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CORRESPONDENCE

Development of IgA vasculitis after SARS-CoV-2 vaccination

IgA vasculitis is a small vessel vasculitis with deposits of IgA immune complex. It usually manifests small palpable purpura on the lower legs, but severer cases may be accompanied by joint and abdominal pain. Moreover, deposition of IgA immune complexes in the small vessels of the kidney induces IgA nephropathy with hematuria. While streptococcal, mycoplasma, and viral infections are the main causes, various vaccines are also causative.[1] Here, we report a case of IgA vasculitis that occurred 1 week after COVID-19 vaccination.

A 34-year-old man was referred to us for evaluation of his skin lesions. His had no history of IgA vasculitis and did not develop purpura or hematuria after the first dose of Pfizer-BioNtech SARS-CoV-2 vaccine. One week after the second dose of the same vaccine, he developed small purpuric lesions on both lower legs. Prior to our examination, he was treated with carbazochrome and tranexamic acid by a general physician, but purpura extended to the abdomen and upper limbs. Moreover, he developed pain of the knee and hand joints. On our initial examination, he had palpable purpura on the shins (Figure 1A), calves, thighs, and forearms. Complete blood counts and coagulation profile were normal. Serum creatinine was slightly elevated, and estimated glomerular filtration rate was 74.6 ml/min/1.73 m^2. Factor VIII was not measured. By urinalysis, neither leukocytes, erythrocytes, nor protein was noted. Skin biopsy revealed leucocytoclastic vasculitis with nuclear debris around small vessels in the dermis (Figure 1B). Direct immunofluorescence study disclosed deposition of IgA in the dermal vessels (Figure 1C). Since he had no history of infection possibly causative for IgA vasculitis, we considered the vaccination as the cause. He was treated with oral prednisolone, 40 mg/day, which improved his skin lesions, and joint and abdominal symptoms 2 weeks after the initiation.

Eight cases of IgA vasculitis occurring after SARS-CoV-2 vaccination have been reported.[2–9] Meanwhile, there have been approximately 20 cases of IgA nephropathy, which shares the mechanism with IgA vasculitis. The eight cases consist of three males and five females with the mean age of 62 years. They were affected

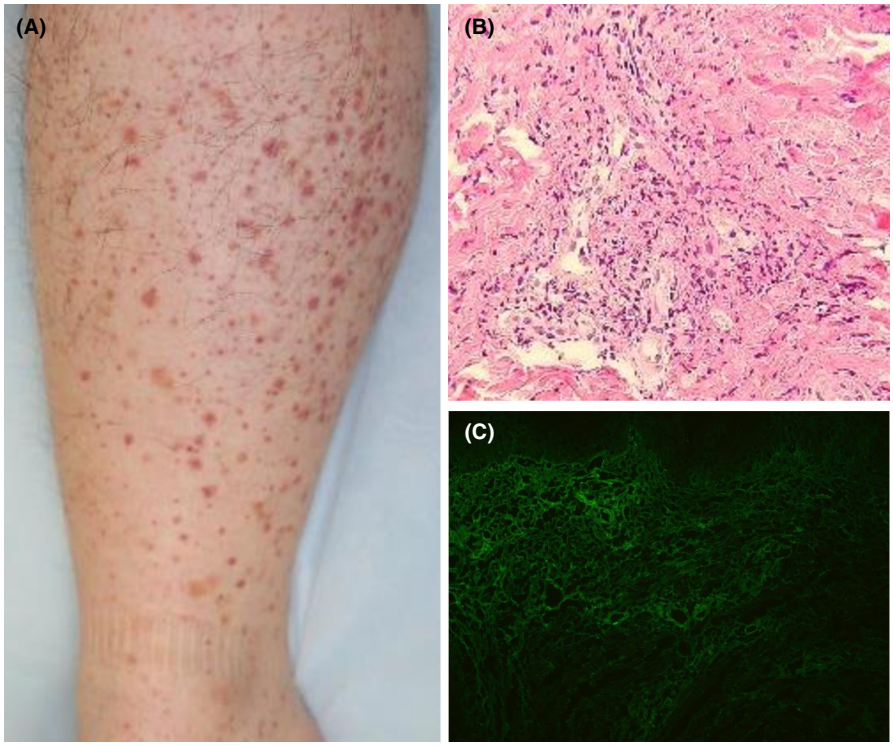

FIGURE 1 (A) Palpable purpuric lesions on the lower legs. (B) Histopathology, showing leucocytoclastic vasculitis with nuclear debris around small vessels in the dermis. (C) Direct immunofluorescence study, showing deposition of IgA in the dermal vessels

by IgA vasculitis at an average of 8 days (1-20 days) after vaccination.[2–9] There were five and three cases after the first and second doses of vaccination, respectively. Four cases were administered with BioNTech SARS-CoV-2 vaccine, two cases with mRNA-1273 COVID-19 vaccine, and two cases with ChadOx1 nCoV-19 vaccine. Three patients had a history of IgA vasculitis, which was flared up again.[2–4]

The triggers of IgA vasculitis include infections, malignancies, drugs, and various vaccines, such as influenza vaccination.[1] Influenza vaccine and preexisting IgA antibodies can damage microvessels.[1] In addition, IgA nephropathy provides the multi-hit hypothesis that overproduction of galactose-deficient IgA1 leads to immune complex formation.[10] SARS-CoV-2 vaccine is also considered to have a potential to produce immune complexes with IgA. Given that patients with a history of IgA vasculitis may be flared up following SARS-CoV-2 vaccination,[2–4] individuals with a history of IgA vasculitis should be carefully followed up after receiving the vaccine.

DECLARATION SECTION

Approval of the research protocol: N/A.
Informed Consent: N/A.
Registry and the Registration No. of the study/trial: N/A.
Animal Studies: N/A.

CONFLICT OF INTEREST

The authors declare no conflict of interest. Dr. Yoshiki Tokura is the Founding Editor of the Journal of Cutaneous Immunology. Management of the peer-review process, and all editorial decision making, for this article was undertaken by Editor in Chief.

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REFERENCES

1. Watanabe T. Henoch-Schönlein purpura following influenza vaccinations during the pandemic of influenza A (H1N1). Pediatr Nephrol. 2011;26:795–8.
2. Obeid M, Fenwick C, Pantaleo G. Reactivation of IgA vasculitis after COVID-19 vaccination. Lancet Rheumatol. 2021;3:e617.
3. Maye JA, Chong HP, Rajagopal V, Petchey W. Reactivation of IgA vasculitis following COVID-19 vaccination. BMJ Case Rep. 2021;30:e247188.
4. Kondo M, Yamanaka K. Possible HSP reactivation post-COVID-19 vaccination and booster. Clin Case Rep. 2021;9:e05032.
5. Grossman ME, Appel G, Little AJ, Ko CJ. Post-COVID-19 vaccination IgA vasculitis in an adult. J Cutan Pathol. 2021;14:385–7. doi:10.1111/cup.14168
6. Hines AM, Murphy N, Mullin C, Barillas J, Barrientos JC. Henoch-Schönlein purpura presenting post COVID-19 vaccination. Vaccine. 2021;30:4571–2.
7. Badier L, Toledano A, Porel T, Dumond S, Jouglen J, Sailler L, et al. IgA vasculitis in adult patient following vaccination by ChadOx1 nCoV-19. Autoimmun Rev. 2021;20:102951.
8. Iwata H, Kamiya K, Kado S, Nakaya T, Kawata H, Komine M, et al. Case of immunoglobulin A vasculitis following coronavirus disease 2019 vaccination. J Dermatol. 2021;48:e598–9.
9. Sirufo MM, Raggiunti M, Magnanimi LM, Ginaidi L, De Martinis M. Henoch-Schönlein purpura following the first dose of COVID-19 viral vector vaccine: a case report. Vaccine. 2021;25:1078.
10. Heineke MH, Ballering AV, Jamin A, Ben Mkaddem S, Monteiro RC, Van Egmond M. New insights in the pathogenesis of immunoglobulin A vasculitis (Henoch-Schönlein purpura). Autoimmun Rev. 2017;16:1246–53.