



Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en



Correspondence

Periscapular muscle ultrasound as a diagnostic aid in scapular winging secondary to long thoracic nerve lesion. Comment on “Magnetic resonance imaging of dynamic scapular winging secondary to a lesion of the long thoracic nerve” by Nguyen et al. and on “A case of traumatic long thoracic nerve suffering: High-frequency ultrasound finding” by Coraci et al



ARTICLE INFO

Keywords:

Scapular winging
 Long thoracic nerve
 Serratus anterior muscle
 Ultrasound

We have read with interest the papers by Nguyen et al. [1] and by Coraci et al. [2]. In cases presented by Nguyen et al, magnetic resonance imaging (MRI) findings showed denervation signs of serratus anterior muscle (SAM), suggesting long thoracic nerve (LTN) lesion. In the case presented by Coraci et al, ultrasound (US) evaluation of the LTN showed the impairment of the nerve at the side with scapular winging. While both of the authors concluded that MRI may be considered as a completion of clinical and neurophysiological examination in cases of LTN injury, Coraci and colleagues also suggested the use of nerve US with the same purpose. We

totally agree with the authors. However, we also want to draw the readers' attention to the importance of US evaluation of periscapular muscles in these patients. Recently, Krzesniak-Swinarska et al. described the general neuromuscular US principles for evaluation of scapular winging [3]. Immediate side-to-side comparisons of the periscapular muscles by the US can show increased echo-intensity and decreased muscle bulk when there is muscle denervation at the pathologic side [4].

A 23-year-old male presented with 3-month history of neck and right shoulder pain, and inability to elevate his right shoulder. He was a ceiling painter and had been working hard for the last 8 months. He had previously visited two orthopaedic surgeons, and two neurologists and was diagnosed as having scapular winging due to acute brachial neuritis according to electrophysiologic evaluation. After lumbar puncture and scapular surgery had been scheduled, the patient was referred to our physical medicine and rehabilitation outpatient clinic for rehabilitation. Physical examination revealed more superior and medial displacement of the right scapula without obvious atrophy of the periscapular muscles. Superior translation and lifting of the medial border of the scapula off the posterior thoracic wall was accentuated by active shoulder flexion and pushing against the wall (Fig. 1). There was limited active shoulder flexion and abduction with pain at the end-ranges. Considering these typical findings, we performed US with pre-diagnoses of SAM palsy. When we compared the thicknesses of the upper trapezius, supraspinatus, rhomboid and serratus anterior muscles of the pathologic side with the normal side, a significant



Fig. 1. Patient from back (A) more superior and medial displacement of the right scapula when arms are at rest (B) superior translation and lifting of the medial border of the scapula off the posterior thoracic wall with active shoulder flexion.

<https://doi.org/10.1016/j.jbspin.2018.09.016>

1297-319X/© 2018 Published by Elsevier Masson SAS on behalf of Société française de rhumatologie.

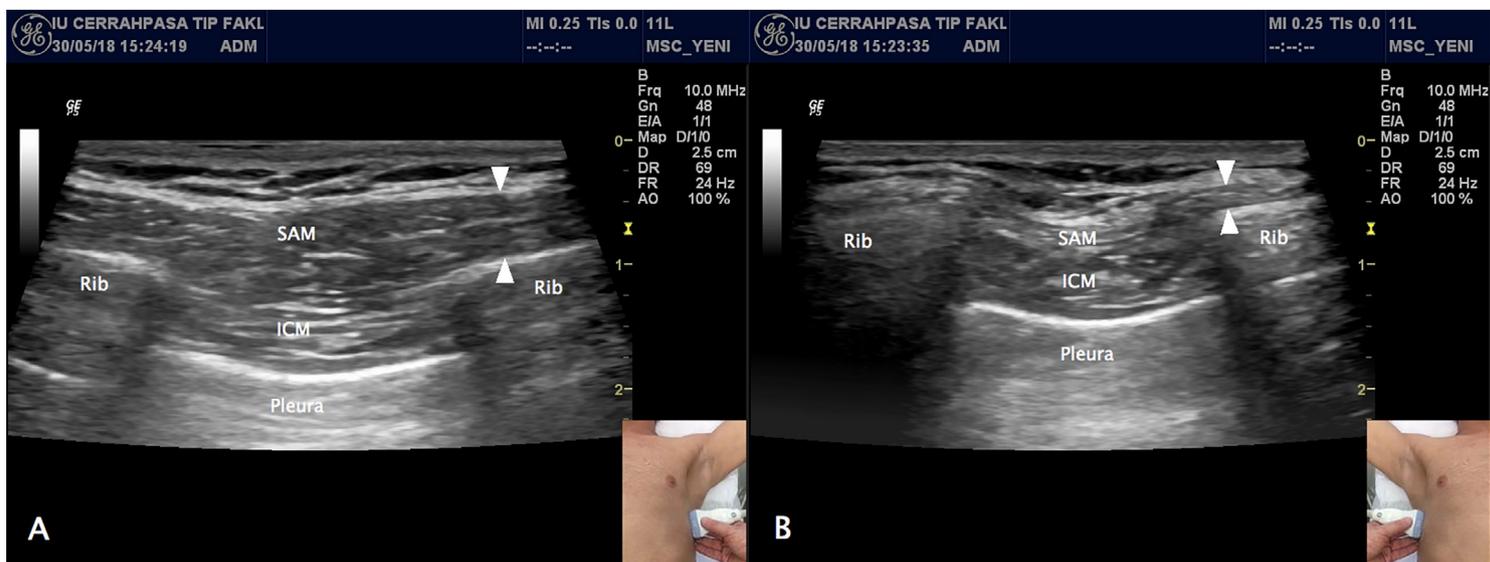


Fig. 2. Ultrasound image of the (A) left and (B) right serratus anterior muscle (between the arrowheads) SAM: serratus anterior muscle, ICM: intercostal muscle.

decrease in SAM thickness, which supported our diagnosis, was observed (Fig. 2). In order to confirm the diagnosis and revise the treatment plan, electroneuromyography for the SAM was ordered, and intensive denervation potentials in the right SAM, indicating severe axonal damage of the right LTN was observed. Then, conservative treatment to allow time for spontaneous recovery was started.

Our case confirms that US is a valuable diagnostic modality especially in challenging situations of scapular winging whenever clinical findings and/or electrophysiological evaluations are confusing. In these cases, US of the periscapular muscles is an easier option than nerve US, which requires more experience and detailed anatomic knowledge. It is also an inexpensive and more practical option than MRI. Although US does not give adequate information about nerve function like electroneuromyography, we believe that periscapular muscle and nerve US may be used as an initial diagnostic aid after a careful history and detailed physical examination in patients with scapular winging.

Disclosure of interest

The authors declare that they have no competing interest.

Acknowledgment

We would like to thank Gulay Palamar for her technical support.

References

- [1] Nguyen C, Guerini H, Zauderer J, et al. Magnetic resonance imaging of dynamic scapular winging secondary to a lesion of the long thoracic nerve. *Joint Bone Spine* 2016;83:747–9.
- [2] Coraci D, Romano M, Paolasso I, et al. A case of traumatic long thoracic nerve suffering: High-frequency ultrasound finding. *Joint Bone Spine* 2017;84:505–6.
- [3] Krzesniak-Swinarska M, Caress JB, Cartwright MS. Neuromuscular ultrasound for evaluation of scapular winging. *Muscle Nerve* 2017;56:7–14.
- [4] Zaidman CM, Holland MR, Hughes MS. Quantitative ultrasound of skeletal muscle: reliable measurements of calibrated muscle backscatter from different ultrasound systems. *Ultrasound Med Biol* 2012;38:1618–25.

Tugce Ozekli Misirlioglu

Deniz Palamar*

Kenan Akgun

Department of Physical Medicine and Rehabilitation,
Istanbul University Cerrahpasa, Cerrahpasa Medical
Faculty, Istanbul, Turkey

*Corresponding author.

E-mail address: denizpalamar@gmail.com
(D. Palamar)

Available online 1 October 2018