

Clin Nephrol . 2022 May;97(5):289-297.

De novo or recurrent glomerulonephritis and acute tubulointerstitial nephritis after COVID-19 vaccination: A report of six cases from a single center

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- PMID: 35142282
- DOI: [10.5414/CN110794](https://doi.org/10.5414/CN110794)

Abstract

Billions of COVID-19 vaccine doses have been administered to combat the ongoing global pandemic caused by severe acute respiratory syndrome coronavirus-2. While these vaccines are considered safe, with most adverse events being mild to moderate and transient, uncommon systemic side effects of the vaccines, including de novo or re-activation of various glomerular diseases have recently been observed. We report 6 patients who developed glomerular or acute tubulointerstitial disease shortly after receiving COVID-19 vaccinations. Five of these patients received mRNA vaccines (3 Moderna, 2 Pfizer-BioNTech) and 1 received adenovirus-26 vector vaccine (Johnson and Johnson/Janssen). Four of our patients developed de novo glomerulonephritis or acute tubulointerstitial nephritis (ATIN), while the other 2 had re-activation of prior glomerulonephritis. Two patients presented with acute kidney injury (AKI) characterized by severe ATIN. While both of them also had evidence of immune complex glomerular disease, ATIN was the dominant feature on the biopsies. Two other patients presented with high-grade proteinuria and AKI. Like the aforementioned patients, these patients had evidence of immune complex glomerular disease, but acute onset nephrotic syndrome was the leading clinical feature. Another patient presented with de novo myeloperoxidase-anti-neutrophil-cytoplasmic-antibody-associated pauci-immune crescentic glomerulonephritis. Yet another patient had re-activation of immunoglobulin-A glomerulonephritis that had been quiescent for several years prior to the vaccination. It is difficult to ascertain any causal relationship between COVID-19 vaccination and onset/recurrence of kidney diseases. However, vigilance about occurrence of such complications is imperative. Importantly, all our cases responded well to the immunosuppressive treatment.