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Imaging in Systemic Sclerosis: *make "US" great again?*

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Dear Editor,

In this issue of *Arthritis Care & Research*, T. Santiago and colleagues **[1]** have conducted an informative systematic literature review on the relevance of ultrasound (US) for the assessment of skin involvement in systemic sclerosis (SSc). In this *Original Article*, the authors highlight the heterogeneous results concerning the reliability of US in studies published to date, but also underscore very promising data from recently published articles **[2]**. Moreover, this work raises the issue considering US evaluation as an interesting alternative to mRSS for skin assessment in SSc. Therefore, beyond imaging considerations, this article questions the place of US evaluation in the global management of SSc. This topic is still a controversial matter as new assessment technics are emerging for microvascular, macrovascular and musculoskeletal evaluations in SSc **[3,4]**.

Nonetheless, a central question remains concerning these new evaluation tools for this disease: new imaging technologies may come, indeed, but for what purpose in the end?

In addressing this issue from a purely descriptive perspective, as the question of reframing and reshaping phenotypes in SSc is arising **[5]**, US evaluation may offer a more precise description of vascular and musculoskeletal manifestations of the disease. This is all the more relevant as always more performant probes (>18Mhz) lead to always more precise descriptions and high-quality images. US characterization of these manifestations, combined with a precise clinical phenotyping **[6]** may help to enlarge the current view of SSc bringing the disease into the "technicolor" enriched vision of SSc suggested by Ligon and Wigley **[5]**. Beyond echocardiography and the detection of Pulmonary Arterial Hypertension, US may also have a part to play in the early detection of visceral manifestations of the disease such as lung fibrosis, as suggested by recent studies evaluating the diagnostic performances of US in this field **[7]**.

In a concrete and practical approach, US may be one step ahead of many assessment tools as it is both widely available and non-invasive/non-irradiating. The issue of reproducibility and observer-dependent reliability may be easily addressed when US evaluation is performed by a trained rheumatologist **[8]**. As musculoskeletal US assessment is now included in many training programs for young Rheumatologists, switching from joints to other organs might be all the easier. Further studies are nonetheless needed to sketch simple and reproducible consensual evaluation criteria, constituting the first step for a coordinate initiative to homogenize practices concerning vascular, skin, lung and musculoskeletal US evaluation in SSc. This step is essential to foster future multi-centric studies.

From a rheumatologic perspective, US assessment may deserve a specific attention as it could have a part to play in the management of SSc in the future. Considering hand evaluation, one of the main challenges for clinicians dealing with SSc, is the multiplicity of causes that lead to hand functional disability **[9,10]**: skin roughness limiting mobility; Raynaud phenomenon, digital ulcers, calcinosis or acro-osteolysis hindering precise gripping; synovial or tenosynovial involvement responsible for friction rubs and pain… Deciphering the cause of pain itself can also be challenging in SSc patients. Arthralgia or joint pain can result from numerous and co-existing causes, ranging from specific inflammatory synovitis to sclerotic tenosynovitis, mechanical digital ulcers, osteoarthritis or intra-articular calcinosis. Understanding the precise cause of pain and disability is also a central question as it may lead to a guided and more adapted therapeutic management. US offers the unique opportunity of combined and simultaneous dynamic evaluations of vascular, musculoskeletal and skin involvement: a single tool to assess a multi-causal impairment **[11]**.

In addressing the issue of new imaging technics in SSc, one must not forget that clinical evaluation must remain the keystone for the management of SSc patients. Nonetheless, clinical examination may rise unsolved questions that could be answered through US assessment.

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