PARTICIPATION OF TYPE VI COLLAGEN FIBERS IN GLOMERULAR SCLEROSIS

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Attempting to clarify the role of collagen fibers in glomerular sclerosis, we studied the participation of type VI collagen fibers in formations of diabetic nodular lesions and of glomerular lesions of hemolytic uremic syndrome (HUS).

PATIENTS AND METHODS

Fresh frozen and paraffin embedded kidney specimens obtained from 38 diabetics and 7 with HUS were comparatively observed in serial section treated for light (PAM stain) and immunofluorescence (anti-human type VI collagen monoclonal antibody) microscopy. In addition, localizations of type VI collagen fibers in those lesions were studied by the immunohistochemical technique with protein A-gold.

RESULTS AND DISCUSSION

1) Normal glomeruli: Type VI collagen was detected in the mesangium and glomerular basement membrane (GBM). 2) Diabetic nodular lesions: In the microaneurysmal lesions, which were morphologically assumed to be an intermediate form between the mesangiolysis and the nodular lesion1), PAM-weakly positive structureless material was increased to fill up the dilated capillary lumina. In the comparative immunofluorescence observations, type VI collagen was detected in corresponding sites in the serial sections. Concentrically laminated acellular material in the nodular lesion had similar histochemical and immunological properties to those described above. By immunoelectron microscopy, gold particles indicating type VI collagen were observed on the increased fibers in the laminated area (Fig.1). 3) Glomerular lesions in HUS: Longstanding endothelial detachment from the GBM was still observed in specimens obtained 1600 days after the disease onset. The widened subendothelial spaces were filled up with the same fibers (Fig.2). These data suggest that type VI collagen fiber might play an important role in the progression of glomerular sclerosis of diabetic nodular lesions and in the organization of the widened subendothelial space in HUS.

REFERENCES

Glomerular Sclerosis in DM and HUS

Fig. 1 On the abundant fibers in the laminated area of the nodular lesion, gold particles indicating type VI collagen fibers were observed. (X 12,000)

Fig. 2 Type VI collagen fibers filling up the widened subendothelial space were observed. (X 17,000)