



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



ELSEVIER

Contents lists available at ScienceDirect

Joint Bone Spine

journal homepage: www.elsevier.com

Case report

Neuralgic amyotrophy and COVID-19 infection: 2 cases of spinal accessory nerve palsy

Clemence Coll^a, Muriel Tessier^{a,*}, Christophe Vandendries^{b,c}, Paul Seror^{d,e}^a Locomotor functional rehabilitation department, Robert-Ballanger hospital, boulevard Robert-Ballanger, 93602 Aulnay-sous-Bois, France^b Radiology department, fondation ophthalmologique de Rothschild, 29, rue Manin, 75019 Paris, France^c RMX-medical center, 80, avenue Felix-Faure, 75015 Paris, France^d Electroneuromyography laboratory, 146, avenue Ledru-Rollin, 75011 Paris, France^e Private hospital of eastern Paris, 93600 Aulnay-sous-Bois, France

ARTICLE INFO

Article history:

Accepted 12 April 2021

Available online 24 April 2021

Keywords:

COVID-19

Neuralgic amyotrophy

Parsonage–Turner syndrome

Spinal accessory nerve

Trapezius muscle palsy

Peripheral neuropathy

ABSTRACT

Objective: Neuralgic amyotrophy (NA), also known as Parsonage–Turner syndrome is often triggered by mechanical stress or viral infections. We reported 2 cases of shoulder weakness and amyotrophy related to spinal accessory nerve (SAN) palsy due to neuralgic amyotrophy occurring after COVID-19 infection.

Methods: For both patients, clinical history, clinical examination, electrodiagnostic (EDX), and imaging examinations invalidated other diagnoses but confirmed NA diagnosis.

Results: The NA involved only the SAN in both cases. EDX revealed a characteristic axonal lesion found in NA. SAN conduction study revealed normal latencies and low compound motor action potential amplitude for trapezius muscle when needle examination demonstrated a neurogenic pattern and denervation signs in the trapezius muscle. Both patient's MRI revealed denervation T2 hyper signal in impaired muscles, without any mass, cyst, injury, fibrous band, or tearing signs along SAN course.

Conclusions: The COVID-19 infection could be the trigger for NA as many other viruses, and as it is a possible trigger for Guillain–Barré syndrome.

© 2021 Société française de rhumatologie. Published by Elsevier Masson SAS. All rights reserved.

1. Introduction

The most frequent and serious symptoms due to COVID-19 infection are related to severe acute respiratory syndrome (SARS) [1]. Neurological disorders have also been described, which may involve the central and the peripheral nervous systems, from the most frequent and benign such as anosmia to the rare and severe Guillain–Barré syndrome (GBS) [1,2]. Neuralgic amyotrophy (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 [3]. As GBS, it is presumed to have autoimmune and inflammatory pathophysiology. It is usually triggered by mechanical stress or viral infections [3,4]. Three cases of neuralgic amyotrophy (NA) related to COVID-19 respiratory infections have been reported [5–7]. One was purely

sensitive [5], the second one involved supraspinatus, infraspinatus, teres minor, teres major, and trapezius muscles [6]; and the third one involved the median nerve [7]. Hereafter, we have reported two cases of NA involving spinal accessory nerve (SAN) following documented SARS related to COVID-19 infection.

2. Case reports

2.1. Case 1

A 63-year-old man presented with a SARS related to COVID-19 infection, documented by positive nasopharyngeal swab PCR and suggestive chest CT-scan. Coronavirus infection was treated with hydroxychloroquine, azithromycin, baricitinib, ceftriaxone, and dexamethasone. Due to worsening of respiratory distress, he required mechanical ventilation resuscitation for 6 weeks; first by orotracheal intubation, then by percutaneous tracheotomy. When discharged from the intensive care unit (ICU), the patient experienced a period of mental confusion and agitation [8,9]. Lumbar puncture, electroencephalogram, and neuro-imagings were normal. So, it is only one month after ICU discharge that the patient

* Corresponding author. Service de soins de suite et de réadaptation de l'appareil locomoteur, boulevard R.-Ballanger, 93600 Aulnay-sous-Bois, France.

E-mail addresses: clemence.coll@ght-gpne.fr (C. Coll), muriel.tessier@ght-gpne.fr (M. Tessier).