Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

A case of gross hematuria and IgA nephropathy flare-up following SARS-CoV-2 vaccination

To the editor: We read with great interest the report of Negrea and Rovin of 2 cases of IgA nephropathy with gross hematuria following the Moderna vaccine for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] We also cared for a 52-year-old Asian female with prior biopsy-proven IgA nephropathy who developed gross hematuria within 24 hours of receiving a second dose of the Pfizer vaccine. Table 1 summarizes clinical data. Her workup was notable for proteinuria of 4.2 g/g of creatinine with serum creatinine at baseline. Of note, SARS-CoV-2 antibody testing prior to vaccination was negative, and she developed no symptoms after the first vaccine dose. Repeated testing within 1 week demonstrated resolution of hematuria and improving proteinuria. Interestingly, she developed gross hematuria following the first shot of the Shingrix vaccine 2 years prior but no symptoms following annual influenza vaccinations. The IgA nephropathy flare in our patient following the second SARS-CoV-2 vaccine dose without known prior exposure to SARS-CoV-2 suggests it was mediated by a delayed-type hypersensitivity reaction. Vasculitis flare-ups following vaccinations have been reported in the past.[2,3]

Our patient's symptoms improved within a week without any intervention aside from continued renin-angiotensin-aldosterone system blockade. It has been reported that severe coronavirus disease 2019 (COVID-19) illnesses can trigger an IgA response in the bronchial mucosa.[4] However, it is unclear how a nonmucosal vaccine triggers this response. We suggest that nephrologists closely follow their patients after COVID-19 vaccination to evaluate for varying degrees of flares, particularly after the second dose of an mRNA vaccine without prior exposure to SARS-CoV-2.

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Acute rejection after anti–SARS-CoV-2 mRNA vaccination in a patient who underwent a kidney transplant

To the editor: Anti–severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination is recommended in patients who underwent a transplant because of an increased risk of developing severe coronavirus disease 2019 (COVID-19), and mortality.[1] Because of a weak immunogenicity of mRNA 2-dose vaccines in transplant patients, the French

Table 1 | Patient symptoms and details of workup

Patient characteristic	Data
Year of IgAN diagnosis	2017
Exacerbations since diagnosis	1. April 2019 following URI 2. June 2019 following shingles vaccine
Current treatment	Lisinopril
Baseline Cre	0.7–0.8 g/dl
Last urine microalbumin/Cre before exacerbation (2020)	633.1 mg/g Baseline always <1000 mg/g, except exacerbations
Urine microalbumin/Cre 48 h after Pfizer second dose	2411.3 mg/g
Gross hematuria/RBCs in urine	Yes/yes
Other symptoms	Fever, myalgias, body aches, lower back pain bilaterally
Urine microalbumin/Cre 5 d after Pfizer second dose	1441 mg/g
Hematuria 5 d after Pfizer second dose	Resolved

Cre, creatinine; IgAN, IgA nephropathy; RBC, red blood cell; URI, upper respiratory tract infection.

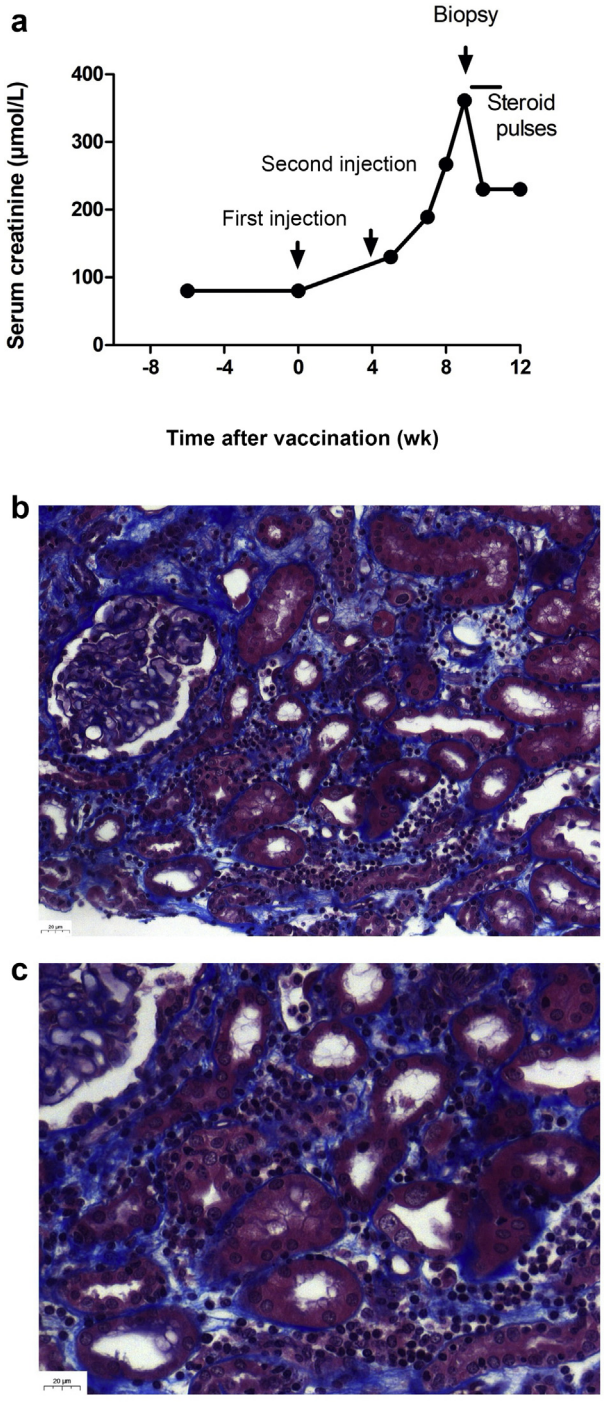

Figure 1 | (a) Outcome of kidney function before and after transplantation and (b,c) kidney pathology. Trichrome Masson staining exhibited inflammatory infiltration, tubulitis, edema, and peritubular capillaritis (original magnification ×20 [**b**] and ×40 [**c**]). Kidney biopsy was scored as follows, according to the Banff 2019 classification[4]: i2, t2, v0, g0, ptc1, ti1, i-IFTA0, C4d0, cg0, mm0, ah1, cv0, ci0, ct0. To optimize viewing of this image, please see the online version of this article at www.kidney-international.org.

Health Authority recommended to offer a third dose to immunosuppressed patients to boost the immune response.[2,3] However, no biological monitoring before and after vaccination is recommended. We report on the case of a 23-year-old non–human leukocyte antigen–sensitized patients who underwent a kidney transplant who presented an acute rejection after the second dose of the BNT162b2 mRNA COVID-19 Vaccine (Pfizer-BioNTech). She had undergone a deceased donor kidney transplantation for nephronophthisis 18 months earlier. The post-transplant period was uneventful. Her maintenance therapy was based on tacrolimus (target trough level, 5 ng/ml and 7 ng/ml), mycophenolic acid, and low-dose steroid. Fifteen days before the first dose, her serum creatinine level was at 80 µmol/L and anti–SARS-CoV-2 serology was negative. Eight days after the second dose, systematic blood tests revealed impaired kidney function at 130 µmol/L, which then raised to 360 µmol/L (Figure 1). A kidney biopsy revealed a cellular acute rejection. Donor-specific anti–human leukocyte antigen antibodies became detectable with a weak intensity, targeting donor human leukocyte antigen class II antigens. Anti–SARS-CoV-2 spike protein antibodies became positive. Tacrolimus trough level was unchanged at 5 ng/ml. At 10 days, after steroid pulses (500 mg/d for 3 days), the patient's serum creatinine level had decreased to 230 µmol/L. Another kidney biopsy is planned to discuss the use of polyclonal antibodies. Hence, this report suggests that kidney function should be carefully monitored in kidney transplantation undergoing anti–SARS-CoV-2 vaccination, especially if a third boost dose is performed.

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