Protein-losing Enteropathy Associated with Immune Complex-mediated Vasculopathy in a Case of Undifferentiated Connective Tissue Disease

Key words: protein-losing enteropathy, immune complex, hypocomplementemia

A 21-year-old woman was admitted to the hospital for investigation of severe edema. Five months before admission, she noticed periorbital edema. Her edema became generalized and she gained over 7 kg in 5 months. The laboratory data on admission showed an elevated erythrocyte sedimentation ratio (116 mm/h), severe hypoalbuminemia (1.7 g/dl) and hypercholesterolemia (489 mg/dl). The absence of significant proteinuria (45 mg/day) excluded the possibility of nephrotic syndrome as a cause for her hypoalbuminemia. Marked elevation of the α1-antitrypsin clearance (319 ml/day) strongly suggested a diagnosis of protein-losing enteropathy (PLE). The abdominal CT scan demonstrated thickened folds with contrast enhancement in the duodenum and upper jejunum (Fig. 1A). 99mTc human serum albumin scintigraphy demonstrated radioisotope accumulation in the stomach, duodenum and upper jejunum (Fig. 1B). A duodenal mucosal biopsy revealed lymphangiectasia and lymphocytic infiltration around the blood vessels (Fig. 2A). In addition, immunofluorescence microscopy revealed the deposition of IgG and C3 components around the vessels (Fig. 2B). Immunological studies indicated a positive anti-nuclear antibody (1/320), positive anti-U1-RNP antibody (1/16), and hypocomplementemia (CH50 20 U/ml, C3 59 mg/dl, C4 10 mg/dl), but normal circulating immune complex level and negative cryoglobulin. A minor salivary gland biopsy and a renal biopsy revealed sialoadenitis and deposition of immune complex in the glomeruli, respectively. Because only two criteria of American College of Rheumatology (ACR criteria) for the classification of systemic lupus erythematosus (SLE) were present, this case could not be classified as SLE. Thus, a final diagnosis of PLE associated with
undifferentiated connective tissue disease (sialoadenitis, immune complex related glomerulonephritis, hypocomplementemia, and positive anti-nuclear antibody) was made and she was treated with intravenous methyl-prednisolone pulse therapy (1 g daily for 3 days) followed by 40 mg oral prednisolone per day. One month after the initiation of corticosteroid treatment, the serum albumin level has increased to 3.6 g/dl.

After the first report by Waldmann et al in 1969 (1), more than 30 cases of PLE associated with lupus have been reported in the literature to date (2–4). Some reports suggest that an immune complex-mediated vasculopathy might be the underlying mechanism. Nakajima et al also reported a PLE associated with hypocomplementemia and anti-nuclear antibodies that did not fulfill the ACR criteria for SLE similar to the present case (5). The hypocomplementemia and C3 deposition in the mucosal vessels demonstrated in the present case support an important role for the activation of complement in the development of PLE.

References


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Figure 2. A) Prominent lymphangiectasia and lymphocytic infiltration around the vessels of duodenum are demonstrated (HE ×200). B) Immunofluorescence microscopy demonstrating C3 deposition around the vessels of duodenum (×100).