Identification of Cryoglobulin Deposition by Electron Microscope

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Keywords: cryoglobulinemia, nephrotic syndrome, electron microscope

Case
A 54-year-old man was admitted to our hospital because of anasarca. He had a medical history of acute myeloid leukemia (M1) at 39 years of age, but had been in complete remission after undergoing bone marrow transplantation. 10 years previously, he had been infected with hepatitis C virus and had mixed cryoglobulinemia due to blood transfusion. After admission, a diagnosis of nephrotic syndrome was made. Renal biopsied specimens showed mesangial hypercellularity and endocapillary proliferative appearance with lobulation on Periodic acid-Schiff stain (Figure 1A) as well as thickening of capillary walls and/or double contours on periodic acid methenamine silver stain (Figure 1B). Electron microscopy demonstrated the subendothelial deposits in Figure 1C and 1D (white arrows). Some electron dense deposits were phagocyted by infiltrating monocytes in the subendothelial spaces (Figure 1C), which resulted in duplication of the glomerular basement membrane, so-called mesangial interposition. To identify pathologocial evidence of cryoglobulin deposition on renal biopsy is extremely rare, but this case clearly showed the pathognomonic feature of cryoglobulinemia related membranoproliferative glomerulonephritis,1,2 which reminded us of the clinical significance of hepatitis C virus infection as one of the causes of nephrotic syndrome.

References
Figure 1.