Focal Segmental Glomerulosclerosis in a Patient with a Family History of the Disease

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A renal biopsy was performed on the 14th day of hospitalization. The patient received prednisolone, 30 mg daily, for 7 weeks without any beneficial effect. In the biopsy specimen, 7 of 13 glomeruli showed glomerular sclerosis and adhesion of Bowman's capsule (fig. 1). In addition, 1 glomerulus had a crescent. Immunofluorescent study of the kidney revealed mesangial deposits of IgA, IgG, IgM, C1q and C3. These findings were compatible with the diagnosis of FSGS.

The pedigree of the patient consisted of 35 family members in 4 generations (fig. 2). Three died of renal failure (II-3, II-6 and II-10) and another 3 developed renal failure (II-1, III-4 and III-14). The inheritance mode

Dear Sir,

An increasing number of reports exist regarding the occurrence of focal segmental glomerulosclerosis (FSGS) in sibling pairs [1-6]. The method of inheritance of familial FSGS appears to be variable, but in some reports, the mode is autosomal dominant [7-10].

We observed a patient who had renal dysfunction with an autosomal dominant inheritance pattern. Renal histology revealed a lesion characteristic of focal glomerulosclerosis.

H. F., a 51-year-old man, was diagnosed as having proteinuria at the age of 40. He was asymptomatic, with a proteinuria of 3.3 g/dl. Edema and general fatigue were first discovered 2 months ago. Renal dysfunction was noted and he was referred to our hospital. On admission, his blood pressure was 152/84 mm Hg. Physical examination failed to reveal edema. Visual disturbances and hearing loss were absent. A chest roentgenogram and electrocardiogram yielded normal results. Urine analysis revealed proteinuria (3.2 g/day), and the sediment contained a few red and white cells but no casts per high-power field. Serum total protein was 7.6 g/dl (albumin 52%, α_1 -globulin 3%, α_2 -globulin 11%, β_2 -globulin 10%, and γ -globulin 24%). Hemoglobin level was 15.7 g/dl, red cell count 4,640,000/mm³, white cell count 6,000/mm³ with a normal differential count, and platelet count 273,000/mm³. PSP test was 38% (15 min), and creatinine clearance was 55 ml/min. No chromosomal abnormality was found. Abdominal ultrasonography demonstrated normal-sized kidneys and a normal appearance of the pelves and calices.

Fig. 1. Segmental sclerosis. HE. $\times 100$.

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of renal failure was autosomal dominant. Some developed end-stage renal failure within 1 or 2 years since proteinuria had been found (II-6, **II**-10, III-4 and **III**-14). As far as we know, there were no other relatives with renal disease or visual and hearing disturbances, based on present findings and histories.

Human lymphocyte antigens (HLA) were analyzed in 3 patients (II-4, II-6 and III-4). The HLA type of **II**-4 was A2 and A24, Bw52 and B39, Cw7, DRw15 and DQw1. HLA typing revealed an identical phenotype in II-6 and III-4, consisting of A24, Bw52 and DR2 and DR4.

Various forms of familial nephropathy have been described. The most common form, Alport's syndrome, is an autosomal

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Fig. 2. Pedigree of the described patient. The numbers above the symbols are the pedigree

number. II-4 is the patient. CRF = Chronic renal failure; H.D. = hemodialysis.

dominant disease defined by the association of sensorineural deafness, ocular alterations and renal compromise [11]. Congenital ne-phrotic syndrome of the Finnish type has an autosomal recessive pattern of inheritance and almost always becomes clinically evident by 6 months of age [12]. Juvenile-onset ne-phrotic syndrome has its onset before the age of 5 years [13]. Benign familial hematuria is another form of inherited renal disease [14].

Several reports of familial FSGS have appeared in the literature. McCurdy postulated that several features appear to be constant [6].

First, virtually all of the patients present with proteinuria; second, the majority are steroid-resistant; and finally, many progress rapidly to renal failure.

Some reports exist regarding HLA typing of FSGS. There appears to be a highly significant increase in the incidence of HLA DRw8 in patients of Hispanic origin with familial FSGS [5, 6]. The frequency of DR4 and A28 was reported to be highly increased in patients with idiopathic FSGS [15].

In our case, morphological findings indicated FSGS, and the hereditary pattern was autosomal dominant. HLA typing revealed the presence of HLA A24 and Bw52 in all 3 tested patients with renal failure.

No renal biopsies or HLA typing have been performed in any other members of this pedigree. An interaction between a shared genetic background and environmental factors may be involved in the pathogenesis of FSGS. HLA typing in other members of the pedigree of patients with familial FSGS would be of great help in evaluating the relative contribution of heredity to this disease.

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