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Letter to the editor

COVID-19: A putative trigger for neuralgic amyotrophy



A 63-year-old man with medical history of diabetes mellitus presented with acute left shoulder pain that began three weeks after a first COVID-19 vaccination (AZD1222) in the left deltoid. The pain was severe, restricted to the left deltoid region and lasted for about three to four days. One week later, he developed left shoulder abduction weakness (Medical Research Council scale 1/5) and left arm external rotation defect, respectively related to supraspinatus and infraspinatus motor deficit, with no passive movement limitation. Neuralgic amyotrophy (NA) was retrospectively evoked when overt amyotrophy of the infraspinatus fossa and dynamic discrete scapular winging appeared. Magnetic resonance imaging (MRI) performed six weeks after pain onset found Short TI Inversion Recovery (STIR) hypersignal in the homolateral supraspinatus and infraspinatus muscles that evoked muscle edema.

The first electrodiagnostic (EDX) examination performed six weeks after onset revealed acute denervation in both left upper trapezius and anterior serratus muscles affirming spinal and long thoracic nerve injury in addition to suprascapular nerve lesion. Needle examination performed two months after onset, as part of EDX testing, revealed an acute denervation pattern in the left infraspinatus and supraspinatus muscles, respectively total and with early reinnervation signs, consistent with NA diagnosis. Given the late diagnosis, no steroids were administered. Physiotherapy was recommended. The patient received the second injection of the COVID-19 vaccination (AZD1222) with no additional side effect.

In the absence of any other potential cause, our patient's NA was considered as possibly related to COVID-19 vaccination. SARS-Cov2 is responsible for neurological manifestations from imprecise mechanisms. It is unclear whether it is related to molecular mimicry, small vessel vasculitis secondary to the cytokine release, hypercoagulable state, auto-immunity, direct effect of the virus, or several of these mechanisms combined [1]. Siepmann et al. discuss possible singularity of COVID-19-associated NA, more likely to cause pure sensory involvement, which remains to be confirmed [2]. The incidence of post-vaccination NA is considered to be very rare. A few cases of NA occurring after COVID-19 vaccination

have been reported so far [3]. Previously, NA cases following seasonal influenza vaccination have been reported (vaccine adverse effect reporting system database – VAERS). Exact relationships between NA and vaccination remain unproven but it could be in favor of some immunological mechanism as a trigger of NA. As demonstrated in our case and in the literature, paraclinical confirmation of NA (especially when a differential diagnosis is suspected) can be provided by different modalities, such as EDX or MRI [4,5]. In conclusion, physicians working in the field of COVID-19 should be aware of possible post-vaccination NA.

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Disclosure of interest

The authors declare that they have no competing interest.

REFERENCES

- [1] Balcom EF, Nath A, Power C. Acute and chronic neurological disorders in COVID-19: potential mechanisms of disease. *Brain J Neurol* 2021;awab302.
- [2] Siepmann T, Kitzler HH, Reichmann H, Barlinn K. Variability of symptoms in neuralgic amyotrophy following infection with SARS-CoV-2. *Muscle Nerve* 2021;63(1):E8–9.
- [3] Mahajan S, Zhang F, Mahajan A, Zimnowodzki S. Parsonage Turner syndrome after COVID-19 vaccination. *Muscle Nerve* 2021;64(1):E3–4.
- [4] Expert Panel on Neurologic Imaging, Bykowski J, Aulino JM, Berger KL, Cassidy RC, Choudhri AF, et al. ACR Appropriateness Criteria® Plexopathy. *J Am Coll Radiol JACR* 2017;14(5S):S225–33.
- [5] Van Alfen N. Diagnosing neuralgic amyotrophy: choosing the right test at the right time. *Muscle Nerve* 2017;56(6):1020–1.

G. Balloy*

A. Magot

G. Fayet

B. Bonnemain

Y. Péréon

Centre de Référence des Maladies Neuromusculaires AOC,
FILNEMUS, Euro-NMD, Hôtel-Dieu, CHU Nantes, 44093 Nantes,
France

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*Corresponding author.

E-mail address: gaelle.balloy@chu-nantes.fr (G. Balloy)