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MSUS ACADEMY

NEWSLETTER

SONAR 7 in AxSpA

eular 26
special edition
ultrasound abstracts

The SONAR-7 score is a fast and effective ultrasound-based tool for evaluating synovitis in patients with PsA and axSpA. It demonstrated high specificity and good sensitivity for detecting inflammatory activity, good convergent construct validity, and reliable performance across examiners. The focused assessment of a limited number of key joints would enhance the feasibility and the integration of an US score such as this into daily rheumatologic practice.

Article link

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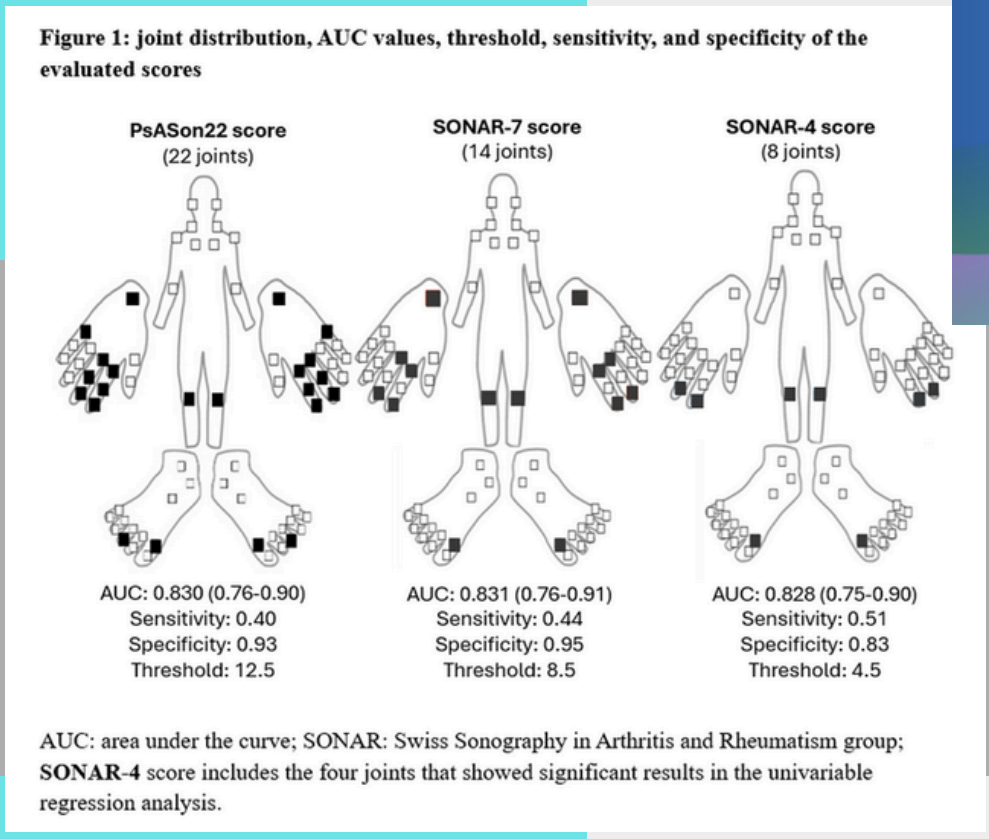
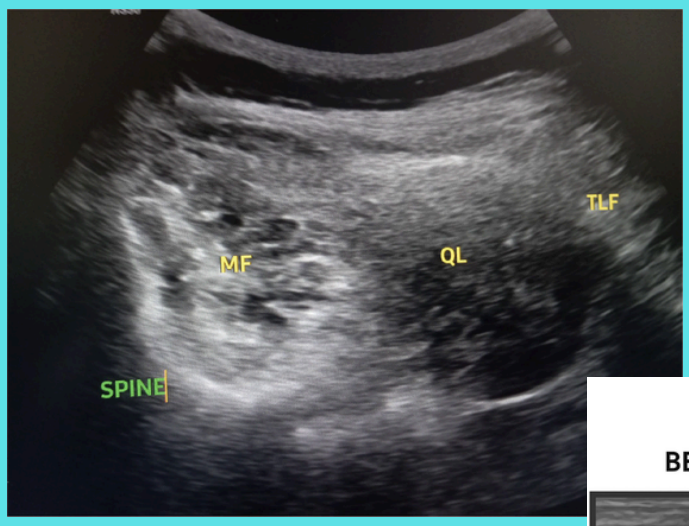
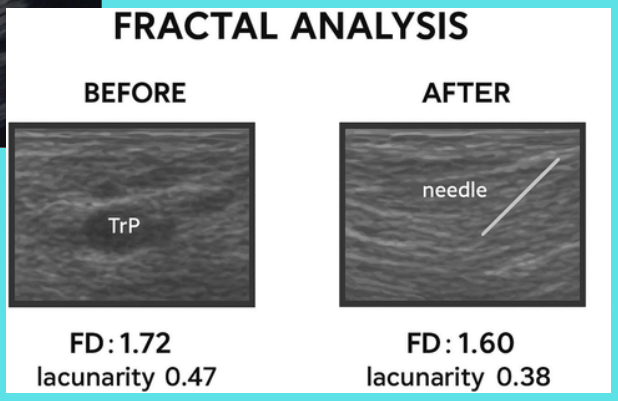


Selected abstracts eular 26





AI-assisted ultrasound fractal analysis provides a reproducible, objective biomarker of paraspinal muscle and fascial organization in low back pain. Trigger point activity is characterized by increased fractal complexity, which normalizes following effective ultrasound-guided dry needling. This approach extends prior applications of fractal analysis in muscle spasticity to LBP and offers a quantitative bridge between imaging, biomechanics, and clinical pain assessment, supporting precision diagnostics and personalized interventional strategies.

AB0684 (2026)

AI-BASED FRACTAL ANALYSIS OF ULTRASOUND-GUIDED DRY NEEDLING IN LOW BACK PAIN: 3D MULTIPLANAR EVALUATION OF LUMBAR MUSCLES AND FASCIA

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Selected abstracts eular 26

AB1047 (2026)

COMPARISON BETWEEN ULTRASOUND-GUIDED INJECTION OF TRIAMCINOLONE IN SACRO-ILIAC JOINTS AND ORAL ETORICOXIB IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS: AN OPEN-LABEL RANDOMIZED CONTROLLED TRIAL

Keywords: Randomised controlled trial, Ultrasound, Pain, Glucocorticoids

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Background: As first-line treatment, for axial spondyloarthritis (ax-SpA) Non-steroidal anti-inflammatory drugs (NSAIDs) are recommended. Whereas, in isolated active sacroiliitis locally administered glucocorticoid injections are also recommended. But there is lack of data regarding the efficacy steroid injections in sacroiliac joints compared to NSAIDs.

Objectives: We aimed to compare the efficacy and safety between ultrasound-guided triamcinolone injection in sacro-iliac joints (SIJInj) and daily oral etoricoxib in patients with active ax-SpA.

Methods: In this open-label randomized control trial, active ax-SpA patients (age ³ 18 years), with Bath ankylosing spondylitis disease activity index (BASDAI) score ≥ 4 or ASDAS ≥ 2.1 and MRI showing active inflammation in at least one sacro-iliac joint were recruited. Patients were randomized 1:1, to receive SIJInj (triamcinolone hexacetonide 20mg), single dose following recruitment, in sacro-iliac joints showing acute sacroiliitis in MRI (and etoricoxib on demand) in one arm and predetermined regimen of daily etoricoxib for 12 weeks in the other arm. Patients were followed up every 4 weeks up to 12 weeks. Primary outcome was Spinal pain score (VAS 0-10 scale) at week 12. Secondary outcomes were ΔASDAS, BASDAI 50 and adverse effects at week 12.

Results: 47 ax-SpA patients with mean ASDAS of 3.5(0.5) were randomized to SIJInj (n=24) or etoricoxib groups (n=23). Signification reduction of ASDAS was noted at 12 weeks in each groups, 2.1(0.8)(P<0.0001) and 1.9(0.5)(P<0.0001) respectively. However, at 12 weeks, mean change in Spinal pain score was similar in SIJInj and etoricoxib groups, -3.6(2.2) vs. -4.2(2.2) (P=0.17). Achieving BASDAI50 at 12 weeks were comparable between two groups (17 in SIJInj and 14 in etoricoxib groups, P=0.47). ΔASDAS at 12 weeks were 1.4(0.8) and 1.6(0.8) in those groups (P=0.14). ASAS NSAID intake score was significantly higher in the etoricoxib group (40(8.4)vs. 8.9(7.7), P<0.0001).

Conclusions: Both SIJInj and daily etoricoxib groups offered significant improvement of ASDAS at 12 weeks. Spinal pain score reduction, achievement of BASDAI50 and ΔASDAS were similar between the groups. SIJInj may be an effective therapy and alternative to NSAIDs in selected patients in short term.

AB0539 (2026)

EVALUATION AND CHARACTERIZATION OF MUSCLE MASS BY ULTRASOUND IN PATIENTS AT RISK OF OSTEOSARCOPENIA

Keywords: Ultrasound, Imaging, Bone, Sarcopenia

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Background: Osteoporosis and osteopenia are conditions characterized by low bone density, resulting from varying degrees of reduced bone mass and deterioration of bone microarchitecture, whereas sarcopenia is defined as the loss of muscle mass and muscle strength. The coexistence of both conditions (osteosarcopenia) is associated with frailty, increased fracture risk, disability, reduced quality of life, and increased mortality. Dual-energy X-ray absorptiometry (DXA) is the reference standard for detecting both conditions. However, this method is not widely available for body composition assessment. It has several limitations, including potential overestimation of appendicular muscle mass (AMM), particularly in obese populations, due to the inclusion of non-muscle components; underestimation of age-related muscle mass loss; limited sensitivity to detect AMM changes following resistance training; and susceptibility to hydration status. Therefore, the use of other imaging modalities for detecting osteosarcopenia (OSP) is important, and ultrasound (US) stands out. Several US-derived parameters allow evaluation of muscle mass, including predictive models that estimate AMM similarly to DXA.

Objectives: This study aimed to determine the diagnostic performance of US for detecting low muscle mass in a population at risk of OSP.

Methods: An analytical cross-sectional study was conducted, including subjects aged >60 years at risk of OSP. Patients with chronic inflammatory diseases, glucocorticoid use, heart or renal failure, liver cirrhosis, chronic kidney disease, peripheral neuropathy, or a history of prosthesis placement or osteosynthetic material were excluded. Participants underwent a clinical evaluation including the SARC-F questionnaire, bone densitometry of the lumbar spine and hip, body composition assessment by DXA, functional tests, and US evaluation of muscle groups at the arm, forearm, thigh, and anterior leg of the dominant side (assessing the biceps, brachialis, finger flexors, quadriceps, and tibialis anterior muscles). Ultrasonographic AMM was calculated using a LOGIQe system with a 4–12 MHz linear transducer, applying the Abe et al. 2018 predictive model.

Results: To date, 77 patients have been included, 87% of whom were women, with a median age of 67 (63–71) years. A positive SARC-F questionnaire was found in 10.4% of patients. Regarding functional tests, 44.2% had a positive sit-to-stand test, and 33.8% had reduced handgrip strength. Low AMM was identified in 27.3% and 31.2% of patients, with median AMM indices of 6.10 (5.53–6.78) kg/m ^{2} and 6.05 (5.49–6.57) kg/m ^{2} as determined by DXA and US, respectively. US showed excellent diagnostic performance, with an AUC of 0.85 (95% CI 0.72–0.97), sensitivity of 86%, specificity of 92%, positive predictive value of 82%, and negative predictive value of 94% (Figure 1). A statistically significant difference in BMI and handgrip strength was found between patients with low muscle mass and those with normal muscle mass. No differences were observed in other sociodemographic characteristics, functional tests, or bone mineral density findings (Table 1). Among patients with low muscle mass by DXA, 19.5% met the European Working Group on Sarcopenia in Older People (EWGSOP2) criteria for sarcopenia; all of them also had reduced bone mineral density (66.7% with osteopenia and 33.3% with osteoporosis), thus fulfilling the definition of OSP.

Conclusions: The results of this study indicate that US shows high sensitivity (86%) and specificity (92%) in detecting low muscle mass, with an excellent diagnostic performance (AUC = 0.85) and strong correlation with DXA (r = 0.86). These findings support the utility of the US as a dependable auxiliary tool for evaluating muscle mass in older adults at risk of OSP.

Selected abstracts eular 26

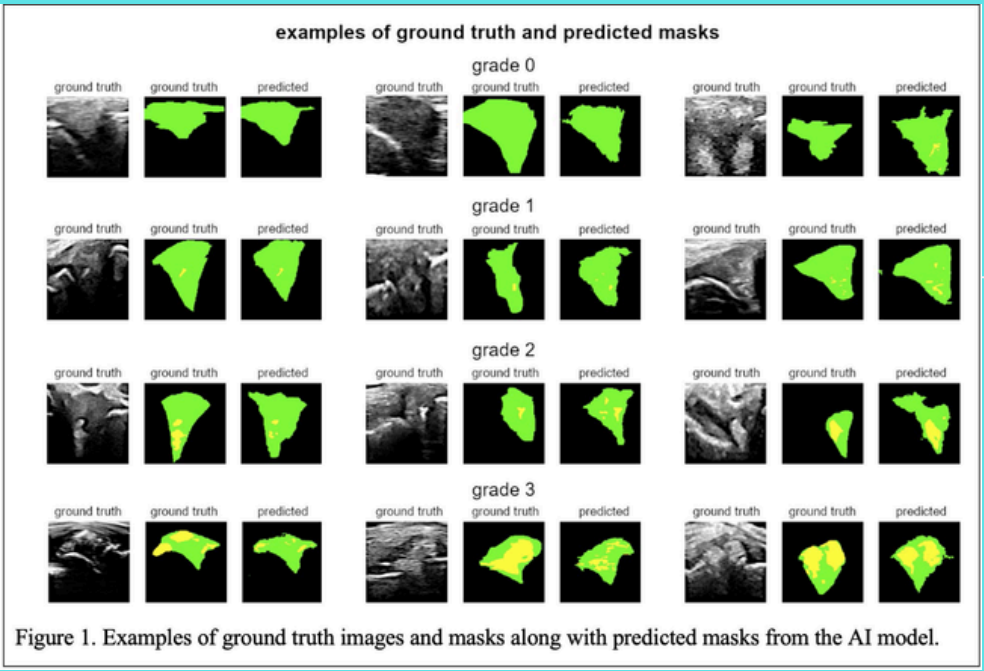

Figure 1. Examples of ground truth images and masks along with predicted masks from the AI model.

Objectives: To develop and evaluate an AI-based semantic segmentation approach for identification and grading of CPPD in ultrasound images of knee menisci.
Conclusions: We explored AI-based segmentation for CPPD grading using the AR index. Although segmentation accuracy was limited (IoU = 0.37), the classification accuracy of 64% supports the continued development of this framework. Current performance, which did not exceed simpler non-segmentation approaches, likely stems from limited dataset size and morphological variability. Future research will focus on increasing image variability to refine these models for potential clinical integration.

POS0782 (2026)

ARTIFICIAL INTELLIGENCE FOR IDENTIFYING AND GRADING MICROCRYSTALLINE DEPOSITS IN KNEE ULTRASOUND IMAGES: A SEMANTIC SEGMENTATION APPROACH. RESULTS OF AN OMERACT ULTRASOUND WORKING GROUP PROJECT

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Selected abstracts eular 26

AB1245 (2026)

LOOKING AT HANDS: MUSCULOSKELETAL ULTRASOUND COMPARISON BETWEEN SYSTEMIC SCLEROSIS, RHEUMATOID ARTHRITIS AND HEALTHY CONTROLS

Keywords: Descriptive Studies, Synovium, Ultrasound

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Background: Musculoskeletal ultrasound (MSUS) is a non-invasive, practical and highly sensitive method for assessing inflammatory activity and structural damage of articular manifestations in rheumatic diseases. In systemic sclerosis (SSc), musculoskeletal symptoms are reported in 46-95% of patients. However, clinical and radiographic evaluation is often limited due to skin sclerosis, joint contractures and tendon friction rubs.

Objectives: To describe MSUS patterns of hand and wrist involvement in symptomatic patients with SSc, a predominantly fibrotic disease, and to compare these findings with rheumatoid arthritis (RA), a typical inflammatory and erosive condition, and with healthy controls.

Methods: MSUS, as defined by OMERACT guidelines, was prospectively and consecutively performed on symptomatic patients who met the 2013 American College of Rheumatology (ACR)/European League Against Rheumatism (EULAR) classification criteria for SSc. This cohort was compared with a historical cohort of RA patients, who fulfilled 2010 ACR/EULAR classification criteria for RA [1], and with a healthy control group, with no clinical joint involvement. Patients with an overlap syndrome were excluded. Clinical data were extracted from electronic medical records between October 2024 and October 2025. Age- and sex-matching was performed at a 2:1 ratio for healthy controls and SSc, and at a 1:1 ratio for SSc and RA. All participants provided informed consent. Data was analyzed using descriptive statistics and compared across groups using chi-square, Fisher's exact, and unpaired Student's t-tests.

Results: Twenty-three symptomatic SSc patients without overlap syndrome were referred to MSUS, and they had a mean illness duration of 15.8 (9.3 - 22.3) years and a median age of 57 (32 - 73) years. Among these patients, 30.4% (n=7) had MUS synovitis, which was associated to higher modified Rodnan Skin Score (15.0 vs 4.5, p=0.004), cutaneous diffuse SSc phenotype (85.7% vs 18.7%, p=0.004) and flexion contractures over joints (57.1% vs 12.5%, p=0.045), while the presence of tenosynovitis was observed in 17.4% (n=4) and was associated with the presence of anti-topoisomerase I antibody (100% vs 31.5%, p=0.024). From the SSc cohort, we compared 22 SSc patients with 44 healthy controls, with similar age and sex distribution (Table 1). Tenosynovitis, both with and without power Doppler (PD) signal, and fibrous tenosynovitis were significantly more frequent in SSc compared with healthy controls (all p<0.01). Despite higher rheumatoid factor (RF) and anti-cyclic citrullinated peptide (anti-CCP) positivity in the SSc group, no significant differences were found in synovitis in general, or in any joint assessed, or erosions on MSUS. Synovitis grayscale (GS) 1 and GS 2 were more frequent in the SSc group, without relevance for synovitis GS 3. In parallel, we also compared sixteen patients with SSc and RA; 81.2% were females in both groups, with median ages of 55 and 51 years, respectively (Table 2). Median disease duration was significantly shorter in RA, as most cases were early RA, compared with SSc (2.0 vs 15.5 years, p=0.001). As expected, anti-CCP antibodies were significantly more frequent in RA patients (87.5% vs 20.0%, p<0.001). The difference in frequency of RF did not reach statistical significance (56.2% vs 23.1%, p=0.07). Synovitis in the hands (proximal interphalangeal and metacarpophalangeal joints) and in wrists, as well as the presence of PD signal, were statistically more frequent in RA compared to the SSc sample (all p<0.05), as was the presence of erosion in general and, specifically, in the metacarpophalangeal joints (p<0.05). Synovitis GS 1 was the most frequent among SSc patients, while the RA group had significantly more synovitis GS 2 and GS 3 (both p<0.001). No significant differences were observed in inflammatory tendon changes or in any specific extensor tendon compartment of the wrist between RA and SSc samples, including fibrous tenosynovitis (0% vs 12.5%, p=0.14).

Conclusions: In a group of SSc patients without overlap syndrome, synovitis and tenosynovitis were associated with the diffuse phenotype and flexion contractures. Compared to the RA group, the SSc cohort showed a predominance of GS 1 synovial articular involvement, with similar tenosynovial involvement. When compared to healthy controls, SSc patients showed higher GS 1 and 2 synovial articular involvement, along with more tenosynovitis and fibrous tenosynovitis. Therefore, our SSc sample presented an intermediate synovial inflammatory pattern between RA and healthy individuals. These findings suggest a potential pathophysiological linkage between skin thickening and tenosynovitis in these SSc patients.

POS0600 (2026)

PRECISION PROGNOSIS IN GCA: SHIFTING FROM SYSTEMIC MARKERS TO ULTRASOUND-BASED RISK STRATIFICATION

Keywords: Glucocorticoids, Ultrasound

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Background: Predicting relapses in Giant Cell Arteritis (GCA) remains a clinical challenge. While inflammatory markers like C-reactive protein (CRP) and Erythrocyte Sedimentation Rate (ESR) are used for diagnosis, their prognostic value for long-term relapses is debated.

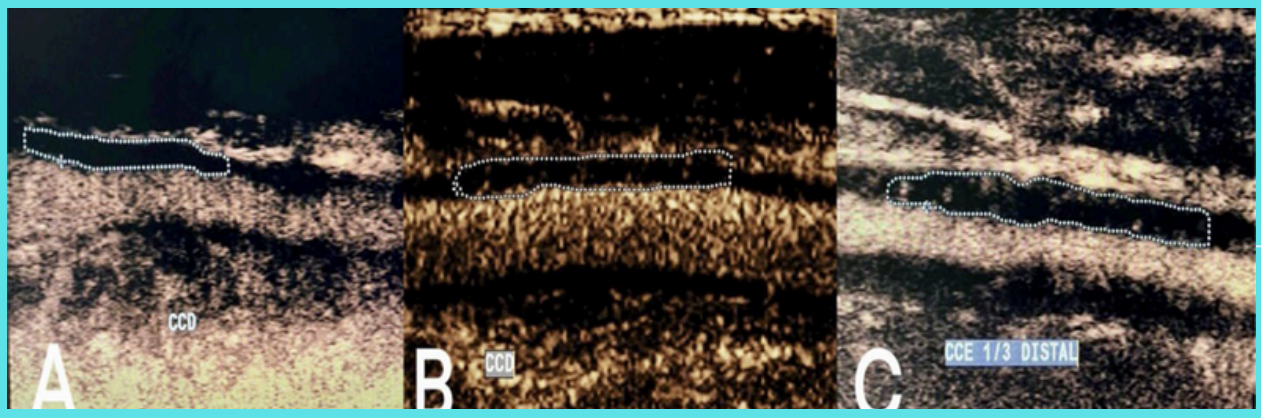
Objectives: To evaluate the clinical and ultrasonographic factors associated with relapses, focusing on the total number and location of arteries affected at disease onset.

Methods: Data were collected from a cohort of 72 GCA patients diagnosed according to ACR/EULAR classification criteria for GCA. Assessment was carried out at baseline and at a 6-, 12-, 18- and 24-months follow-up. All participants underwent a standardized color-coded duplex ultrasound (US) assessment of the cranial and large vessels, including the temporal (and its branches), facial, carotid, subclavian, and axillary arteries as well as blood check for inflammatory markers (ESR and CRP). Major relapse, requiring an increase in glucocorticoid dosage, was defined according to the EULAR guidelines. Predictors of relapse were identified using logistic regression analysis.

Results: A total of 72-patients were included. GCA relapses occurred in 34.7% of the cohort during the 2-year follow-up period. Logistic regression revealed that patients with Large Vessel (LV) involvement (aorta, subclavian, carotid, or axillary arteries) at diagnosis had a significantly higher risk of relapse compared to those with purely cranial GCA. Notably, the total number of affected arteries at baseline was a significant predictor of future relapses ($p < 0.01$). Conversely, baseline values of CRP and ESR at the time of diagnosis were not significantly associated with the risk of relapse.

Conclusions: The extent of arterial involvement at diagnosis, particularly Large Vessel involvement, is a superior prognosticator for GCA relapses compared to baseline systemic inflammatory markers. These findings suggest that patients with multi-arterial or LV-GCA involvement require more intensive monitoring and may benefit from earlier introduction of steroid-sparing agents to mitigate the risks associated with prolonged glucocorticoid exposure.

Selected abstracts eular 26



Background: Takayasu arteritis (TAK) is a rare, chronic large-vessel vasculitis with a progressive course and severe morbidity. Accurate assessment of disease activity remains a clinical challenge due to the limited sensitivity of conventional inflammatory markers such as erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and composite activity indexes Indian Takayasu Clinical Activity Score (ITAS) and American National Institutes of Health (NIH). Contrast-enhanced ultrasound (CEUS) has emerged as a promising tool for evaluating arterial wall inflammation. The combined use of CEUS can determine patterns of mural enhancement by intensifying the flow signal within the dilated microcirculation of the carotid wall, resulting from neoangiogenesis related to mural inflammation and it is possible that such findings may correlate with inflammatory activity of the disease.
Conclusions: CEUS has proven to be a reliable, non-invasive tool with strong potential distinguishing active from inactive TAK. Its correlation with clinical scores and laboratory markers reinforces its role in disease monitoring. Future multicenter studies are needed to validate cutoff values and expand its clinical application.

POS0609 (2026)

CONTRAST-ENHANCED ULTRASOUND FOR DEFINING DISEASE ACTIVITY IN TKAYASU ARTERITIS

Keywords: Imaging, Diagnostic test, Ultrasound

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Selected abstracts eular 26

AB0405 (2026)

PREVALENCE AND CLINICAL ASSOCIATIONS OF ULTRASOUND-CONFIRMED ENTHESITIS IN BEHÇET'S SYNDROME

Keywords: Enthesitis, Ultrasound, Observational studies/registries, Epidemiology

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Background: Musculoskeletal involvement is common in Behçet's syndrome (BS), typically manifesting as non-erosive arthritis or inflammatory arthralgia [1]. However, the frequency and clinical relevance of enthesitis remain poorly characterized, and data on its prevalence and associated disease features are limited [2,3].

Objectives: To investigate the prevalence of ultrasound (US)-confirmed enthesitis in patients with BS and determine its clinical associations over the course of the disease.

Methods: We conducted a retrospective analysis of a cohort of patients with BS ollowed at the Careggi University Hospital. US examinations performed to assess patients with tender and/or swollen joints were reviewed to identify the presence of enthesitis. Patients with US-confirmed enthesitis were compared with control patients with BS who had tender and/or swollen joints but no US evidence of enthesitis. Patients who did not underwent US examination were also included as an additional control group. Clinical features and therapy were evaluated retrospectively from disease up to the last available follow-up. Outcomes were compared using tje Fisher exact test for dichotomic variables or Kruskal Wallis test for continuous variables.

Results: A total of 118 patients fulfilling the International Study Group (ISG) classification criteria for Behçet's syndrome were evaluated. Seven patients were excluded because of concomitant psoriasis or a first-degree family history of psoriasis. Of the remaining patients, 72 underwent articular US examination based on clinical indication. US evidence of enthesitis was identified in 47 of 111 patients (42%). Twenty-five patients with no history of arthralgia and no US evidence of enthesitis were included as controls. The remaining 39 patients did not undergo US examination. The mean follow-up duration was 3.1 years (standard deviation [SD] 4.8). Compared with controls without US evidence of enthesitis, BS patients with enthesitis were significantly less likely to develop ocular involvement (11.1% vs. 29.2%; p = 0.005) or neurological manifestations (17.8% vs. 32.0%; p = 0.020). Inflammatory low back pain was more frequently observed in the enthesitis group than in controls (48.9% vs. 16.0%; p = 0.002). Sacroiliitis was documented in seven patients with enthesitis, one of whom was positive for the HLA-B27 allele, compared with one case in each control group. With respect to treatment, the use of TNF inhibitors (57.4% vs. 47.3%; p = n.s.) and IL-17 inhibitors (20.0% vs. 8.0%; p = n.s.) was numerically higher in patients with enthesitis. Detailed clinical characteristics and treatment data are summarized in Table 1.

Conclusions: US-confirmed enthesitis is a common finding in patients with Behçet's syndrome and is associated with distinct clinical charcacteristics, characterized by a higher prevalence of inflammatory low back pain and sacroiliitis along with lower rates of ocular and neurological involvement, likely reflecting a subset of the mucocutaneous and articular phenotype.

AB0469 (2026)

SAFE DISCHARGE AT A COST: MRI AND ULTRASOUND USE IN EARLY INFLAMMATORY ARTHRITIS PATHWAYS

Keywords: Disease-modifying Drugs (DMARDs), Ultrasound, Health services research, Pain, Imaging

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Background: In clinical practice, MSK ultrasound and MRI are used to support diagnosis in suspected Early Inflammatory Arthritis (EIA). The National Early Inflammatory Arthritis Audit (NEIAA) highlights the importance of early diagnosis and prompt initiation of disease-modifying therapy (DMARD) within 6 weeks of referral as this is associated with improved outcomes, higher rate of remission and reduction in long-term disability [1]. Currently this target was met for 58.9% of EIA patients at our centre. Current recommendations from NICE [2] and EULAR [3] advise that imaging can be used when there is diagnostic doubt.

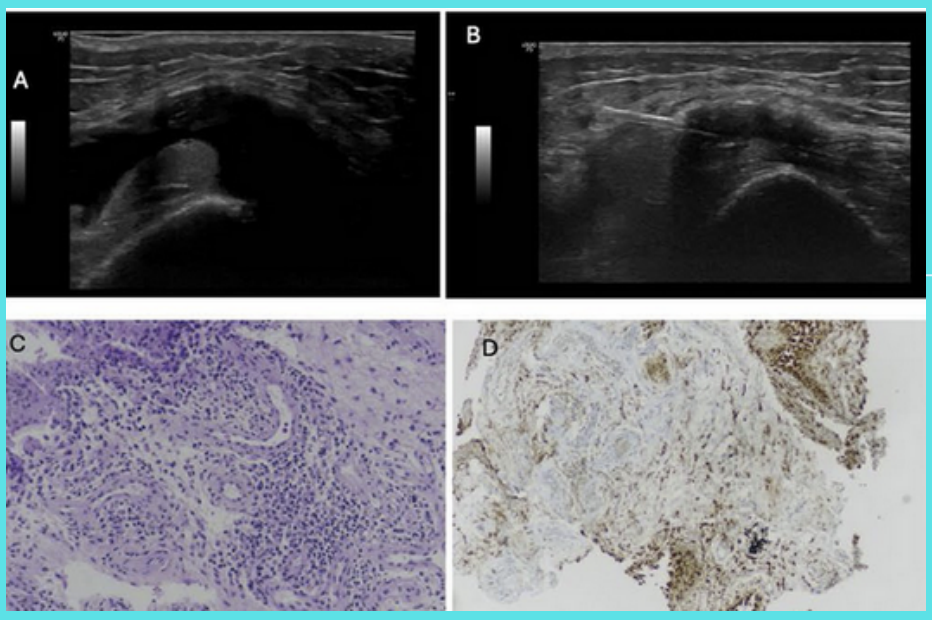
Objectives: To evaluate the use of MRI and ultrasound in patients referred to the EIA clinic in our EIA service with a focus on the impact on treatment decisions and cost-effectiveness. To determine the frequency of MRI/hand ultrasound use, time from referral to imaging, time from MRI and ultrasound completion to report, time from MRI and ultrasound completion to treatment Initiation, impact on treatment initiation and cost-effectiveness andresource use.

Methods: A retrospective cross-sectional study was conducted of all patients referred to the EIA clinic between March 2023 and August 2025. Data was collected on hand MRI and ultrasound requests extracted from radiology records. Data was collected on date of initial referral, date of imaging, report availability, clinical indication and impact on treatment and DMARD initiation. Data was also analysed to assess cost implications. Results were compared to the NEIAA standards and NICE guideline on Rheumatoid Arthritis in Adults which advises that imaging should be used selectively to support diagnosis where clinical examination and routine investigations are inconclusive.

Results: 550 MRIs were performed with 348 (63.3%) requested for suspected EIA. The mean number of days for an MRI to be performed was 37 days and 15 days on average for report availability. The total mean time from MRI request to report was 52 days. During this period, 106 patients were commenced on DMARDs for EIA. Inflammatory changes were confirmed on MRI for 99 (93%) of patients commenced on DMARD. 7 (7%) patients had DMARDs stopped due to a normal MRI result. 242 (70%) of patients with suspected EIA were discharged after a normal MRI. The unit cost for each MRI was £147 and therefore the total MRI expenditure for this time period was £80,850 with £36,603 spent on MRIs which showed no inflammatory changes and led to discharge from clinic. 186 ultrasound hand and wrists were performed during the same period with 90 (48%) requested for suspected EIA of which 45 (50%) showed inflammation. The average number of days between ultrasound request and completion was 29.3 days (4.2 weeks) with reports being made available within 1 day on average. On average there was 6.8 weeks between ultrasound referral and DMARD initiation. 57 patients were discharged as a result of their ultrasound. Each ultrasound scan costs £46 and in 45 (50%) patients, £2070 was spent on ultrasounds to exclude EIA.

Conclusions: This cross-sectional study demonstrates that MRI was effective in excluding inflammatory disease and supported safe discharge with a high discharge rate after a normal MRI. However, MRI use was associated with a low diagnostic yield, high costs and delayed treatment initiation. A significant proportion of those who were referred for an MRI did not start DMARD treatment within the 6 week target. Ultrasound can also be valuable to exclude inflammatory disease and guide management but is also associated with delay in treatment initiation. The discharge was lower compared to MRI following a normal scan. While both MRI and US were valuable for excluding inflammation and supporting safe discharge in certain cases, imaging frequently delayed clinical decision-making and DMARD initiation, with limited impact on treatment escalation in many cases. Recommendations have been proposed in order to standardise MRI referral criteria, expedite reports for imaging for EIA. A rheumatology led ultrasound service to reduce reliance on MRI and improve DMARD initiation in those referred for imaging may help improve outcomes in EIA.

Selected abstracts eular 26



This multicenter study aimed to investigate the indications, safety, and patient tolerability of minimally invasive USGSB performed by rheumatologists in small, medium, and large joint.
USGSB is a minimally invasive, well-tolerated technique with high diagnostic value that can be safely applied to various joint sizes by rheumatologists. Its integration into routine clinical practice can facilitate personalized medicine approaches in the management of inflammatory arthritis, extending its utility beyond the research setting.

AB0461 (2026)

INDICATIONS, SAFETY, AND TOLERABILITY OF ULTRASOUND-GUIDED SYNOVIAL BIOPSY: A MULTICENTER CROSS-SECTIONAL STUDY

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Selected abstracts eular 26

POS0466 (2026)

PREDICTORS OF DRUG RETENTION IN PSORIATIC ARTHRITIS: THE ROLE OF MUSCULOSKELETAL ULTRASOUND

Keywords: Targeted synthetic drugs, Biological DMARD, Ultrasound

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Background: Drug retention is increasingly used as a pragmatic outcome in psoriatic arthritis (PsA), as it integrates treatment effectiveness, tolerability, and physician judgment. However, early predictors of long-term treatment persistence are still poorly defined, particularly in real-world settings. Musculoskeletal ultrasound (US) may capture subclinical inflammatory changes not reflected by composite clinical indices.

Objectives: To investigate whether baseline clinical or ultrasound features, and early changes in ultrasound indices, are associated with 12-month drug retention in PsA patients starting or switching a b/tsDMARD.

Methods: This was a three-center prospective cohort study including PsA patients initiating or switching a b/tsDMARD. Clinical and US assessments were performed at baseline and at 1, 3, and 6 months. Clinical evaluation included cDAPSA and standard disease activity measures. US assessment focused on the most clinically involved joint, enthesis, or tendon (MIJET) and on the two most involved sites (2MIJET). The primary outcome was 12-month drug retention, defined as the physician's decision to maintain or discontinue therapy (cResponder vs non-cResponder). Baseline predictors were explored using univariate analyses; longitudinal changes from baseline were compared between groups. ROC analyses were used to evaluate the ability of US indices to predict subsequent treatment discontinuation.

Results: Overall, 91 patients were enrolled. During follow-up, five patients discontinued treatment due to adverse events and three were lost to follow-up. At the time of analysis, 68 patients had completed the 12-month follow-up, while the remaining were still awaiting 12-month reassessment. Among patients with available 12-month data, 45 (66.2%) were classified as cResponders and 23 (33.8%) as non-cResponders.No baseline demographic, clinical, laboratory, or US parameter differed significantly between responders and non-responders. In contrast, longitudinal analyses showed significantly greater and earlier improvements in responders. Median ΔMIJET eco was higher in responders at 3 months [2.0 (1.25–3.0) vs 0.5 (0.0–1.75); p = 0.009] and at 6 months [2.0 (2.0–4.0) vs 0.0 (0.0–1.0); p = 0.00015]. Median Δ2MIJET eco was also higher at 3 months [3.5 (1.0–6.0) vs 0.0 (−0.75–2.75); p = 0.030], with consistent trends at 6 months. Changes in cDAPSA at 1, 3, and 6 months did not differ significantly between groups (all p ≥ 0.28). ROC analyses at 6 months confirmed the predictive value of US indices, with AUCs ranging from 0.68 to 0.76 for MIJET, 2MIJET, and their gray scale and power Doppler components.

Conclusions: In this prospective real-world study, early changes in ultrasound indices—but not cDAPSA—were associated with 12-month drug retention in PsA. Persistently elevated US scores at 6 months identified patients at increased risk of treatment discontinuation within one year. These findings support the integration of pragmatic ultrasound indices such as MIJET and 2MIJET into routine follow-up, potentially enabling earlier identification of inadequate response and more timely therapeutic adjustments.

AB1093 (2026)

SUBCLINICAL JOINT INFLAMMATION IN SYSTEMIC LUPUS ERYTHEMATOSUS: USEFULNESS OF MUSCULOSKELETAL ULTRASOUND.

Keywords: Observational studies/registries, Ultrasound

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Background: Joint involvement is a common manifestation of systemic lupus erythematosus (SLE), usually considered mild and non-erosive. However, clinical examination may underestimate the true extent of joint inflammation. Musculoskeletal ultrasound has become an established sensitive tool for detecting synovitis and subclinical inflammatory activity, even in patients with low systemic disease activity.

Objectives: The aim of this study was to assess the prevalence of ultrasound-detected joint involvement in patients with SLE and to analyze its relationship with clinical findings, disease activity measured by SLEDAS, and treatment.

Methods: A cross-sectional observational study was conducted in patients with SLE and predominant joint involvement. Demographic, clinical, and laboratory variables were collected, as well as disease activity assessed by SLEDAS and current treatment. Musculoskeletal ultrasound of wrists, metacarpophalangeal joints, proximal interphalangeal joints, and knees was performed, evaluating synovitis using grayscale and Power Doppler signal. Descriptive and comparative analyses were conducted between patients with and without ultrasound-detected synovitis using non-parametric tests. Statistical significance was set at $p < 0.05$.

Results: Twenty-two patients were included, with a median age of 49 years (IQR 41.3–57) and a median disease duration of 18.5 years (IQR 13.3–26). Overall SLE activity was low, with a median SLEDAS of 0.37 (IQR 0.37–2.02). Seventy-seven point three percent (17/22) were not receiving glucocorticoids, and 86.4% were treated with hydroxychloroquine. Clinically, 68.2% reported joint pain (TJC > 0; median 1 [IQR 0–5]), whereas only 9.1% presented objective joint swelling (SJC > 0). Median morning stiffness was 30 minutes (IQR 0–30), and the pain visual analog scale score was 5 (IQR 5–7). Musculoskeletal ultrasound detected synovitis in 27.3% of patients and Power Doppler signal in 9.1%, revealing a greater inflammatory joint burden than that estimated clinically. Among patients without clinical joint swelling, 20% showed ultrasound-detected synovitis, confirming subclinical joint involvement. Patients with ultrasound-detected synovitis tended to be older (57 vs 46 years; p = 0.065) and to have longer morning stiffness (45 vs 15 minutes; p = 0.073). Clinical joint swelling was observed exclusively in this group (33.3% vs 0%; p = 0.022). No differences were found in ESR, CRP, or systemic disease activity measured by SLEDAS. Ultrasound-detected synovitis was less frequent in patients treated with hydroxychloroquine (50% vs 94%; p = 0.046), with no significant association with glucocorticoids, immunosuppressants, or biologic therapies.

Conclusions: In patients with SLE and low systemic activity measured by SLEDAS, musculoskeletal ultrasound identifies joint inflammation in a substantial proportion of cases, frequently undetected by clinical examination. The presence of ultrasound-detected synovitis in patients without clinical joint swelling and mostly not receiving corticosteroids highlights a clinical–ultrasound discordance and supports the existence of potentially underestimated subclinical joint involvement. These findings reinforce the value of ultrasound as a complementary tool for a more accurate assessment of joint involvement in SLE.

Selected abstracts eular 26

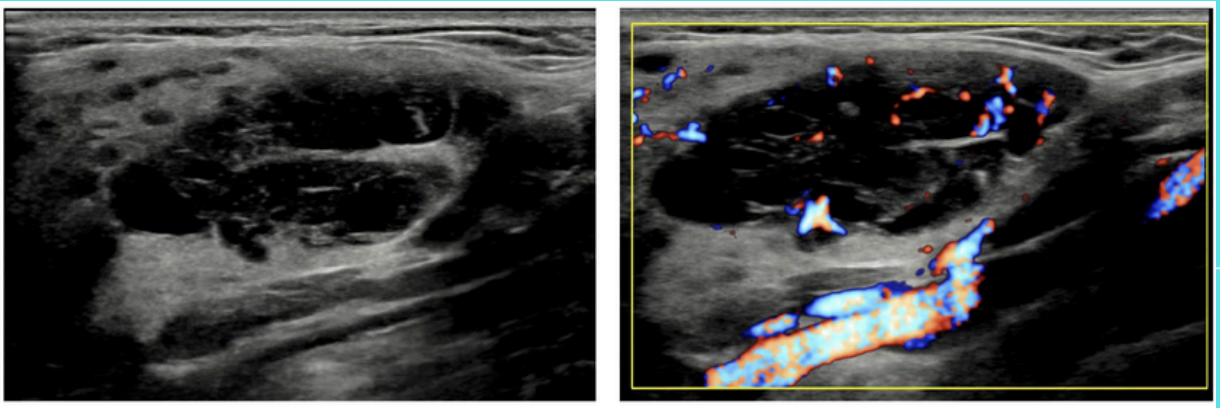

Image 1: Ultrasonographic features of a parotid gland focal lesion in a patient with Sjögren's disease complicated by MALT lymphoma. The lesion appears as a polylobulated, hypoechoic area, clearly demarcated from the surrounding inhomogeneous parenchyma; it is also characterized by internal septa and intralesional vascularization.

In SjD patients undergoing parotid biopsy for suspected lymphomatous evolution, focal lesions detected by SGUS and persistent PG swelling are both markers of glandular lymphoma presence, acting beyond global ultrasound severity reported with OMERACT B-mode scores. These findings support a multimodal assessment integrating ultrasound features and accurate evaluation of clinical glandular patterns to refine lymphoma risk stratification in high-risk SjD populations. Moreover, a more detailed characterization of focal lesions could further strengthen their role as predictors of lymphoma development. Additional research is warranted in this area to enable clinicians to better define both the timing and the optimal localization of major salivary gland biopsy in SjD patients at high lymphoproliferative risk.

AB0961 (2026)

ULTRASOUND FOCAL LESION AND PERSISTENT PAROTID SWELLING AS PREDICTORS OF SALIVARY GLAND LYMPHOMA IN SJÖGREN'S DISEASE

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Selected abstracts eular 26

POS1262 (2026)

DO PEOPLE WITH PALINDROMIC RHEUMATISM DEVELOP EROSIONS? A LONGITUDINAL ULTRASOUND STUDY FROM A LARGE UK COHORT.

Keywords: Ultrasound, Imaging, Observational studies/registries, Real-world evidence

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Background: Palindromic rheumatism (PR) is a relapsing and remitting condition with acute flares of joint pain and swelling followed by asymptomatic phases. Around 30-50% of PR patients progress to a persistent inflammatory arthritis (IA), most often rheumatoid arthritis. Based on historical radiographic studies, PR is considered a non-erosive disease. However, longitudinal high-resolution imaging data is lacking. Importantly, up to 10% of anti-cyclic citrullinated peptide positive (CCP+) individuals with arthralgia (but not PR) have bone erosions on musculoskeletal ultrasound (US) and the presence of bone erosions predicts progression to IA [1].

Objectives: To describe and compare the prevalence and longitudinal trajectory of US bone erosions in CCP+ and CCP negative (CCP-) PR patients.

Methods: Patients with PR were recruited to the Leeds PR cohort and followed prospectively between October 2009 and September 2025. The diagnosis of PR was defined as "a confirmed history/physical examination consistent with episodes of joint pain and swelling that returned to normal in the absence of an alternative diagnosis" [2]. Baseline demographic and clinical characteristics were collected. Clinical and US examinations were performed at baseline, every 6 months or at the time of a flare when feasible. US examinations were conducted according to a standardised protocol assessing 38-joints. Bone erosions were defined and scored using the Outcome Measures in Rheumatology (OMERACT) definition on a semi-quantitative scale from 0–3. Baseline bone erosions were defined as any erosion score ≥1 on the baseline scan, whilst new erosions were defined as an erosion score ≥1 occurring after the patient's baseline scan. The first metatarsophalangeal joints were excluded due to the high prevalence of erosions in healthy controls [3]. The prevalence, anatomical distribution and grade of erosions were summarised descriptively. Time to first new erosion was calculated from the baseline scan date to the first scan demonstrating a new erosion and summarised as median (interquartile range). Flare interval was compared between ever-erosive and never-erosive PR patients using Wilcoxon rank-sum test. Progression to IA was summarised descriptively by baseline erosive status.

Results: A total of 479 US scans (127 baseline scans and 352 follow-up scans) of 17,723 joints across 127 PR patients completed between October 2009 and September 2025 were analysed. The median number of scans per patient was 3, with a median total follow-up of 53.1 months (IQR 13.9–92.4). The mean age was 50 years, 69% were female and 67% were anti-CCP+ (***Table 1***).

At baseline, 14 bone erosions were found in 12/127 (9.4%) patients. The anatomical distribution of bone erosions are summarised in ***Table 2*** . The most common anatomical site was the fifth metatarsophalangeal joint (n=5). None of the baseline bone erosions increased in size during the follow-up period and only one (8.3%) baseline-erosive patient developed new erosions.

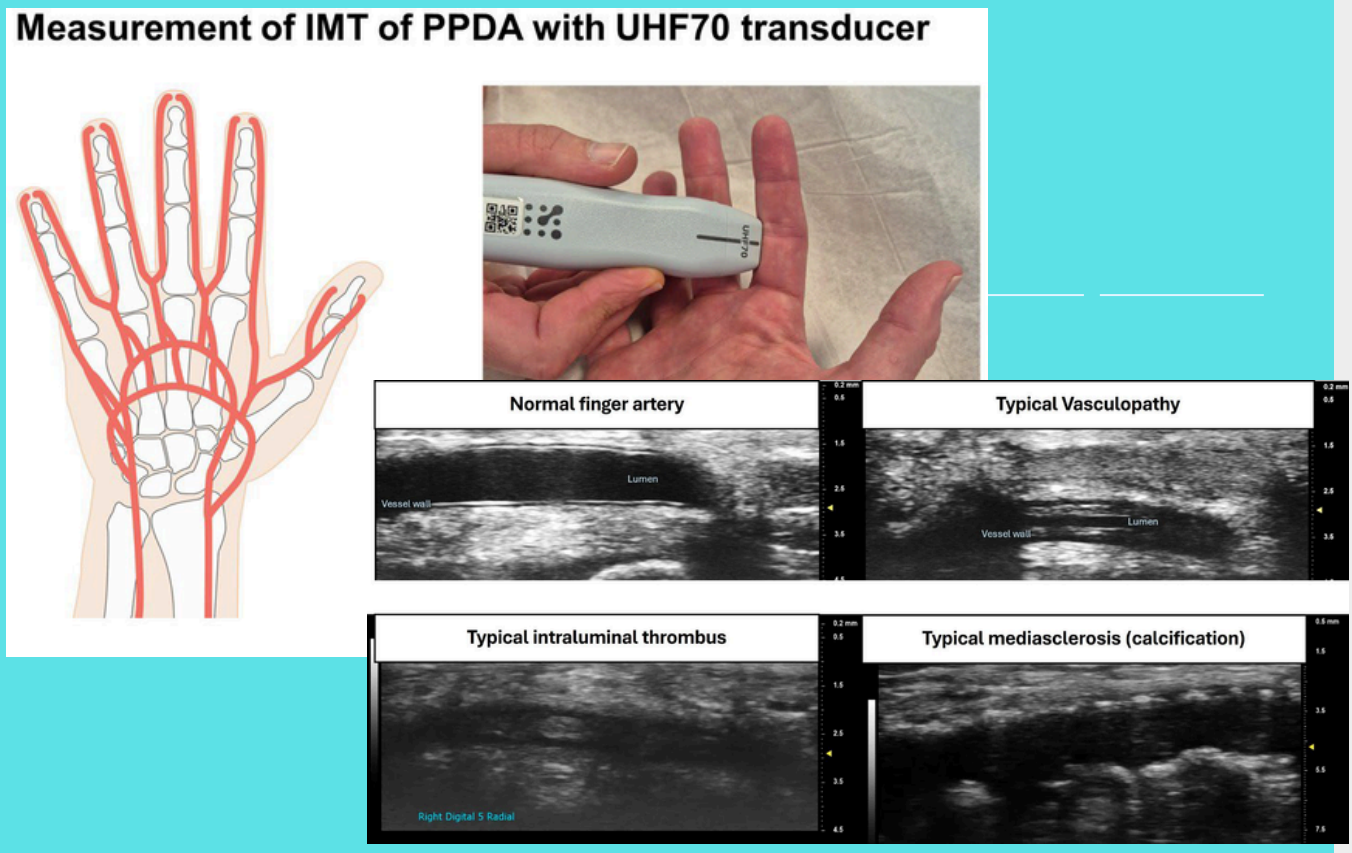
In those without baseline bone erosions, 7/115 (6.1%) developed new erosions over the median follow-up period of 53.1 months. Ten new erosions were observed across 7 patients, most commonly affecting the second metacarpophalangeal joint (n=5). New erosions were predominantly grade 1 (80%), with one grade 2 and one grade 3 erosion. The median time to first bone erosion was 23.0 months (IQR 18.6–33.9). When stratified by anti-CCP status, baseline erosions were observed at similar frequencies (10%) in CCP+ and CCP- PR patients. New erosions occurred more frequently in CCP+ patients (6/77, 7.8%) than in CCP- patients (1/38, 2.6%), although numbers were small.

PR patients who developed bone erosions at any time point (baseline or during follow-up; n=19) had significantly higher frequency of flares (median time between flares 14 days, [IQR 10–21] vs 28 days [IQR 14–60], *p=0.03*) compared with those who never developed erosions (n=108).

Overall, 54/127 patients (42.5%) progressed to IA during the follow-up period. Patients with bone erosions at baseline demonstrated a numerically higher progression rate compared with baseline non-erosive patients (7/12 [58.3%] vs 47/115 [40.9%]).

Conclusions: This is the first study to describe the prevalence and longitudinal trajectory of US-detected bone erosions in PR. Overall, the frequency of erosions in this PR cohort was higher than expected and suggests that PR is associated with structural damage in a subgroup of patients. However, most erosions were isolated, low-grade lesions and no progression in erosion size was observed over time. The association between higher frequency of flares and erosion development suggests that greater exposure to bouts of clinical and subclinical inflammation may lead to erosions. The presence of erosions at baseline may identify a subgroup of PR patients at higher risk of progression to IA.

Selected abstracts eular 26



This prospective cohort study characterizes the spectrum of vascular abnormalities in secondary Raynaud's phenomenon and demonstrates the diagnostic yield of a comprehensive vascular protocol. Morphological assessment by VHRUS opens the 'black box' of finger ischemia by visualizing distinct vascular patterns—intimal thickening, intraluminal thrombosis, and calcification—invisible to conventional NCM and imaging. This is the first large practice-based study to systematically characterize these patterns. Quantitative measurements of VHRUS parameters represent a future perspective for standardization and research. Prompt identification of underlying vascular pathology enables targeted therapy, potentially improving outcomes.

POS1168 (2026)

OPENING THE BLACK BOX OF FINGER ISCHEMIA: VERY HIGH-RESOLUTION ULTRASOUND REVEALS THE SPECTRUM OF VASCULAR ABNORMALITIES IN SECONDARY RAYNAUD'S PHENOMENON

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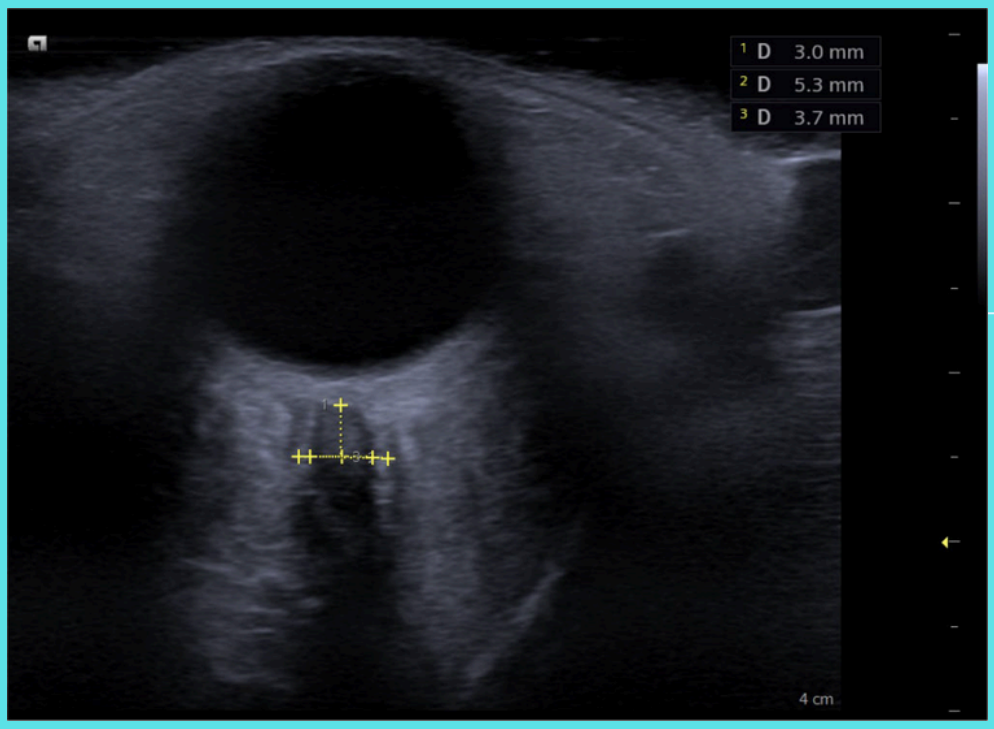

Objectives: To assess intra-observer and inter-observer reproducibility of OND and ONSD measurements performed by different ultrasonographers using TOUS.
Conclusions: This is the first study specifically designed to validate the reproducibility of TOUS measurements of OND and ONSD.
Inter-observer reproducibility among experts and reproducibility of trained ultrasonographers after a standardized training session were very good. Although some variability in intra-observer reproducibility was observed among experts, it was not statistically different between them and remained numerically acceptable Although the two measurement techniques differed statistically, the differences were considered acceptable; therefore, all subsequent measurements in the PETRUS study will be performed using the standard technique. Taken together, these preliminary results from the PETRUS study indicate good reproducibility of TOUS.

AB1323 (2026)

REPRODUCIBILITY OF TRANSORBITAL ULTRASOUND MEASUREMENTS OF OPTIC NERVE AND OPTIC NERVE SHEATH DIAMETERS

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