


LETTER TO THE EDITOR

Reactivation of minimal change disease and IgA nephropathy after COVID-19 vaccination

Leanne Ca-Yin Leong ^{1,2}, Wei-Zhen Hong^{1,2} and Priyanka Khatri^{1,2}

¹Fast and Chronic Programmes, Alexandra Hospital, Singapore and ²Division of Nephrology, Department of Medicine, National University Hospital, Singapore

Correspondence to: Leanne Ca-Yin Leong; E-mail: leanne_cy_leong@nuhs.edu.sg

We read with interest the reports of relapsing glomerular diseases after coronavirus disease 2019 (COVID-19) vaccination [1, 2]. We describe two cases of minimal change disease (MCD) relapses and one case of gross haematuria with acute kidney injury (AKI) in immunoglobulin A (IgA) nephropathy following COVID-19 vaccination.

A 42-year-old Chinese woman and 30-year-old Malay man with biopsy-proven MCD diagnosed in October 2020 and January 2021, respectively, achieved complete remission following a tapering course of prednisolone. Both presented with lower limb swelling and frothy urine within 2 weeks of their second COVID-19 vaccine. Clinically, there was no evidence of concurrent infection or malignancy. There were no new medications. Repeat kidney biopsies were not performed. These were their first disease relapses. They subsequently achieved remission within 2 weeks of restarting prednisolone monotherapy. The third case was a 26-year-old man with suspected IgA nephropathy whose proteinuria was adequately managed with losartan. He presented with fever, gross haematuria, worsening proteinuria (rise in urine protein creatinine ratio from 74 to 174 mg/mmol) and AKI (rise in serum creatinine from 75 to 143 $\mu\text{mol/L}$)

1 day after his second dose of COVID-19 vaccination. Kidney biopsy revealed histological findings suggestive of IgA nephropathy with acute tubular injury. Details of these cases are presented in Table 1.

There is a possible role of T-cell-mediated immune dysregulation precipitated by mRNA vaccination leading to glomerular disease flares [3]. Further research is warranted in this area. Adequate patient counselling and monitoring for early relapse should be vigilantly practised by managing nephrologists following COVID-19 vaccination.

PATIENT CONSENT

We obtained informed consent from the patients to publish their cases.

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest.

Received: 28.9.2021; Editorial decision: 25.11.2021

© The Author(s) 2021. Published by Oxford University Press on behalf of the ERA. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

Table 1. Clinical details of the three cases

	Case 1	Case 2	Case 3
Date of diagnosis (biopsy proven)	8 October 2020	21 January 2021	3 August 2021
Histological diagnosis	Minimal change disease	Minimal change disease	IgA nephropathy
Therapy and duration	oral prednisolone; tapered over 27 weeks	oral prednisolone; tapered over 2 months	–
Type of vaccine	Moderna COVID-19 vaccine	Pfizer-BioNTech COVID-19 vaccine	Pfizer-BioNTech COVID-19 vaccine
Vaccination dates	25 May 2021, 2 July 2021	12 June 2021, 17 July 2021	8 July 2021, 30 July 2021
Time period between second dose of vaccination and onset of symptoms of new disease activity (days)	11	7	1
Time period between last dose of prednisolone and onset of symptoms of new disease activity (months)	3	4	–
Laboratory findings upon clinical presentation of first disease relapse			
Serum creatinine at presentation ($\mu\text{mol/L}$)	54	64	143
Serum albumin at presentation (g/L)	40	17	40
Urine protein creatinine ratio (mg/mmol)	413	142	74
24-h urine protein (g/day)	4.23	0.75	–
Urine microscopy (white blood cells/red blood cells/epithelial cells per high-power field)	0/0/2	5/0/0	>100 red blood cells in the field
Medications (at presentation)	Atorvastatin 40 mg every night, cholecalciferol 1000 units twice daily, calcium carbonate 450 mg/vitamin D 200 IU 1 tablet twice daily, omeprazole 40 mg twice daily	Budesonide/formoterol turbuhaler 1 puff twice daily, salbutamol 100 μg 1–2 puffs 6-hourly as needed for breathlessness (asthma)	Losartan 50 mg twice daily, omega-3 fish oil 1 g twice daily
SARS-CoV-2 spike quantitative antibody (U/mL)	>250	>250	>250

REFERENCES

1. Komaba H, Wada T, Fukagawa M. Relapse of minimal change disease following the Pfizer-BioNTech COVID-19 vaccine. *Am J Kidney Dis* 2021; 78: 469–470
2. Negrea L, Rovin BH. Gross hematuria following vaccination for severe acute respiratory syndrome coronavirus 2 in 2 patients with IgA nephropathy. *Kidney Int* 2021; 99: 1487
3. Sahin U, Muik A, Derhovanessian E et al. COVID-19 vaccine BNT162b1 elicits human antibody and T_H1 T cell responses. *Nature* 2020; 586: 594–599