

## RE: Few Comments on: “Musculoskeletal Applications of Elastography: A Pictorial Essay of Our Initial Experience”

Luca Maria Sconfienza<sup>1</sup>, Davide Orlandi<sup>2</sup>,  
Stefano Longo<sup>3</sup>, Enzo Silvestri<sup>4</sup>

<sup>1</sup>Servizio di Radiologia, IRCCS Policlinico San Donato, Via Morandi 30, San Donato Milanese, Milano 20097, Italy; <sup>2</sup>Scuola di Specializzazione in Radiodiagnostica, Università degli Studi, Viale Benedetto XV 6, Genova 16132, Italy; <sup>3</sup>Department of Sport, Nutrition and Health Sciences-Università degli Studi di Milano, Via Kramer 4/A, 20129 Milano, Italy; <sup>4</sup>Servizio di Radiologia, Ospedale Evangelico Internazionale, Corso Solferino 1A, Genova 16122, Italy

Dear Editors:

We read with great interest the dispute (1) about the paper by Lalitha et al. (2) that was published in the September/October 2011 issue of the Korean Journal of Radiology, partially agreeing with the criticisms that were raised (1).

Sonoelastography evaluation of the supraspinatus tendon can be considered easy to do from a practical point of view. However, its outcome becomes highly unreliable at the periphery of the image, where the applied compression force is markedly reduced due to the curvilinear course of the tendon. This can be clearly seen in Figure 4 of the paper (2), where sonoelastography demonstrated a patchy pattern (blue on the left, green on the right) in a supposedly healthy supraspinatus tendon (although

Received October 18, 2011; accepted after revision October 20, 2011.

**Corresponding author:** Luca Maria Sconfienza, Servizio di Radiologia, IRCCS Policlinico San Donato, Via Morandi 30, 20097 San Donato Milanese, Milano, Italy.

• Tel: 39 02 5277 4468 • Fax: 39 02 5277 4925

• E-mail: [io@lucasconfienza.it](mailto:io@lucasconfienza.it)

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

the sonoelastography image does not represent the same coronal section shown on the magnetic resonance image). This unreliability is also partially witnessed by the fact that no papers have been published in peer-reviewed journals about this specific topic. Also, while Achilles tendons can be scanned with the patient lying prone on a bed at complete rest (3), the supraspinatus tendon must be fully extracted from its physiological position to be scanned. This implies that the patient should put his hand in his backpocket or behind his back so that the tendon is in tension. Both conditions cannot be reliably reproduced in different subjects. Finally, we note that Lalitha and his colleagues scanned more than 300 normal and abnormal tendons with some magnetic resonance correlation (1), but this seems not to be enough to draw any reliable conclusion about the role of sonoelastography in this setting.

Sonoelastography evaluation of soft tissue focal nodules in different rheumatologic conditions has been reported (4). However, a random scanning of soft tissue lesions of different origins seems to be senseless. While it can seem intuitive that a ganglion cyst has different elasticity compared to surrounding soft tissues, what is the clinical value of such an observation? How can the similar patchy appearance of a ganglion cyst Figure 11 of the paper [2] and an ulnar neuritis Figure 14 of the paper [2] (2) be explained? A pictorial essay should be aimed at reviewing imaging features that have already been established and not at presenting a series of random cases encountered in daily routine.

### REFERENCES

1. Srinivasan S, Dubey N. Re: Musculoskeletal applications of elastography: a pictorial essay of our initial experience. *Korean J Radiol* 2011;12:646; author reply 647
2. Lalitha P, Reddy MCh, Reddy KJ. Musculoskeletal applications of elastography: a pictorial essay of our initial experience. *Korean J Radiol* 2011;12:365-375
3. Sconfienza LM, Silvestri E, Cimmino MA. Sonoelastography in the evaluation of painful Achilles tendon in amateur athletes. *Clin Exp Rheumatol* 2010;28:373-378
4. Sconfienza LM, Silvestri E, Bartolini B, Garlaschi G, Cimmino MA. Sonoelastography may help in the differential diagnosis between rheumatoid nodules and tophi. *Clin Exp Rheumatol* 2010;28:144-145

## Response

Niraj Dubey, MD, FRCR<sup>1</sup>,  
Sivasubramanian Srinivasan, MD, FRCR<sup>2</sup>

<sup>1</sup>Consultant, Department of Diagnostic Radiology, Khoo Teck Puat Hospital, Singapore 768828; <sup>2</sup>Registrar, Department of Diagnostic Radiology, Khoo Teck Puat Hospital, Singapore 768828

Dear Editors:

With reference to the interesting discussion generated by the above topic (1, 2) we would like to emphasize that our observations are in the early stages with regards to the supraspinatus tendon. The literature too is quite sparse, and it may be somewhat premature to categorically state the efficacy of sonoelastography of the supraspinatus tendon.

We are in agreement with Sconfienza L M that there are significant difficulties in achieving adequate compression at the edges of the transducer and that the curvilinear nature of the tendon renders the technique all the more challenging. In our limited experience we have found that it is much easier to apply a uniform compression in the transverse orientation as compared to the longitudinal one. We also agree that, to achieve full exposure of the tendon it must be taken out from under the subacromial arch, thus putting it under stress. It is also agreed that the longitudinal and transverse orientations of the ultrasonography (US) scan are not similarly aligned in the magnetic resonance (MR) imaging and therefore comparison with MR imaging may not be entirely accurate. It must however be emphasized that at present, in the absence of a better alternative, MR imaging of the shoulder should

continue to be considered the gold standard for comparison. Clinical examination has been considered in several areas (3) as the comparison standard, which in our view is clearly inferior to MR imaging taking into consideration the consistent differences in clinical assessment between different observers.

Finally, we feel that the clinical value of sonoelastography of the supraspinatus tendon will only be validated if it is able to offer a substantial advantage in the diagnosis of lesions with poor or indeterminate imaging features (on gray scale US or MR imaging) such as tendinosis where a softening, if reliably detected early, will surely be of clinical significance in the management. Accurate and dependable imaging methods (2-D dynamic US and MR imaging) are already available for diagnosing well-defined supraspinatus tears, while the value of detection or confirmation of well-defined tears by elastography is doubtful.

## REFERENCES

1. Lalitha P, Reddy MCh, Reddy KJ. Musculoskeletal applications of elastography: a pictorial essay of our initial experience. *Korean J Radiol* 2011;12:365-375
2. Srinivasan S, Dubey N. Re: Musculoskeletal applications of elastography: a pictorial essay of our initial experience. *Korean J Radiol* 2011;12:646; author reply 647
3. De Zordo T, Lill SR, Fink C, Feuchtner GM, Jaschke W, Bellmann-Weiler R, et al. Real-time sonoelastography of lateral epicondylitis: comparison of findings between patients and healthy volunteers. *AJR Am J Roentgenol* 2009;193:180-185