The modified ultrasonography scoring system integrated oral mucosa and major salivary glands is able to improve the diagnostic specificity of patients with pSS.

Figure 1. Ultrasonography image of the normal buccal tissue. E = epithelial membrane of buccal mucosa; ST = subepithelial connective tissue; M = buccinator muscle.

Figure 2. Ultrasonography image of pSS patient reveals decreased thickness and heterogeneous hyperechogenicity of buccal mucosa. E = epithelial membrane of buccal mucosa; ST = subepithelial connective tissue; M = buccinator muscle.

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SAT0566

ULTRASOUND DOPPLER MASEI SHOWS SENSITIVITY TO CHANGE AFTER BIOLOGICAL THERAPY IN SPONDYLOARTHRITIS AND PSORIATIC ARTHRITIS PATIENTS

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Background: The assessment of activity in spondyloarthritis (SpA) and psoriatic arthritis (PsA) involves several domains, including enthesitis. Clinical enthesitis has shown low sensitivity, specificity and reliability. The Madrid Sonographic Enthesitis Index (MASEI) is a feasible and reliable ultrasound score, but its responsiveness to treatment has not yet been evaluated.

Objectives: The main objective of this study was to investigate the sensitivity to change of MASEI in active SpA and PsA patients.

Methods: Longitudinal study in patients with SpA and PsA with active disease (defined as patients who were going to start or switch biologic disease modifying antirheumatic drugs (bDMARD) therapy according to physician criteria and in agreement with clinical guidelines). MASEI evaluation was performed at baseline, 3- and 6-months visits. MASEI and Outcome Measures in Rheumatology (OMERACT) enthesitis Power Doppler (PD) definitions were checked. Each enthesitis was scanned in both the longitudinal and transverse planes, and 5 second videos were recorded for reliability. An inter-reader analysis by three readers was performed. For statistical analysis t-Student test was used to determine changes between visits and kappa test was used for reliability.

Results: A total of 72 US evaluations of 25 patients were included, of whom 13(52%) were ankylosing spondylitis (AS) patients, 9(36%) PsA, and 3(12%) non radiographic axial spondyloarthritis (nr-axSpA). Mean age was 51.2±14.1 years and 13(52%) were females. Mean DAS28 (3.5±1.2) for peripheral involvement, mean BASDAI (5.8±2) for axial involvement, and CRP values (13.1±13.6) reflect moderate-high disease activity at baseline. US parameters at baseline and at the 3- and 6-month follow-up visits are shown in Table 1. Global MASEI score was responsive at the 3- and 6-month follow-up visit (-4.9 and -5.7, respectively) (p<0.05) and both MASEI and OMERACT PDUS definitions of active enthesitis improved significantly at 3- (-0.6 and -1.1) and 6-month follow-up visits (-0.7 and -1.1) (p<0.05). Reliability of PD MASEI definition among the three readers was excellent (kappa = 0.918).

Table 1. MASEI evaluation at baseline, 3- and 6-month follow-up visits

Parameter	Baseline n=25	3 months n=25	P ^a	6 months n=22	P ^a
MASEI score	28±9.3	23.2±7.6	0.002	24.7±8.1	0.01
PD US MASEI score	1.8 ±1.3	1.1±1.1	0.046	1±0.9	0.004
PD US OMERACT score	1.6±1.2	0.9±0.9	0.024	0.8±0.9	0.006

^at-Student test for comparison to baseline

Conclusion: MASEI score significantly improves at 3 and 6 months of follow up in patients under bDMARD treatment and both MASEI and OMERACT Doppler definitions of active enthesitis reflects treatment response. These findings support the usefulness of PD US in the assessment of bDMARD treatment response in SpA and PsA.

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SAT0567

USE OF THERMOGRAPHY OF HANDS AND MACHINE LEARNING TO DIFFERENTIATE PATIENTS WITH ARTHRITIS FROM HEALTHY SUBJECTS

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Background: The early diagnosis of rheumatic diseases improves their prognosis. However, patients take several months to reach the rheumatologist from the beginning of the first symptoms. Thermography is a safe and fast technique that captures the heat of an object through infrared photography. The inflammation of the joints causes an increase in temperature and, therefore, can be measured by thermography. Machine learning methods have shown that they are capable of analyzing medical images with an accuracy similar or superior to that of a healthcare professional.

Objectives: Develop an algorithm that, based on thermographic images of hands and machine learning, differentiates healthy subjects from patients with rheumatoid arthritis (RA), psoriatic arthritis (PA), undifferentiated arthritis (UA) and arthritis of hands secondary to other diseases (SA).

Methods: Multicenter observational study conducted in the rheumatology and radiology service of two hospitals. Patients with RA, PA, UA and SA who attended the followup visit and healthy subjects (companions and healthcare professionals) were recruited. In all cases, a thermal image of the hands was taken using a Flir One Pro or Thermal Expert TE-Q1 camera connected to the mobile and an ultrasound of both hands. The degree of synovial hypertrophy (SH) and power