Reactivation of IgA vasculitis after COVID-19 vaccination

Uncertainty persists as to the possibility that the COVID-19 vaccines might cause exacerbation of pre-existing autoimmune diseases.[1] Here we report a case of reactivation of IgA vasculitis occurring after COVID-19 vaccination.

A woman aged 78 years with a history of IgA vasculitis with leukocytoclastic vasculitis, and renal and gastrointestinal involvement, had been in remission for 2 years with no immunosuppressant medication, before receiving the mRNA-1273 (Moderna) COVID-19 vaccine. At day seven post-vaccination, the patient had diarrhoea (6 times per day) and diffuse abdominal pain with acute onset (appendix p 1). Her vaccines were up to date, including yearly influenza, and previous vaccinations had never caused an IgA vasculitis reactivation. She had not taken any new medication and showed no signs of any infection including SARS-CoV-2 before vaccination with mRNA-1273, at admission to hospital, or during hospitalisation.

The patient's haemoglobin values decreased from 165 g/L to 143 g/L (normal range [N] 117–157 g/L) and laboratory tests including nasopharyngeal SARS-CoV-2 PCR test, large autoimmune panel, and infectious stool diarrhoea workup were in the normal range. However, the following tests were increased from pre-vaccine levels to 7 days post-vaccination: urea from 5·1 mmol/L to 10·2 mmol/L (N 2·9–6·4 mmol/L), creatinaemia from 96 µmol/L to 104 µmol/L (N 44–80 µmol/L), microhaematuria from 25×10^6/L to 150×10^6/L (N<26×10^6/L), C-reactive protein from 4 mg/L to 197 mg/L (N<10 mg/L), IgA from 2·25 g/L to 2·76 g/L (N 0·71–4·07 g/L), IgM from 0·19 g/L to 0·51 g/L (N 0·34–2·41 g/L), serum amyloid A from 10·2 mg/L to 2420 mg/L (N<6·4; appendix p 1). A CT scan showed sigmoid wall thickening with peripheral infiltration. The patient developed a palpable purpura in the hips and lower limbs. The patient was treated with methylprednisolone 1 mg/kg, and she improved rapidly with the disappearance of the purpura, gastrointestinal symptoms, and inflammatory syndrome, and improvement in renal function.

Investigations showed specific increases in the concentrations of anti-spike IgG, IgA, and IgM antibodies after mRNA-1273 vaccination, whereas concentrations of antibodies recognising the spike proteins of other human coronaviruses, such as anti-CoV HK41 IgG and IgA, did not increase (appendix p 1).

Moreover, an antinuclear antibody screening test on fixed HEp-2 cells showed the autoreactivity of the patient's IgA after mRNA-1273 vaccine administration, whereas serum taken from the patient before vaccination and serum from two healthy donors after mRNA-1273 vaccination did not show autoreactivity (appendix p 1). This immunofluorescence staining was observed specifically for IgA antibody binding to HEp-2 cells immediately after vaccination with binding reduced to background levels after 2 weeks of methylprednisolone treatment.

IgA vasculitis flares following vaccinations have been reported previously.[2] Furthermore, it has been reported that patients with IgA nephropathy have a stronger IgA response to intramuscular influenza vaccine than do healthy controls.[3] Moreover, two reports have described three cases of haematuria and IgA nephropathy flares following the second dose of mRNA COVID-19 vaccines in three individuals with biopsy-proven IgA nephropathy, two patients following the mRNA-1273 vaccine,[4] and one after the BNT162b2 (BioNTech-Pfizer) vaccine.[5]

Taken together, these results might suggest a link between the increase in anti-SARS-CoV-2 spike IgA and the reactivation of pre-existing IgA vasculitis observed after vaccination; however a coincidence cannot be ruled out. It remains to be established whether activation of autoreactive B cells following vaccination results from the pre-existing or de novo mobilisation of autoreactive B cells producing IgA (or both).

We declare no competing interests. The patient provided informed consent to publish this case.

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See **Online** for appendix