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심한 복합 감염과 관련된 급속진행성 사구체신염

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Rapidly Progressive Glomerulonephritis Associated with Severe Combined Infection

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Intro : Rapidly progressive glomerulonephritis (RPGN) is a disease of the kidney that results in a rapid decrease in the glomerular filtration rate of at least 50% over a short period, from a few days to 3 months. Children with a rapidly progressive course associated with poststreptococcal glomerulonephritis usually recover spontaneously. Renal outcomes in other diseases causing rapidly progressive glomerulonephritis are less favorable, with end-stage renal disease occurring within 2-3 yr. Here we report a case of RPGN due to severe combined infection, *Pneumococcus*, *Mycoplasma* and Adenovirus.

Case : A 13-year old girl was admitted because of high fever, nausea, and dyspnea. On admission, chest x-ray showed necrotizing pneumonia and effusion on both lung fields. Laboratory investigations showed WBC 77,800/mm^3, Hemoglobin 4.9 g/dL, Platelet 684,000/μL, BUN/Cr 187/15.8 mg/dL, Na/K/Cl 128/7.0/88 mmol/L, protein/albumin 6.8/ 2.5 g/dL, ASO 477 IU/mL, C3 below 16.5 mg/dL, C4 17.7 mg/dL, cold agglutinin 1:128, *mycoplasma* antibody 1:20, 480, *mycoplasma* PCR negative, *Streptococcus pneumoniae* isolated on blood culture, and adenovirus IgM antibody was positive. We started peritoneal dialysis and medical treatment. Although pneumonic infiltration and laboratory findings were improved gradually with treatments, microscopic hematuria, proteinuria, and uremia state were persistent. Renal biopsy showed global sclerosis and crescent formation on LM, and paramesangial and mesangial electron dense deposit on EM but IF was negative. We started methylprednisolone pulse therapy but tapered due to steroid induced hyperglycemia. We started low dose cyclophosphamide pulse therapy monthly with oral mizoribine. Proteinuria was reduced over several months and renal function was improved gradually. We performed follow-up biopsy after 11 months. On second biopsy, laboratory findings showed WBC 6,560/mm^3, Hemoglobin 11.7 g/dL, Platelet 332,000/uL, BUN/Cr 22/1.0 mg/dL, Na/K/Cl 140/5.0/109 mmol/L, protein/albumin 6.8/3.9 g/dL, ASO 70 IU/ mL, C3 109 mg/dL, C4 22.5 mg/dL, *mycoplasma* antibody negative, and 24-hour urine protein was 140 mg/day. Follow-up renal biopsy showed fibrocellular crescent formations in 8 of 10 glomeruli. The tubules and interstitium showed diffuse heavy infiltration of chronic inflammatory cells with pronounced tubular atrophy and fibrosis. Granular depositions of IgA and C3 were observed on IF.