Case 3

Membranous glomerulonephropathy associated with Epstein-Barr virus infection in a child

Eun Hee Lee, M.D.[1], Hyung Eun Yim, M.D.[1], Kee Hwan Yoo, M.D.[1], Nam Hee Won, M.D.[2], Young Sook Hong, M.D.[1], Joo Won Lee, M.D.[1]

[1]Department of Pediatrics and [2]Department of Pathology, College of Medicine, Korea University, Seoul,, Korea

[Background]

Infection of Epstein-Barr virus (EBV) give rises to a broad spectrum of clinical manifestations in children. Although renal involvement is rare, diverse renal manifestations are known from hematuria to acute renal failure. Secondary membranous glomerulonephropathy (MGN) associated with systemic EBV infection is an uncommon renal pathology and only two cases have been reported. We report a case of MGN associated with EBV infection in a child.

[Case]

An 8-year-old girl complained of sore throat and a recent aggravation of snoring. She had a history of mouth breathing and snoring for 3 years and had been followed up for microscopic hematuria and mild proteinuria during 5 months. On this admission, exudative tonsilar hypertrophy was observed and there were multiple palpable cervical lymph nodes. EBV study showed positive evidence of recent infection; Viral capsid antigen (VCA) IgM was borderline positive, VCA IgG and Early antigen IgG were positive, and EB nuclear antigen IgG was negative. Tonsilar punch biopsy was performed and biopsy findings showed EBV-associated lymphoproliferative disorder. In Situ Hybridization from tonsilar tissues was EBV mRNA positive. At that time, her proteinuria was aggravated, showing increased urine protein/creatinine ratio from 0.4 to 2.42. Laboratory findings of IgA, C3, C4, anti neutrophil antibody, HBs antigen and

anti-HCV were not specific. Renal biopsy revealed the findings of MGN, which were characterized by thickened capillary walls with segmental epimembranous spikes on light microscopy and subepithelial electron dense deposits on electron microscopy. Some mesangial and subendothelial deposits were also observed. Immunofluorescence study showed that IgG (2+), C1q (2+), kappa (1+) and lambda(2+) light chains were in capillary walls in a granular pattern and diffuse or segmental distribution. After steroid administration, her proteinuria has been improved.

[Points of Discussion]

Among the EBV associated nephropathy, tubulointerstitial nephritis is more common than MGN. EBV associated nephropathy also occurs usually in immune compromised patients. Before confirming that this is the first case of MGN associated with systemic EBV antigenemia in a child with normal immunity, we need to discuss followings;

1. Isn't there any evidence of immune deficiency for her?

2. Is it possibile that she had already had MGN and EBV infection just aggravated the symptoms of MGN? Then, what's the cause of MGN? Is there any other cause of MGN except EBV infection?

3. Is there any possibility that there had already been EBV antigenemia since hematuria and proteinuria were first detected 5 months ago?