Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Isolated musculocutaneous nerve involvement in COVID-19 related Neuralgic amyotrophy. Comment on: "Neuralgic amyotrophy and COVID-19 infection: 2 cases of spinal accessory nerve palsy" by Coll et al. Joint Bone Spine 2021;88:105196

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We read with interest the recently published article "Neuralgic amyotrophy and COVID-19 infection: 2 cases of spinal accessory nerve palsy" [1]. In this case report the authors reported two cases of neuralgic amyotrophy (NA), involving selectively the spinal accessory nerve, excluding other possible causes.

NA is defined as an acute and painful monophasic peripheral axonal neuropathy, with single or multiple nerve lesions that cause weakness, amyotrophy, and sensory loss in an asymmetric and patchy distribution, involving especially the upper limbs [2]. It is occasionally associated with weight loss and in some instances an antecedent viral illness or vaccination. This disease is characterized by a great variability on brachial plexus involvement including, in order of frequency, the upper trunk plexopathy, a lower trunk pattern, an isolated posterior interosseous nerve injury, a long thoracic neuritis, an isolated phrenic nerve palsy, a Musculocutaneous nerve (MCN) palsy with a Biceps, brachialis, coracobrachialis involvement pattern of weakness and an anterior interosseus neuritis [3]. MCN is frequently involved, but isolated MCN mononeuropathy is very rare in NA [4], with only few cases of fascicular MCN lesion, all with selective brachial muscle involvement, reported to date, and limited information on neuromuscular imaging findings [5,6].

A 46-year-old man, presented with a SARS-CoV-2 related cough and hyperpyrexia, first treated with hydroxychloroquine at home and subsequently hospitalized for respiratory insufficiency with the need for oxygen therapy using a CPAP helmet and after further respiratory deterioration transferred to the intensive care unit. The patient was extubated after 13 days for progressive clinical improvement. When discharged from the intensive care unit, the patient complained of pain in the left shoulder and presented upper limb weakness and progressive hypotrophy in particular of the brachial biceps. The first clinical neurological evaluation found only an isolated weakness of the brachial biceps muscle with F = 4 and the electrodiagnostic examination showed only much-reduced interference patterns and denervation signs in the left brachial biceps muscle to the needle examination. Finally, ultrasound (Fig. 1) and Magnetic resonance neurography (MRN) (Fig. 2) of the brachial plexus were performed showing an increase in the fascicular diameter and a characteristic multifocal damage of the MCN along its course in the context of the coracobrachialis muscle and between the coracobrachialis and biceps brachial. After a month of steroid therapy and subsequent tapering the patient totally recovered.

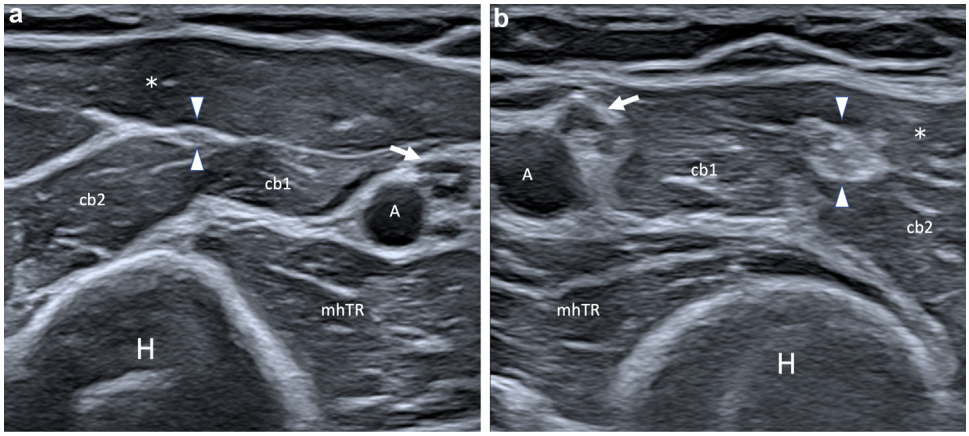

Fig. 1. High frequency Ultrasound (18–5 MHz) comparative short-axis scan of the left (image b) and right (image b) proximal arm. The musculocutaneous nerve (white arrowheads) in between the biceps muscle (white asterisk) and the two heads of coracobrachialis (cb1 and cb2) results enlarged with edematous fascicles in the affected arm (b): the pathologic changes in caliber and echotexture are more evident if compared with the contralateral musculocutaneous nerve (white arrowheads in a) and in relation with median nerve (white arrows). The biceps muscle in b is hypotrophic as consequence of denervation, without signs of fat atrophy. H=humerus; A=brachial artery; mhTR=Medial Head of Triceps.

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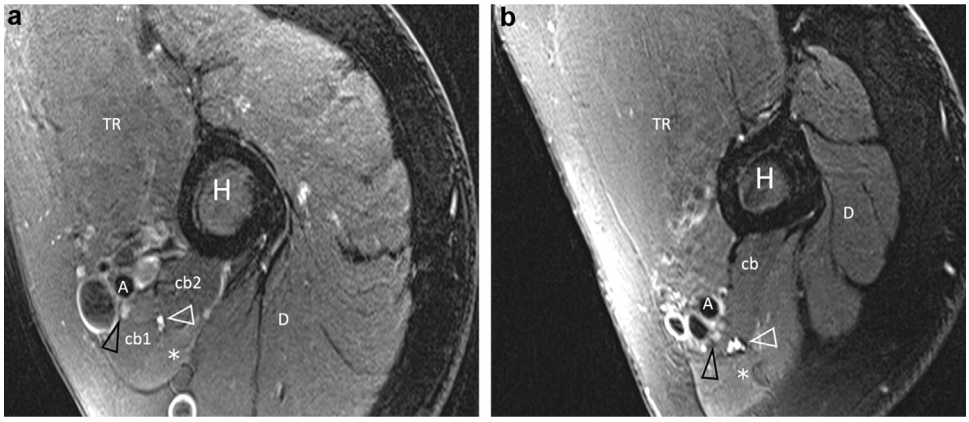

Fig. 2. Axial MR image, T2-weighted sequence with chemical-shift fat saturation obtained at two different levels of the affected arm, at the proximal one third (image a) and between proximal and middle third (image b). The musculocutaneous nerve (white void arrowhead) is seen in between the two heads of coracobrachialis muscle (cb1, cb2) in a and in between the biceps (white asterisk) and coracobrachialis (cb)muscles in b; the nerve appears swollen and with hyperintense fascicles respect to the median nerve (black void arrowhead). The hyperintensity of fascicles is a typical feature of inflammatory process involving the nerve and is related to intraneural oedema; in the Neuralgic Amyotrophy the pathologic changes are multifocal, as demonstrated by the different size of musculocutaneous nerve in a and in b. The biceps muscle (white asterisk) is slightly hyperintense due to denervation-related intramuscular edema. TR=triceps muscle; D=deltoid muscle; A=brachial artery; H=humerus.

In our case the diagnosis was certainly based on the clinical evaluation and on the patient's history but, unlike the two cases reported by Coll et al. in which, apart from the hyperintensity and atrophy of the denervated muscles, there were no alterations on nerve trunks, in our case the diagnosis was strongly confirmed by the imaging. In fact, MRN and high-resolution ultrasound have revealed nerve trunk pathologies most notably hourglass-like constrictions pathognomonic of this disease [7], thus excluding other conditions like compression due to prolonged prone positioning. This case therefore highlights the possibility of identifying a non-classical COVID-19-associated NA using mainly MRN, with isolated involvement of a nerve such as the MCN.

Disclosure of interest

The authors declare that they have no competing interest.

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