Entheseal abnormalities and nail involvement at the distal interphalangeal joints on ultrasound examination in patients with psoriasis and psoriatic arthritis. Could the nail-enthesitis theorybe supported?

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Introduction: The nail is directly anchored to entheses and it has been shown that nail involvement in psoriasis is associated with systemic enthesopathy. The association of enthesopathy and nail disease at level of distal interphalangeal(DIP) joints has not been studied until now.

The aim of the study is to evaluate the association of nail involvement and enthesopathy at DIP level in patients with psoriasis (PsO) and in patients with psoriatic arthritis (PsA)

Patients and Methods: Consecutive patients with PsO (n=54) or PsA (n=56) seen at the dermatology or rheumatology outpatients clinics were included. Patients with DIP osteoarthrtitis were excluded. Articular and entheseal clinical examination was performed by a trained rheumatologist according to standard procedures. A trained dermatologist scored severity of psoriasis according to the Psoriasis Area and Severity Index (PASI), and assessed all nails on each patient using the modify Nail Psoriasis Severity Index (mNAPSI). Ultrasound (US) examinations were performed by another rheumatologist trained in this imaging technique blinded to all clinical data, and included the following entheseal areas: second to fourth extensor tendon insertions inDIP joints bilaterally. The Outcome Measures in Rheumatoid Arthritis (OMERACT) preliminary definition of enthesopathy was adopted: “abnormally hypoechoic (loss of normal fibrillar architecture) and/or thickened tendon or ligament at its bony attachment (may occasionally contain hyperechoic foci consistent with calcification), seen in two perpendicular planes that may exhibit Doppler signal and/or bony changes including enthesophytes, erosions, or irregularity”. Prevalence with 95% confidence intervals of US enthesis abnormalities was calculated for each patient group and compared among them

Results: a total of 110 patients were included. Patients characteristics are shown in table 1.

Table 1.Patients characteristics

Features	PsO (n= 54)	PsA (n=56)
Females, n (%)	26 (53)	28 (46)
Mean disease duration, yrs (SD)	10.4 (8)	4.9 (6)
Nail involvement, n (%)	25 (46.3)	30 (54)
Mean PASI (SD)	4.3 (5)	3.4 (5.4)
Mean mNAPSI (SD)	6.7 (10.4)	9.3 (12.4)
Treated with DMARDs, n (%)	14 (26)	39 (70)
Treated with TNFi, n (%)	3 (6)	12 (21)

US revealed enthesopathy in at least one DIP joint in 9 patients with PsO (17%; 95% CI: 8-29%) and in 18 patients with PsA (32 %; 95%CI: 20-46%) (p=0.059). Among patients with PsO, 20% (95%CI: 7-41%) and 14% (95% CI:4-32%) of those with and without clinical nail involvement showed enthesopathy on US examination, respectively (p=0.542). Among PsA patients, the prevalence of enthesopathy was 30% (95% CI: 15-49%) for patients with clinical nail involvement and 35 % (95% CI: 17-56%) for those without nail involvement, respectively(p=0.712). On logistic regression analysis, the diagnosis of PsA (OR: 3.3; 95% CI: 1.1-9.8; p=0.032), but not nail involvement (OR:1.1; 95% CI: 0.42-3; p=0.824) was associated with enthesopahy at DIP joint. Use of DMARDs was protective (OR: 0.33;95% CI: 0.11-0.99; p=0.048). Table 2 shows the relationship between enthesopathy at DIP joint and clinical nail involvement among the 880 fingers evaluated.

Table2.

	PsoriasisPatients (n=54)		PsA Patients (n=56)		All Patients(n=110)	
	Nails with clinical involvement (n= 93)	Normal nails (n=339)	Nails with clinical involvement (n=143)	Normalnails (n=305)	Nails with clinical involvement (n=236)	Normal Nails (n=644)
Number of fingers with Extensor tendon enthesopathy(%)	57 (61%)	57 (17%	86 (60%)	67 (22%)	143(60%)	124 (19%)
OR (95% CI)	7.8 (4.6-13.4)	p<0.0001	5.4 (3.4-8.4)	p<0.0001	6.5 (4.6-9.1)	P<0.0001

Conclusions: Extensor tendon enthesopathy at DIP level was more frequent in PsA than in PsO. No association was found between nail involvement and extensor tendon enthesopathy at patients' level, but, there was a significant increased prevalence of extensor tendon enthesopathy in fingers with involved nails both in PsO and PsA. These features might supports the nail-entheseal pathogenesis theory at DIP level.

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