RI-01 Scenario-based POCUS in Rheumatic Disease

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Point-of-care ultrasound (POCUS) has emerged as a valuable tool in the management of rheumatic diseases. This imaging technique offers real-time insights, aiding in the diagnosis and monitoring of various conditions like rheumatoid arthritis, psoriatic arthritis, and gout. POCUS can detect synovitis, effusions, and erosions, enhancing clinical decision-making and reducing diagnostic delays. In scenarios such as acute joint swelling or suspected soft tissue involvement, POCUS provides immediate, bedside evaluations, improving patient outcomes. Its non-invasive nature and portability make it ideal for diverse clinical settings, promoting timely and accurate interventions in rheumatic disease management.

RI-02

Musculoskeletal Ultrasound in Common Rheumatic Diseases: Ultrasound Evaluation of Lymphadenopathy in Inflammation/Infection Diseases

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Lymphadenopathy is a clinical diagnostic challenge with potential etiologies ranging from infectious, malignant and inflammatory diseases. From the pathogenesis point of view, the lymph node is where the expansion of the adaptive immune cell population after antigenic challenge is located. Lymphadenopathy is common in rheumatological and autoimmune diseases. Intriguingly, lymphadenopathy observed in rheumatology practice should always consider malignancy and infection as the primary causes.

Ultrasound is an accessible tool for investigating lymphadenopathy and sensitive for differentiating benign and malignant lymphadenopathy. The advantage to freely-rotate and define nodal internal architecture makes ultrasound exceptional to other image modalities when assessing lymph nodes. While no single sonographic criterion differentiates the etiology of lymphadenopathy, the characteristic gray-scale and color Doppler features, in combination with the appropriate clinical history, provide valuable clues for diagnosis.

In this session, we will dive into the details of ultrasound characteristics of lymph nodes. Last but not least, several lymphadenopathy cases of various etiologies with characteristic ultrasound features will be discussed.

RI-03 Ultrasound and the Prognosis in Rheumatoid Arthritis

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Musculoskeletal ultrasound is more sensitive and specific than clinical examination in detecting synovial in flammation; nonetheless, its role in the follow-up of RA patients is controversia. Ultrasound is increasingly used in clinical practice for diagnosis and follow-up of these patients;

The pivotal role of ultrasound when evaluating synovial inflammation and when identifying RA patients at higher risk of relapse were confirmed.

RI-04 Ultrasound in Immune-mediated Skin Diseases

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Autoimmune diseases with cutaneous manifestations or immune-mediated skin diseases are chronic disorders characterized by inflammation and damage in cutaneous or connective tissue resulting from dysregulated immune responses, which can significantly compromise patients' physical and psychological health. The diagnosis and assessment are previously limited by the lack of non-invasive and reproducible tests. High-frequency ultrasound (HFUS) is a non-invasive, reproducible technique capable of visualizing superficial fine structures. As HFUS was proven to provide sufficient details for morphological analysis of skin, it has been increasingly used to diagnose and monitor various skin diseases in recent years, making it a promising tool for dermatological assessments. While its utilization in dermatology is becoming more common, diagnostic and assessment methods for immune-mediated skin diseases have not been fully structured or standardized, hindering the development of effective disease monitoring and control strategies.

In this talk, we will have an overview of the clinical utilization of HFUS in dermatological assessment, followed by the updated review of the application in immune-mediated skin diseases, including scleroderma/systemic sclerosis, psoriasis, dermatomyositis, systemic lupus erythematosus, pemphigus, pemphigoid, and atopic dermatitis. This review also highlights the features of HFUS imaging and their correlated disease pathology clinical implications in immune-mediated skin diseases, aiming to provide new insights and strategies for diagnosis, staging, therapeutic assessment, and prognosis prediction, to optimize benefits for clinical practice.

RI-F01

Ultrasound-Assisted Diagnosis and Intervention in Juvenile Idiopathic Arthritis: A Case Report

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Background: Diagnosis and managing juvenile idiopathic arthritis can be challenging.

Materials and methods: We reports a case of ultrasound implication in diagnosis and management of juvenile idiopathic arthritis.

Results: A 15-year-old boy came with paroxysmal left hip pain for a year with symptoms deterioration in the past two weeks. The symptom was alleviated with acetaminophen and acupuncture in the past but not so effective this time. On presentation, the patient had claudication and tenderness on the anterior and lateral left hip with limited range of motion. He did not have fever or cutaneous lesions. The hip X-ray was unremarkable, and the initial blood exam revealed C reactive protein 7.19 mg/dl and an erythrocyte sedimentation rate 53 mm/hour. He was admitted for an arthritis evaluation, and empiric antibiotics were given for possible septic arthritis. Thereafter, he had a rheumatology consultation and ultrasound evaluation. The left hip ultrasound revealed grade 2 effusion and grade 1 synovial hypertrophy without significant power Doppler sign. An ultrasound-guided arthrocentesis was performed with 6.1 ml of clear yellow synovial fluid drained. The fluid analysis showed elevated white cell count of 13084 /µl with 62% neutrophils, 21% macrophages and 12% lymphocytes. Crystals of synovial fluid were not observed under polarized light microscopy. Diclofenac was prescribed for inflammation attenuation. The patient had improved left hip range of motion right after arthrocentesis with a pain visual analogue scale reduction from seven to two. The synovial fluid was negative for bacterial and fungus cultures. Immunologically, the patient had an anti-nuclear antibody 1:80 with a dense fine speckled pattern and positive for human leukocyte antigen B27. He had a tentative diagnosis of juvenile idiopathic arthritis and was discharged with follow-up at pediatric rheumatology.

Conclusion: Ultrasound exams and guided procedures can strengthen diagnosis and management in juvenile idiopathic arthritis.