


Giant cell arteritis after COVID-19 vaccination/disease: suggestions for further shots?

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Sirs,

We read with great interest the article of Gabrielli and coll.¹ describing a case of giant cell arteritis (GCA) after COVID-19 mRNA vaccine and COVID-19 asymptomatic infection, since we had the opportunity to visit such a patient at our Institution.

Different infectious agents have been suggested to be involved in the pathogenesis of GCA, including Varicella-Zoster Virus, Epstein Barr Virus, Parvovirus B19 and Chlamydia pneumoniae²; more recently, the role of SARS-CoV-2 is also under investigation.

Several cases of GCA in SARS-CoV-2 infected patients have been described (Table 1). COVID-19 is known for its immune dysregulation and a strong association between interleukins and rheumatic diseases was found during the COVID-19 pandemic.³ for example, IL-6 and IL-17 showed association between polymyalgia rheumatica (PMR) and arthritis among COVID-19 patients.⁴ Oda et al. reported a case of adult large vessel vasculitis after SARS-CoV-2 infection⁵ and hypothesised, after a previous report on endothelial cell infection and endotheliitis in patients with COVID-19,⁶ that this infection and endotheliitis could have led to vasculitis. Furthermore, cases of aortitis linked to SARS-CoV-2 infection have been described.^{7,8}

Cases of GCA following SARS-CoV-2 vaccination have also been reported (Table 1). In a pharmacovigilance study using VigiBase, among 2,499,457 spontaneous reports with mRNA COVID-19 vaccines Mettler et al.⁹ identified 2125 vasculitis cases (8.5 per 10,000 reports), of which 501 were GCA. However, not only mRNA vaccines have been proposed to be linked to GCA: in a previous report, Mettler et al.¹⁰ observed among 1,295,482 reports concerning COVID-19 vaccines 147 GCA cases, 290 PMR cases and 9 cases of GCA with PMR; cases reported after mRNA vaccine were 61.9% and after viral vector vaccine were 37.4% of the total.

Which could be the mechanisms of post-vaccinal GCA? Liozon et al.¹¹ reported 10 cases of post-influenza vaccine GCA and reviewed other cases from the literature. Their conclusion was that the onset of GCA or PMR post-influenza vaccine is not exceptional and may be a serious form of autoimmune/inflammatory syndrome induced by adjuvants (ASIA syndrome), especially in people with personal or familial risk of GCA/PMR. ASIA syndrome is thought to be triggered by the adjuvants of the vaccines. However, mRNA SARS-CoV-2 vaccines are considered essentially adjuvant free, but they can themselves stimulate innate immunity with activation of Toll-like receptors (TLRs), notably TLR-7 and TLR-9, which may trigger an autoimmune response.^{12–14}

At the end of their work, the Authors state that they continue to encourage COVID-19 vaccination because the benefits of vaccination far outweigh any theoretical risk of immune dysregulation following administration. We agree with them from a general point of view; however, in this particular patient a synergy between the vaccine immunological stimulation and the subsequent immunological stimulation by the infection could have contributed to the development of GCA. Therefore, we suggest that the need and the advisability of further anti-SARS-CoV-2 vaccine shots should be carefully evaluated for this relatively young patient, taking into account the balance between benefits and risks.

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Table 1. Reported cases of giant cell arteritis following SARS-CoV-2 vaccination or disease.

Reference	Type of report	N. of patients	Following vaccination/disease	Type of vaccine
Mettler et al. (2022) ⁹	Pharmacovigilance analysis	501	Following vaccination	mRNA
Mettler et al. (2022) ¹⁰	Pharmacovigilance analysis	156	Following vaccination	mRNA (61.9%) viral vector (37.4%)
Anzola et al. (2022) ¹⁵	Case report	1	Following vaccination	mRNA
Sauret et al. (2022) ¹⁶	Case report	1	Following vaccination	Viral vector
Greb et al. (2022) ¹⁷	Case report	1	Following vaccination	mRNA
Gambichler et al. (2022) ¹⁸	Case report	1	Following vaccination	mRNA
Cadiou et al. (2022) ¹⁹	Case report	1	Following vaccination	mRNA
Kaulen et al. (2022) ²⁰	Case series	1	Following vaccination	viral vector + mRNA
Mejren et al. (2022) ¹²	Case report	1	Following vaccination	Unspecified
Mursi et al. (2022) ³	Case report	1	Following disease	—
Szydelko-Pasko et al. (2022) ²¹	Case report	1	Following disease	—
Riera-Martí et al. (2021) ²	Case report	1	Following disease	—
Simao et al. (2021) ²²	Case series	1	Following disease	—
Jonathan et al. (2021) ²³	Case report	1	Following disease	—
Oda et al. (2020) ⁵	Case report	1	Following disease	—

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