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LETTER TO THE EDITOR

Successful alternative vaccination with BNT162b2 mRNA COVID-19 vaccine for new-onset IgA vasculitis after receiving mRNA-1273—case report

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To the Editor,

We previously presented the first known case of kidney biopsy-proven new-onset IgA vasculitis following vaccination with the mRNA-1273 (Moderna) coronavirus disease 2019 (COVID-19) vaccine [1]. Though rare, a wide variety of adverse events have been reported during vaccination campaigns conducted worldwide, including new-onset and recurrent cases of glomerulonephritis [2]. It remains unclear whether third and fourth vaccinations are safe for patients with glomerulonephritis that develops or shows a flare-up after receiving a COVID-19 vaccine. We present here follow-up findings of our previously reported case showing no development of symptoms related to IgA vasculitis or COVID-19 after receiving a third vaccination with BNT162b2 mRNA (Pfizer-BioNTech) COVID-19.

A 47-year-old male was presented with purpuric eruptions on the legs and dorsal regions of the feet at 19 days after receiving the first mRNA-1273 COVID-19 vaccination injection and again 15 days after the second injection. Twenty-eight days after that second vaccination, urinalysis results showed severe proteinuria and occult blood. Kidney biopsy results led to a diagnosis of newly developed IgA vasculitis after receiving a COVID-19 vaccination. The clinical course following the kidney biopsy is presented in Fig. 1. Intravenous methylprednisolone at 1000 mg was given for three days, after which oral prednisolone (50 mg/day) was prescribed, with kidney function and urinary protein improved during the following period. According to government policy, six months is the recommended interval between the second and third vaccination. At 235 days after the second vaccination, oral prednisolone was tapered to 7.5 mg/day, without IgA vasculitis flare-up. The patient wished to receive a third vaccination to avoid COVID-19 infection and the BNT162b2 mRNA COVID-19 vaccine was selected for that. Fortunately, there has been no recurrence of IgA vasculitis nor COVID-19 infection since that time.

The number of COVID-19 cases worldwide remains high and a seventh wave of infections has recently developed in Japan. It has reported that individuals with glomerulonephritis had higher overall rates of mortality and acute kidney injury as compared to a control group [3]. Thus, additional vaccination is considered important for glomerulonephritis cases.

Immunosuppressive therapy is a concern for patients with glomerulonephritis. Previous study noted that following a second mRNA base COVID-19 vaccination, glucocorticoid monotherapy did not interfere with antibody acquisition for the SARS-CoV-2 S receptor-binding domain protein [4]. Furthermore, it should be noted that glucocorticoid use at higher doses (≥ 10 mg/day) is associated with severe disease and COVID-19-related death, and requires hospitalization [5]. Physicians must be careful when administering immunosuppressive therapy for glomerulonephritis patients in regard to possible COVID-19-associated events and antibody acquisition.

The lower amount of mRNA contained in the BNT162b2 mRNA as compared to the mRNA-1273 vaccine might be a factor contributing to lack of IgA vasculitis developing in the present patient. Additionally, the possibility that oral prednisolone administration suppressed IgA vasculitis flare-up cannot be excluded. Nevertheless, administration of the

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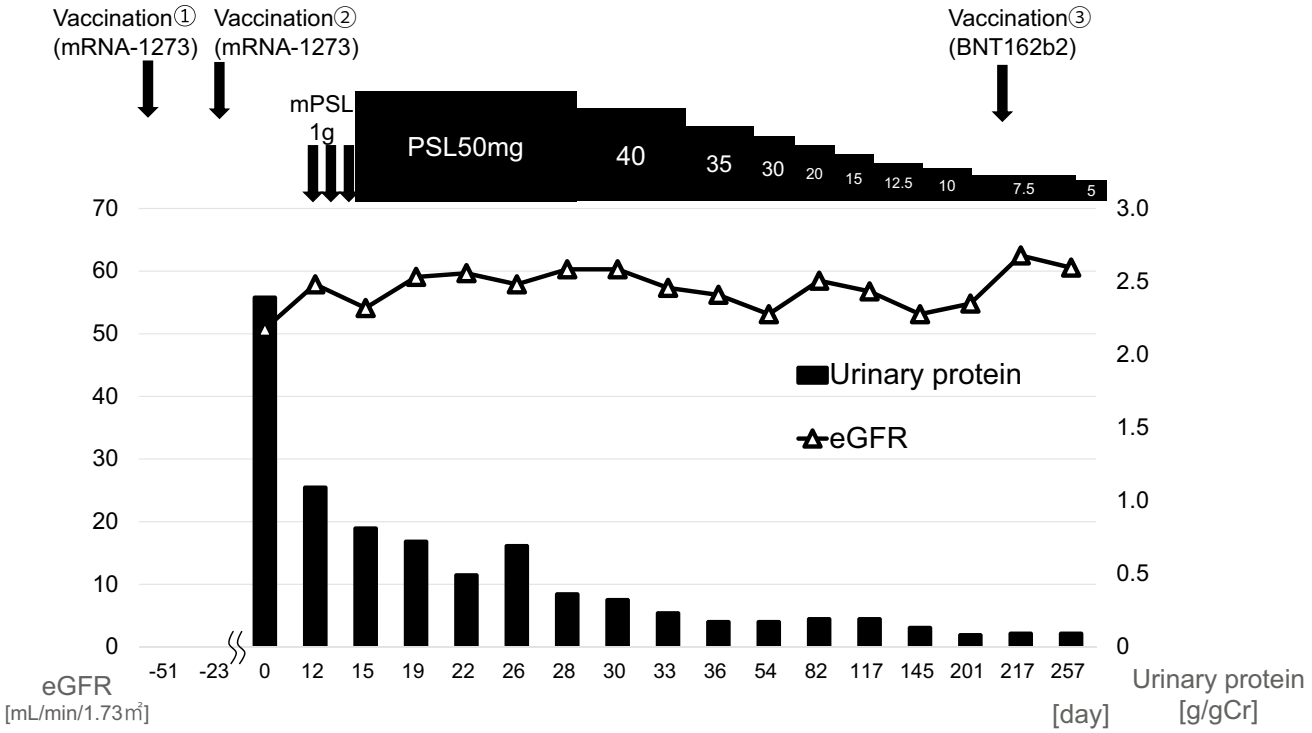

Fig. 1 Clinical course. Intravenous methylprednisolone at 1000 mg was initiated for three days, followed by oral prednisolone (50 mg/day), after which kidney function and urinary protein showed remarkable improvements. At 235 days after the second vaccination with mRNA-1273 (Moderna), he received BNT162b2 mRNA (Pfizer-BioNTech) as the third vaccination. To date, there has been no recurrence of IgA vasculitis nor infection with COVID-19

BNT162b2 mRNA COVID-19 vaccine as an alternative to mRNA-1273 COVID-19 was successful. Additional case reports and investigations are needed to confirm the efficacy and safety of alternative vaccination options for patients with glomerulonephritis.

Declarations

Conflict of interest The authors have declared that no conflict of interest exists.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent Written informed consent was obtained from the patient for the publication of his clinical data.

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