THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond
APSN

Abstract Submission No.: A-0641

Complete Response in a Patient with New-Onset Lupus Nephritis Class Following COVID-19 Vaccination

WON HEE CHO[1], Jong-Chan Lee[2]
[1]Department of Internal Medicine-Nephrology, SAHMYOOK MEDICAL CENTER, Korea, Republic of
[2]Department of Internal Medicine, SAHMYOOK MEDICAL CENTER SEOUL, Korea, Republic of

Case Study : Lupus nephritis (LN) is the leading cause of kidney injury in systemic lupus erythematosus. Recent studies have suggested a potential association between the coronavirus disease 2019 (COVID-19) vaccination and the development or exacerbation of LN. Here, we present a case of a patient who was diagnosed with LN class IV after receiving the COVID-19 vaccine and achieved a complete response through immunosuppressive therapy. A woman in her 50s with type 2 diabetes and hypertension presented with nephrotic syndrome, deteriorating kidney function 1 month after receiving a Pfizer-BioNTech COVID-19 vaccine. Her creatinine level was normal prior to vaccination, but she developed edema 1 week after receiving the vaccine. All serologic tests were negative, but the patient showed positive results for both anti-nuclear antibodies (ANA) and anti-double stranded (ds) DNA, as well as low complement C3 levels. An emergency kidney biopsy confirmed diffuse proliferative crescentic LN class IV. Induction therapy involved intravenous methylprednisolone and cyclophosphamide, followed by maintenance therapy with prednisolone and mycophenolate mofetil. At the 18-month follow-up, the patient achieved a complete response, experiencing full recovery of kidney function, improvement in proteinuria, and even seroconversion to negative for both ANA and anti-dsDNA. In the repeat biopsy conducted two years later, the activity index significantly decreased compared to the initial biopsy. However, persistent disease activity was evident, accompanied by a slight increase in the chronicity index. To the best of our knowledge, this is the first reported case of a complete response, encompassing the disappearance of the autoantibodies, in LN following COVID-19 vaccination, including the implementation of a repeat kidney biopsy. Timely diagnosis and prompt immunosuppressive therapy are crucial for achieving favorable outcomes, even in severe cases of LN that occur after COVID-19 vaccination. Additionally, a repeat biopsy may contribute to assessing disease activity at the tissue level and predicting prognosis.

FIgure 1.jpg

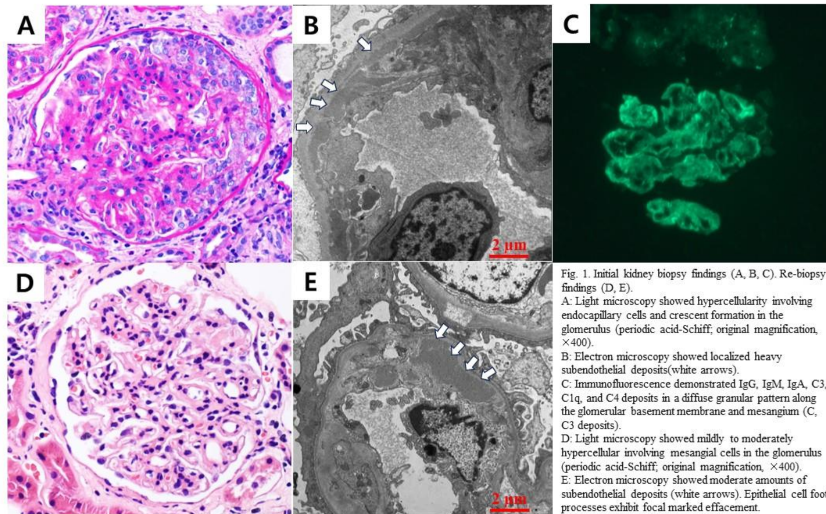

Fig. 1. Initial kidney biopsy findings (A, B, C). Re-biopsy findings (D, E).
A: Light microscopy showed hypercellularity involving endocapillary cells and crescent formation in the glomerulus (periodic acid-Schiff; original magnification, ×400).
B: Electron microscopy showed localized heavy subendothelial deposits(white arrows).
C: Immunofluorescence demonstrated IgG, IgM, IgA, C3, C1q, and C4 deposits in a diffuse granular pattern along the glomerular basement membrane and mesangium (C, C3 deposits).
D: Light microscopy showed mildly to moderately hypercellular involving mesangial cells in the glomerulus (periodic acid-Schiff; original magnification, ×400).
E: Electron microscopy showed moderate amounts of subendothelial deposits (white arrows). Epithelial cell foot processes exhibit focal marked effacement.

FIgure 1.jpg

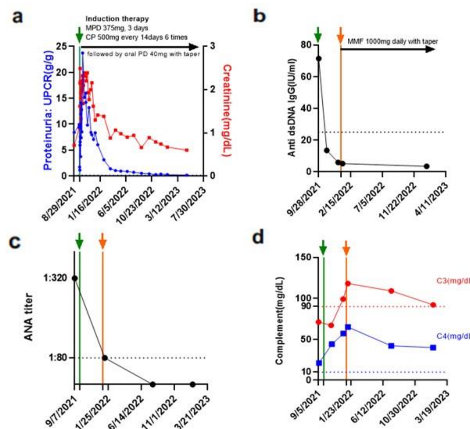

Figure2: (a) Time course of urine protein creatinine ratio(UPCR) and serum creatinine with end of induction therapy(green arrow), followed by maintenance therapy of prednisolone and mycophenolate mofetil(orange arrow). Serological parameters (b) anti-ds DNA-IgG, (c) antinuclear antibody(ANA), and (d) complement C3 and C4 are plotted in relation to induction therapy. Dotted lines represent normal limits. MPD, methylprednisolone; CP, cyclophosphamide; PD, prednisolone; MMF, mycophenolate mofetil.