



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.



Letter to the Editor

Management of COVID-19 post-vaccine Bell's palsy in an outpatient



ARTICLE INFO

Keywords

Bell's palsy

MRI

COVID-19 vaccine side effects

Management

We are pleased that our article¹ piqued the interest of our colleagues² and provided us with the opportunity for a constructive discussion.

First, we would like to remark, our case aimed at emphasizing the role of brain magnetic resonance imaging (MRI) as a useful first-line tool in the evaluation of patients presenting with possible neurologic adverse reactions to anti-COVID-19 vaccines, to help the confirmation of the diagnosis or to rule out the possibility of a different diagnosis. Secondly, it should be noted that we described a real-life clinical scenario: despite the sudden onset of neurologic symptomatology, the patient did not access the Emergency Department for the fear of COVID-19 contagion³ but referred to her General Practitioner, who made the diagnosis of Bell's palsy based on the clinical presentation and prescribed a steroid treatment and a neurological evaluation which took place ten days later. At the visit time, the patient presented just an isolated left VII nerve palsy of lower motor neuron type, with a subjective slight improvement; if the patient had been evaluated at the symptoms onset, the diagnostic work-up would most likely have been different right away.

The option of a COVID-19 infection manifestation was not considered, as the patient regularly filled up the COVID-19 questionnaire at the visit admission and denied the presence and previous occurrence of flu-like and cold-like symptoms, fever, cough, headache, anosmia, ageusia, respiratory symptomatology, diarrhea, and any history of contacts with COVID-19 positive or suspected positive subjects.

The patient was also taking periodic antigenic swabs for the European green pass, one of which was performed six days before the vaccination date, and all were negative. Furthermore, we did not find in the literature any description of Bell's palsy as a unique isolated manifestation of COVID-19 infection.

The onset was not associated with general symptoms, including muscular pain, or malaise; the patient reported only a sensation of deep left laterocervical pain and stiffness of brief duration 12 h after the vaccination, which was considered of muscular origin due to the injection, therefore non-specific for the clinical presentation. Along with the left facial palsy, the patient experienced also slight difficulty in eating, holding liquids properly, and speaking; however, these symptoms were still judged compatible with the muscle incoordination due to the facial weakness and not the expression of a bulbar dysfunction. The patient did not report a real difficulty in swallowing solids or liquids, nor

disturbances such as nasal regurgitation or cough after swallowing. At the clinical examination, the speech was normally articulated and no dysphonia or changes in the timbre of voice were noticed. Tongue, oropharyngeal and palate motility were symmetric and within the normal limits, the rest of the neurological evaluation was unremarkable, and MRI did not demonstrate any abnormalities except the enhancement of the distal intracanalicular and labyrinth segment of the left facial nerve; the brainstem and the portion included of the other cranial nerves were normal. Given these observations, the patient's rapid improvement, and imaging findings consistent with the initial diagnosis of Bell's palsy, the possibility of Guillain-Barré syndrome was deemed unlikely, and we did not consider it necessary to perform an invasive examination such as CSF analysis or nerve conduction studies.

Concerning the short time between the vaccine and the onset of paralysis, we found two case reports describing a Bell's facial palsy at 24 h post-mRNA-1273 (Moderna) Vaccine administration,⁴ and at 5 h post-BNT162b2 vaccine (Pfizer),⁵ therefore with timing of side effect development like ours.

The precise mechanism of this early development is unknown; considering the manifestation within a few hours and the relatively rapid improvement, an inflammatory mechanism rather than a micro-ischemic/thrombotic etiology is more likely, but our considerations are purely speculative.

We used the term "Bell's palsy" for the case description, instead of peripheral facial palsy, as suggested by the colleagues, according to the use of this terminology in the WHO organization VigiBase⁶ referred to side effects of COVID-19 vaccinations, as in our case. We highlighted the temporal relationship between vaccination and onset of facial weakness but, as described in similar cases in the literature, a direct correlation could not histopathologically be proven.

We thank again the colleagues for their interesting comments and the possibility of this exchange of views.

Declaration of competing interest

Authors declare no conflicts of interest.

<https://doi.org/10.1016/j.clinimag.2021.12.006>

Received 8 December 2021; Accepted 9 December 2021

Available online 24 December 2021

0899-7071/© 2021 Elsevier Inc. All rights reserved.

References

1. Cellina M, D'Arrigo A, Floridi C, Oliva G, Carrafiello G. Left Bell's palsy following the first dose of mRNA-1273 SARS-CoV-2 vaccine: a case report. *Clin Imaging* 2021 Nov;4(82):1–4. <https://doi.org/10.1016/j.clinimag.2021.10.010>.
2. Facial palsy 12 hours after a first Moderna jab requires pathophysiological disclosure and verification of causality. *Clin Imaging*.
3. Garrafa E, Levaggi R, Miniaci R, Paolillo C. When fear backfires: emergency department accesses during the Covid-19 pandemic. *Health Policy* 2020;124(12):1333–9. <https://doi.org/10.1016/j.healthpol.2020.10.006>.
4. Iftikhar H, Noor SMU, Masood M, Bashir K. Bell's palsy after 24 hours of mRNA-1273 SARS-CoV-2 vaccine. *Cureus* 2021;13(6):e15935. <https://doi.org/10.7759/cureus.15935>. Published 2021 Jun 26.
5. Burrows A, Bartholomew T, Rudd J, Walker D. Sequential contralateral facial nerve palsies following COVID-19 vaccination first and second doses. *BMJ Case Rep* 2021 Jul 19;14(7):e243829. <https://doi.org/10.1136/bcr-2021-243829>.
6. <http://www.vigiaccess.org/>.

Michaela Cellina^{a,*}, Andrea D'Arrigo^b

^a *Radiology Department, Fatebenefratelli Hospital, ASST Fatebenefratelli Sacco, Milano, Piazza Principessa Clotilde 3, 20121 Milano, Italy*

^b *Neurology Department, Fatebenefratelli Hospital, ASST Fatebenefratelli Sacco, Milano, Piazza Principessa Clotilde 3, 20121 Milano, Italy*

* Corresponding author.

E-mail address: michaela.cellina@asst-fbf-sacco.it (M. Cellina).