PATHOLOGICAL STUDIES ON GLOMERULONEPHRITIS OF CHICKENS

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Glomerulonephritis of chickens, which was found in 2 poultry farms in Hokkaido during 1979 and 1982, was studied by light microscopic, electron microscopic, immunohistochemic and serologic methods.

Investigated materials consisted of 48 White Leghorn hens. Electron microscopic examination was performed on 26 of them.

Microscopically, the kidneys showed proliferative glomerulonephritis, which, from the characteristics of the glomerular lesions, was classified into 3 stages : initial, proliferative and crescent-forming. The lesions of the initial stage consisted of swelling of visceral epithelial cells and hyaline droplet deposition. The lesions of the proliferative stage were characterized by swelling, proliferation and hyaline droplet deposition of the visceral epithelial cells, and proliferation of the mesangial cells. The stromal fibers were also increased in the mesangial area. The lesions of the crescent-forming stage were prominent in proliferative changes. The epithelial crescent consisted of swelling, proliferation, hypercellularity and adhesion of the capsular epithelial cells with fibroblastic proliferation.

The interstitial tissue usually showed lymphoreticular cell proliferation, plasma cell infiltration and germinal center formation. Active proliferation of these lesions was often found in the initial stage of the glomerular lesions. On the contrary, regressive changes of the interstitial lesions were often found in the advanced stage of the glomerular lesions.

Immunohistochemically, granular deposits of IgG were found in the cytopalsm of the visceral epithelial cells of the glomeruli at a high incidence, and linear deposits of IgG in the basement membrane were found in only 2 cases.

Electron microscopically, electron opaque materials were deposited in the stroma of the mesangial area, but only a few were observed in the subendothelial area of the basement membrane. The foot processes of the visceral epithelial cells were often fused. In 5 chikens, C-type virus particles were found in the basemant membrane and intercellualr spaces of the visceral epithelial cells.