RI-S01

Musculoskeletal Ultrasound in Myositis and Scleroderma

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Ultrasound has been applied widely in autoimmune diseases and mostly in inflammatory arthritis. However, the clinical utility of this non-invasive, safe, real-time, reproducible, and cost-effective examination without radiation concerns has been less reported in patients with myositis and systemic sclerosis than in inflammatory arthritis. In experienced centers, musculoskeletal ultrasound has been used to assist in the diagnosis of various muscle conditions and even neuromuscular disorders. Besides, its potential for follow-up of the clinical condition is also expected. For systemic sclerosis, ultrasound has been extensively researched in the study of skin thickness and digital ulcers, but its adoption into clinical practice is not very common. The possible clinical role of echography in the evaluation and follow-up of digital ulcers, vascular changes, and cutaneous changes in patients with systemic sclerosis is still anticipated. The development of elastosonography further raises the interest in further studies and potential application in the two diseases. This talk will review the latest advancements in ultrasound applications in myositis and systemic sclerosis.

RI-S02

Musculoskeletal Ultrasound in Spondyloarthritis

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A. The EULAR recommendations for the use of ultrasound and other imaging in the clinical diagnosis and management of spondyloarthritis (SpA) in different aspects:
   1. Axial SpA:
      (a) MRI of the SI joints is recommended for diagnosis.
      (b) MRI of the SI joints and/or the spine is recommended to monitoring activity.
      (c) Conventional radiography of the SI joints and/or spine may be used for long-term monitoring of structural damage. MRI may provide additional information of structural changes.
   2. Peripheral SpA
      (a) Ultrasound (US) or MRI may be used to detect peripheral enthesitis, which may support the diagnosis of SpA. US or MRI might be used to detect peripheral arthritis, tenosynovitis and bursitis for diagnosis.
      (b) US and MRI may be used to monitor disease activity, particularly synovitis and enthesitis.
      (c) MRI and US might provide additional information monitoring structural changes.
B. The advantages of ultrasonography may help in several aspects:
   1. Studies of the US assessment of active sacroiliitis.
   2. The differential diagnosis of inflammation at peripheral joints and tendons.
      (a) Arthritis, tenosynovitis, bursitis, and enthesitis.
      (b) Identify and differentiate “Enthesitis” with ultrasound.

Reference:

1. Mandl, P., et al., EULAR recommendations for the use of imaging in the diagnosis and management of spondyloarthritis in clinical practice. 2015. 74(7): p. 1327-39.

RI-S03

Ultrasound-guided Needle Biopsy for Musculoskeletal Diseases

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Soft tissue biopsy is a valuable procedure for diagnosis of certain musculoskeletal diseases, such as tumor, tuberculosis and myositis, and is also an important tool for research of inflammatory arthritis. Synovial hypertrophy with inflammation is the main characteristics of inflammatory arthritis. Synovium is usually the area where the disease pathogeneses take place, for example, synovial lymphocytes infiltration and angiogenesis are found in cases with rheumatoid arthritis. Thus synovial histology provides diagnostic clues and aids in assessment of disease activity and therapeutic response. However, current synovial biopsy methods such as arthroscopy and blind needle biopsy are not optimal (inconvenience in the former and sampling error in the latter). Instead, core needle biopsy with ultrasound guidance takes the advantages of mini-invasiveness, convenience, simple and reliable procedure, and lower cost. We will share our experience in ultrasound-guided synovial biopsy using a semi-automatic core needle instrument and review the literature in this interesting field.

RI-S04

Musculoskeletal Ultrasound in Systemic Lupus Erythematous

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Musculoskeletal (MSK) manifestations are the leading symptoms in approximately 50% of lupus cases, affecting upt o 95% of patients in the life time. Lupus MSK symptoms include arthritis, tenosynovitis, enthesitis, migratory arthralgia or other non-specific symptoms. Current disease activity assessment tool of SLEDAI and BILAG 2004, based on clinical detection of inflammatory joints, may fail to distinguish subclinical synovitis. Ultrasound seems to fill the gap to assess the joints and tendon in a more sensitive and specific manner. Application of ultrasound in rheumatoid arthritis and psoriatic arthritis has been successfully validated in previous research, confirming to be a reliable tool for disease activity assessment, but the data regarding lupus is scarce and limited. Previous research revealed the clinical joint assessment may underrate the synovitis severity in lupus. A study had showed that 27% of lupus associated synovitis is only detected by ultrasound, and ultrasound-detected synovitis is more significantly associated with tender joint count, serum IgG level and pain scale (1). Another study also demonstrated the US-detected synovitis is more responsive to treatment in lupus patients, after excluding those with fibromyalgia (2). During this presentation, we would introduce the sonographic features of lupus associated MSK manifestations, and clinical evidence.

1. Zayat AS, Mahmoud K, Md Yusof MY, Mukherjee S, D'Agostino MA, Hensor EMA, et al. Defining inflammatory musculoskeletal manifestations in systemic lupus erythematosus. Rheumatology (Oxford). 2019;58(2):304-12.
2. Mahmoud K, Zayat AS, Yusof MYM, Dutton K, Teh LS, Yee CS, et al. Ultrasound to identify systemic lupus erythematosus patients with musculoskeletal symptoms who respond best to therapy: the US Evaluation For mUsculoskeletal Lupus longitudinal multicentre study. Rheumatology (Oxford). 2021;60(11):5194-204.