or appears concomitantly with the onset of arthritis. We present the US images of a 36-year old psoriasis patients with 3-month painfully right AT insertion, as first musculoskeletal symptom. Readers may observe the asymmetrical thickness of the symptomatic side (right), with a 5.2 mm thickness compared to the 4.0 mm in the asymptomatic side, still conserving homogenous tendon signal (probably related to a very early process instead of an advanced stage of disease); US also reveals, when applying Power Doppler, higher signal in right side, suggesting a clear inflammatory process maintained throughout time, as persisted twelve months later (Figure 1 and 2).

We would like to point out that this patient might suffer some type of mild PsA disease, although CASPAR and Moll and Wright criteria do not allow us to give this diagnosis, not even the case for abnormal GUESS scores. The PsA diagnosis, instead of an unspecific AT enthesitis, would bring clinical, therapeutic and social implications, if correct.



**Figure 2:** Longitudinal and axial views of right (abnormal) and left (normal) Achilles Tendon (AT) from a Psoriasis male patient 12-month later; enhanced Power Doppler signal is observed within the right tendon fibers; mild enlargement in right AT is observed when compared to left AT in longitudinal view.

In conclusion, we would like to propose to take into account all above describe data to consider a 'sole-Enthesitis PsA' subtype of PsA. Further studies might be conducted in order to explore long-term outcome in these patients, not only for the entheses matter, but also for skin, joints and other extra-articular manifestations.

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