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New-onset immunoglobulin-A nephropathy post severe acute respiratory syndrome-coronavirus-2 infection indicates rapidly progressive glomerulonephritis

As severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) continues to spread globally, there have been various reports on the effects of SARS-CoV-2 infection on kidney disease.[1,2] This is the first case report presenting the clinical course of a patient with new-onset immunoglobulin (Ig) A nephropathy resulting from SARS-CoV-2 infection, indicating the development of rapidly progressive glomerulonephritis.

A 74-year-old man with renal insufficiency after SARS-CoV-2 pneumonia was admitted to our hospital. He was infected with SARS-CoV-2 in November 2020. He was not vaccinated against SARS-CoV-2. He developed severe pneumonia, while being treated with dexamethasone and was managed intensively with artificial respiration and extracorporeal membrane oxygenation (ECMO). He was hospitalized for 5 months, including rehabilitation. Before SARS-CoV-2 infection, his baseline serum creatinine (Cre) level had been approximately 1.0 mg/dl in recent years. Urinalysis had never detected proteinuria or haematuria suspicious for nephritis pre-SARS-CoV-2 infection. During the treatment of SARS-CoV-2 infection, his renal function deteriorated, and urinalysis abnormalities appeared. Therefore, he was referred to our hospital 1 month after his discharge. Besides pitting oedema in his leg, he presented with no physical abnormalities on admission. His blood tests indicated serum Cre, 3.09 mg/dl; serum Ig A, 461 mg/dl; serum proteinase-3 antineutrophil cytoplasmic antibodies (ANCA), <0.5 IU/ml; serum myeloperoxidase-O ANCA, <0.5 IU/ml; and serum anti-glomerular basement membrane antibody, <2.0 IU/ml. Urinalysis showed proteinuria of 0.87 g/gCre and microscopic haematuria. A kidney biopsy revealed cellular crescents in 4 of 20 glomeruli and moderate mesangial cell proliferation (Figure 1A). Immunofluorescence uncovered granular deposition of IgA and C3 in the mesangial regions (Figure 1B). We diagnosed IgA nephropathy based

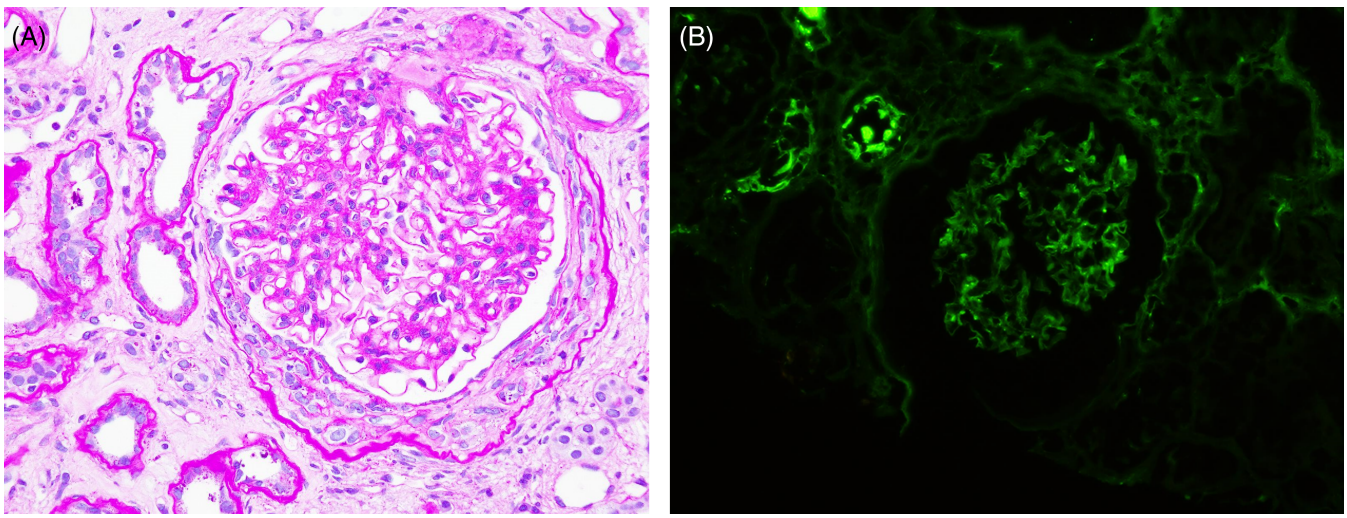

FIGURE 1 (A) A kidney section stained with periodic acid–schiff stain showing a glomerulus with a cellular crescent and mesangial cell proliferation (×400 magnification). (B) Immunostaining for immunoglobulin A (IgA) on a kidney section showing granular deposition of IgA in the mesangial regions (×200 magnification)

on these serologic and biopsy findings. The MEST-C classification of the kidney biopsy was $M_1E_1S_1T_1C_2$. The patient underwent tonsillectomy and steroid pulse therapy. After 35 days of treatment, serum Cre levels improved to 2.74 mg/dl and proteinuria decreased to 0.2 g/gCre. Many studies have reported recurrence or worsening of various kidney diseases after SARS-CoV-2 infection.[1,2] Considering the absence of prior urinary abnormalities, he seemingly developed new kidney damage within few months, indicating rapidly progressive glomerulonephritis. To our knowledge, this is the first case report describing the clinical course of new-onset IgA nephropathy due to SARS-CoV-2 infection. The mechanism of IgA nephropathy post SARS-CoV-2 infection remains to be elucidated; however, continuous IgA production after SARS-CoV-2 infection may occur.[3,4] There is a possibility of developing new nephritis as well as exacerbation of existing nephritis after SARS-CoV-2 infection, necessitating a careful follow-up.

CONFLICT OF INTEREST

The authors declare that they have no competing interests. The results presented in this article have not been published previously, partially or in entirety.

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COVID-19 vaccine acceptance among patients with glomerulonephritis

Dear Editor,

The recent *Nephrology* editorial highlighted concerns regarding post-vaccine glomerulonephritis relapse.[1] However, the recent coronavirus disease 2019 (COVID-19) infection waves caused by the SARS-CoV-2 variants have added impetus to vaccinate at-risk individuals, with additional doses recommended in immunocompromised patients due to inadequate immunological response and waning seroprotection over time.[2] While there are reports of vaccine refusal due to concerns about adverse events and lack of long-term research in patients with autoimmune rheumatic disease,[3] there is little data on the perceptions of COVID-19 vaccine among patients with active glomerulonephritis treated with immunosuppressants.

In our single-center cross-sectional study of 72 consecutive patients with active glomerulonephritis requiring immunosuppressants reviewed in the Glomerulonephritis Disease Management Clinics between June and August 2021, 49 (68.1%) participated in the self-administered English-language questionnaire for determinants of vaccine acceptance recommended by the World Health Organization framework.[4] Among the 19 men and 30 women, the median age was 47.3 (interquartile range 30.5–60.2) years with diagnoses including lupus nephritis (18 patients), primary podocytopathies or membranous nephropathy (17 patients), Immunoglobulin A nephropathy (nine patients) and other glomerular diseases (five patients) and median disease duration of 45 (32–79) months. English was spoken at home and to healthcare workers in 69.4% and 85.7%, respectively. The majority (93.9%) had completed secondary school and beyond, 44.9% were in professional or executive occupations and general health literacy index was high at 35.5 (32.1–44.5) as assessed by the HLS-EU-47 survey.[5]

Thirty-five (71.4%) had received at least one dose of COVID-19 vaccine between February and July 2021. Among the