INTERNET NEWS

BS MÃ NGUYỄN MINH TÙNG- PK CXK

Review > Best Pract Res Clin Rheumatol. 2025 Feb 26:102042. doi: 10.1016/j.berh.2025.102042.
Online ahead of print.

The role of ultrasound and magnetic resonance imaging in the assessment of musculoskeletal involvement in systemic lupus erythematosus: A review of recent advances and insights

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Affiliations + expand

PMID: 40011120 DOI: 10.1016/j.berh.2025.102042

Abstract

Systemic lupus erythematosus (SLE) is an autoimmune disease characterized by diverse manifestations, with musculoskeletal (MSK) involvement being one of the most prevalent and debilitating. Traditional perceptions of SLE arthritis as mild and primarily non-erosive are increasingly challenged by advanced imaging techniques, such as ultrasound and magnetic resonance imaging (MRI). These modalities have revealed subclinical inflammatory changes, structural damage, and peri-articular soft tissue involvement in both symptomatic and asymptomatic patients. Ultrasound is highly sensitive in detecting synovitis, tenosynovitis, and entheseal abnormalities, also in patients without

Bệnh lupus ban đỏ hệ thống (SLE) thường bị nhẹ khớp, nhưng siêu âm và MRI đã phát hiện tổn thương viêm dưới lâm sàng như synovitis, tenosynovitis, tổn thương xương. Những phát hiện này có thể tiên lượng trước triệu chứng, giúp điều trị sớm và cá nhân hóa.

Review > Best Pract Res Clin Rheumatol. 2025 May 14:102072. doi: 10.1016/j.berh.2025.102072.
Online ahead of print.

Clinical utility of ultrasound and MRI in rheumatoid arthritis: An expert review

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PMID: 40374410 DOI: 10.1016/j.berh.2025.102072

Abstract

Musculoskeletal ultrasound (MSUS) and magnetic resonance imaging (MRI) are advanced imaging techniques that are increasingly important in the diagnosis and management of rheumatoid arthritis (RA) and have significantly enhanced the rheumatologist's ability to assess RA disease activity and progression. This review serves as a five-year update to our previous publication on the contemporary role of imaging in RA, emphasizing the continued importance of MSUS and MRI in clinical practice and their expanding utility. The review examines the role of MSUS in diagnosing RA, differentiating RA from mimickers, scoring systems and quality control measures, novel longitudinal approaches to disease monitoring, and patient populations that may benefit most from MSUS. It also examines the role of MRI in diagnosing pre-clinical and early RA, disease activity monitoring, research and clinical

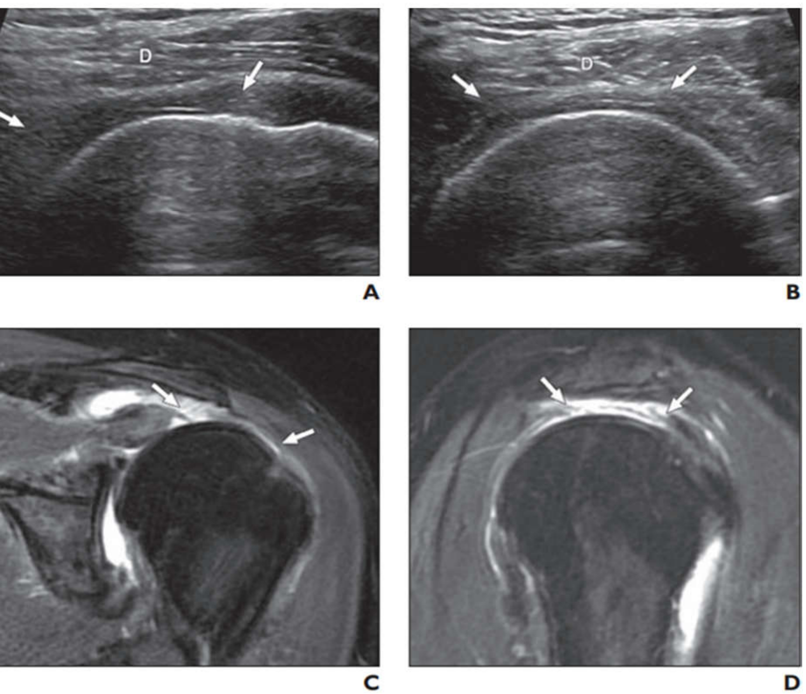
Bài tổng quan cập nhật nc từ 2020- 2025 mới công bố 05/2025, nhấn mạnh vai trò tích hợp giữa siêu âm MSUS và MRI để đánh giá hoạt động và tiến triển viêm khớp dạng thấp, gồm chẩn đoán sớm, giám sát lâu dài và ứng dụng AI trong scoring hình ảnh.

Musculoskeletal Ultrasound: Focused Impact on MRI

Jon A. Jacobson[1]

OBJECTIVE. This article will compare and contrast image interpretation, accuracy, observer variability, economic impact, and education with regard to musculoskeletal ultrasound and MRI because these factors will influence the growth of musculoskeletal ultrasound and the impact on MRI.

CONCLUSION. The use of musculoskeletal ultrasound continues to grow and there are a number of factors that impact MRI. The development of less expensive portable ultrasound machines has opened the market to nonradiologists, and applications for musculoskeletal ultrasound have broadened. Selective substitution of musculoskeletal ultrasound for MRI can result in significant cost saving to the health care system. Although this change could decrease the use of MRI, issues related to accuracy, variability, education, and competence must be addressed.



g. 3—71-year-old man with full-thickness supraspinatus tear.
–D, Ultrasound images of supraspinatus tendon (long axis, **A**; short axis, **B**) and coronal oblique (**C**) and agittal oblique (**D**) fluid-sensitive MR images (TE/TR = 41/3,566) show full-thickness tear of supraspinatus endon (between *arrows*). Note loss of normal superior supraspinatus convexity with deltoid muscle (D, **A** and) dipping into torn tendon gap on ultrasound (**A** and **B**).

So sánh mặt mạnh/yếu giữa MSUS và MRI: siêu âm giá thành thấp, di động, nhưng cần đào tạo và kiểm soát độ chính xác. Việc thay thế từng phần MRI bằng MSUS có thể tiết kiệm chi phí, nhưng vẫn cần thận trọng.

Future use of musculoskeletal ultrasonography and magnetic resonance imaging in rheumatoid arthritis

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Purpose of review
Musculoskeletal ultrasonography (MSUS) and MRI play important roles in diagnosis, monitoring, and prognostication of rheumatoid arthritis. This review highlights recent literature in this field and aims to provide insight into the future use in clinical practice.

Recent findings
Recent studies concerning the use of MSUS and MRI in clinical practice show how MSUS and MRI can improve diagnosis and monitoring of rheumatoid arthritis and how they can predict both radiographic progression and clinical outcome (e.g., successful tapering of medical treatment). Moreover, novel technical developments of the two imaging modalities, such as 3D ultrasonography, ultrasound image reading with convolutional neural network, image fusion (MSUS and MRI) and whole-body MRI show promising results. Further validation of these novel techniques is required prior to implementation.

Summary
MSUS and MRI will be important parts of the future management of rheumatoid arthritis patients, mostly because of their ability to detect rheumatoid arthritis changes at a very early stage and to predict the course of disease. However, the exact role in routine clinical practice is still to be defined.

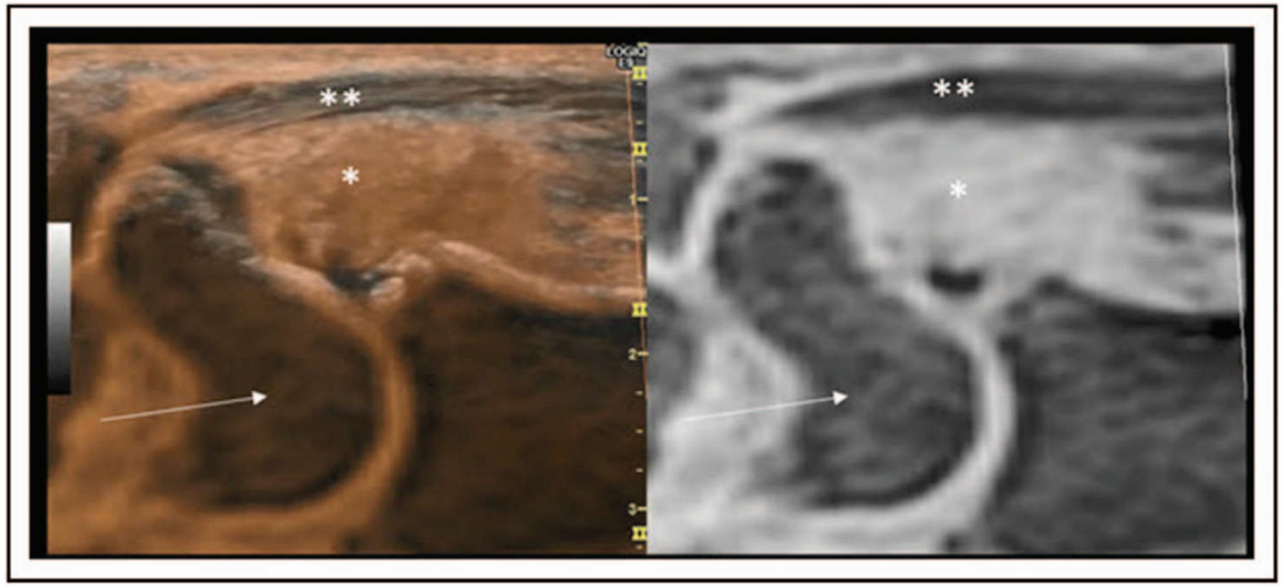

FIGURE 2. Image fusion of musculoskeletal ultrasonography (MSUS) and MRI. MSUS-MRI overlay (left) and MRI (right) imag in sagittal plane of the wrist of a rheumatoid arthritis patient. **The flexor carpi radialis tendon with tenosynovit. *Synovitis in the palmar radial part of the wrist. The scaphoid was used as bony landmark for the image fusion (white arrows).

Bài đánh giá mới về MSUS và MRI dùng AI (CNN), 3D siêu âm, fuse ảnh cùng whole-body MRI. Phát hiện sớm, tiên đoán tiến triển bệnh nhưng cần thêm nghiên cứu để ứng dụng vào thực hành lâm sàng.

Home > Clinical and Experimental Medicine > Article

Value of semi-quantitative scoring based on musculoskeletal ultrasound in diagnosis and disease assessment of gouty arthritis

Research | Open access | Published: 12 February 2025

Volume 25, article number 56, (2025) Cite this article

Semi-quantitative scoring method [11]: ① Joint Effusion Score: 0 points, no effusion; 1 point, minimal effusion; 2 points, moderate effusion without joint capsule swelling; 3 points, large effusion with joint capsule swelling. ② Synovitis GSUS Score: 0 points, no synovial proliferation; 1 point, synovial proliferation below the highest line of the bone surface; 2 points, synovial proliferation extending outside the joint cavity but not involving the bone shaft; 3 points, synovial proliferation extending beyond the joint cavity, involving the bone shaft. ③ Bone Erosion Score: 0 points, intact cortical bone; 1 point, irregular bone surface without defects in two planes; 2 points, rough surface with discontinuous cortical bone signal in two planes; 3 points, extensive bone destruction. ④ Tendon/Tendon Sheath Inflammation Score: 0 points, no hyperechoic proliferation; 1 point, hypoechoic proliferation around the tendon.

Nghiên cứu hồi cứu 90 bệnh nhân nghi ngờ viêm khớp gout với so sán kết quả siêu âm bán định lượng với kết quả chọc dò dịch khớp và MRI. Siêu âm đạt độ nhạy/specificity cao (92–98%)

> Front Microbiol. 2025 Apr 9:16:1526690. doi: 10.3389/fmicb.2025.1526690. eCollection 2025.

Clinical efficacy of probiotic supplementation in the treatment of knee osteoarthritis: a meta-analysis

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Affiliations + expand

PMID: 40276226 PMCID: PMC12020436 DOI: 10.3389/fmicb.2025.1526690

Abstract

Background: We aimed to systematically evaluate and analyze the clinical efficacy of oral probiotics in the treatment of knee osteoarthritis (KOA) based on the theory of "gut-joint axis."

Methods: We searched PubMed, The Cochrane Library, Embase, China Knowledge Network (CNKI), Wanfang Database, and Wipro Database (CQVIP) databases for clinical randomized controlled trials of oral probiotics for the treatment of KOA. The literature was organized by Note express software, and the quality of the included literature was evaluated according to the Cochrane systematic evaluation method, and meta-analysis was performed using RevMan 5.4 software.

Results: Five randomized controlled trials with 694 participants were included in this study, and the results of the meta-analysis showed that the observation group experienced significant reductions in

Meta-analysis từ 9 RCT (tháng 4/2025), đánh giá probiotic đường uống. Kết quả cho thấy giảm đau và cải thiện chức năng khớp gối, khả quan dưới dạng bổ trợ điều trị tiềm năng.

> Front Pharmacol. 2025 Mar 19:16:1567544. doi: 10.3389/fphar.2025.1567544. eCollection 2025.

Metformin as a disease-modifying therapy in osteoarthritis: bridging metabolism and joint health

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Affiliations + expand

PMID: 40176893 PMCID: PMC11962732 DOI: 10.3389/fphar.2025.1567544

Đề xuất metformin không chỉ kiểm soá
đường huyết mà còn có tác dụng giảm
viêm khớp, bảo vệ sụn, cải thiện triệu
chứng OA. Mở ra hướng "drug
repurposing" với thuốc tồn tại lâu dài,
an toàn.

Abstract

Background: Osteoarthritis (OA) and impaired glucose tolerance (IGT) frequently coexist, leading to compounded clinical and metabolic challenges. This study investigates the effects of metformin in improving both clinical outcomes (pain, stiffness, physical function) and metabolic parameters (inflammatory markers, lipid profile, BMI) in patients with knee OA and IGT.

Methods: The study included 60 patients diagnosed with knee OA and IGT. Participants were divided into two groups: 26 patients received standard OA treatment without metformin (Without Metf), while 34 received metformin (500 mg twice daily) for 3 months, in addition to standard treatment (With Metf). Clinical assessments (WOMAC, Lequesne Algofunctional Index, KOOS, VAS) and metabolic markers (CRP, NLR, SOD, lipid profile, BMI) were measured before treatment, after 1 month, and after

Open Access Systematic Review

Texture Analysis in Musculoskeletal Ultrasonography: A Systematic Review

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Diagnostics **2025**, *15*(5), 524; https://doi.org/10.3390/diagnostics15050524

Submission received: 15 January 2025 / Revised: 16 February 2025 / Accepted: 19 February 2025 / Published: 21 February 2025

Đây là bài tổng quan đầu tiên cập nhật đến tháng 1/2025, tập trung vào phân tích texture dạng thứ hai và cao hơn trên ảnh siêu âm B-mode cơ-xương-khớp.

Mặc dù chưa so sánh trực tiếp với gold standard như sinh thiết, bài đánh giá cho thấy khả năng phân biệt rõ chất lượng và thay đổi vi mô ở cơ dưới nhiều bệnh lý và sau can thiệp phục hồi chức năng.

Tuy nhiên, còn cần chuẩn hóa giao thức quét và đánh giá độ nhạy, độ đặc hiệu

Review > Invest Radiol. 2025 Mar 1;60(3):184-197. doi: 10.1097/RLI.0000000000001133.
Epub 2024 Oct 23.

Three-Dimensional Magnetic Resonance Imaging in the Musculoskeletal System: Clinical Applications and Opportunities to Improve Imaging Speed and Resolution

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PMID: 39437020 DOI: 10.1097/RLI.0000000000001133

Bài review này trình bày cách thức ứng dụng MRI 3D vào hệ cơ-xương-khớp, với các kỹ thuật cải thiện tốc độ quét và độ phân giải. Nhấn mạnh vai trò trong phát hiện sớm các tổn thương khớp, gân, dây chằng... đồng thời đề xuất giải pháp tối ưu hóa workflow trong lâm sàng

Abstract

Although conventional 2-dimensional magnetic resonanc
comprised the foundational imaging strategy for visualiza
pathology, the emergence of isotropic volumetric 3-dime
musculoskeletal evaluation with comparatively similar ima
shorter acquisition times, and the added advantages of im
reformation capability. The purpose of this review article i
MR sequences and their role in the management of patie