

THE HETEROGENEITY OF RENAL DAMAGE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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OBJECTIVES

Renal pathology and structural-functional relationships of diabetic nephropathy (DN) have been less well studied in type 2 versus type 1 diabetic patients. Although renal damage in type 1 and type 2 diabetic patients shares many similarities, a high incidence of non-diabetic lesions has been reported in clinical biopsies from proteinuric type 2 diabetic patients (1,2,3). As far as diabetic patients undergo renal biopsy only in cases of DN atypical clinical presentation, this heterogeneity could be explained mainly by the coexistences of diabetes (DM) and other kidney disease.

The aim of the study was to analyze the nature of kidney damage in patients with type 2 diabetic patients, who had clinical indications for kidney biopsies.

METHODS

The retrospective analysis was performed in 58 patients with DM type 2 (31 men, 27 women, mean age 61 ± 9.2). The median of duration of DM was 96 (36; 156) months. In all patients renal biopsy was performed for diagnostic purposes and evaluated by light microscopy and immunofluorescence. All patients had proteinuria above 1,0 g/d, 43% of them had nephrotic syndrome, 80% of patients were hypertensive. Microhematuria was found in 56% patients. Serum creatinine levels were 173 (120; 364) μmol/l. Medians, 25 and 75 percentiles were calculated, statistical significant differences were determined using Mann-Witny method.

Tabl.1 Basic demographic and clinical parameters in groups of patients with type 2 DM

Group	Age	Duration of diabetes (month's)	Mean BP mm Hg	Protein excretion g/24 hrs	Serum creatinine μmol/l	Serum protein g/dl	Serum albumin g/dl
1	60,5± 7,6	72.0 24.0;153.0	122 104;138	4.0 2.8;8.1	210.0 140.5;433.0	5.85 5.3;6.8	2.7 2.34;3.38
2	64,4± 9,0	120.0 (87.0;210.0)	100 93; 107	3.0 1.4;.4.2	148.0 111.5;379.0	6.46 5.3;5.73	3.13 2.38;3.68
3	58,7± 9,5	72.0 48.0;192.0	110 98;127	4.0 2.5;6.0	173.0 117.0;230.0	5.29 4.47;6.65	2.5 2.0;3.31
Total	60,7± 9.1	96,0 36,0;156,0	110 100;133	3.8 2.5;7.3	174.0 122.0;364.0	5.85 5.06;6.63	26.2 2.29;3.34

RESULTS

According to patterns of renal injury, the patients were divided into 3 groups. The 1-st group (G1) consisted of 29 patients (50%), who had typical changes of DN (Fig.1). In 12 patients (21%, G2) the patterns of DN combined with the signs of other kidney disease. In 17 patients (G3, 29%) no signs of DN were found, and other kidney disease was diagnosed.

Non-diabetic patterns were found in total in 29 patients. They included: FSGS (8 pts), IgA-nephropathy (4 pts), MGN (4 pts), MCD (3 pts), RPGN (5 pts), cryoglobulinemic GN (2 pts), lupus nephritis (LN)(1pt), tubulo-interstitial nephritis (TIN) (1 pt), acute tubular injury ATI (2 pt).

There were no significant differences in age, mean duration of diabetes, renal function, urinary protein excretion and mean BP among the three groups of patients (tabl) The number of patients with nephrotic syndrome in each group was similar as well

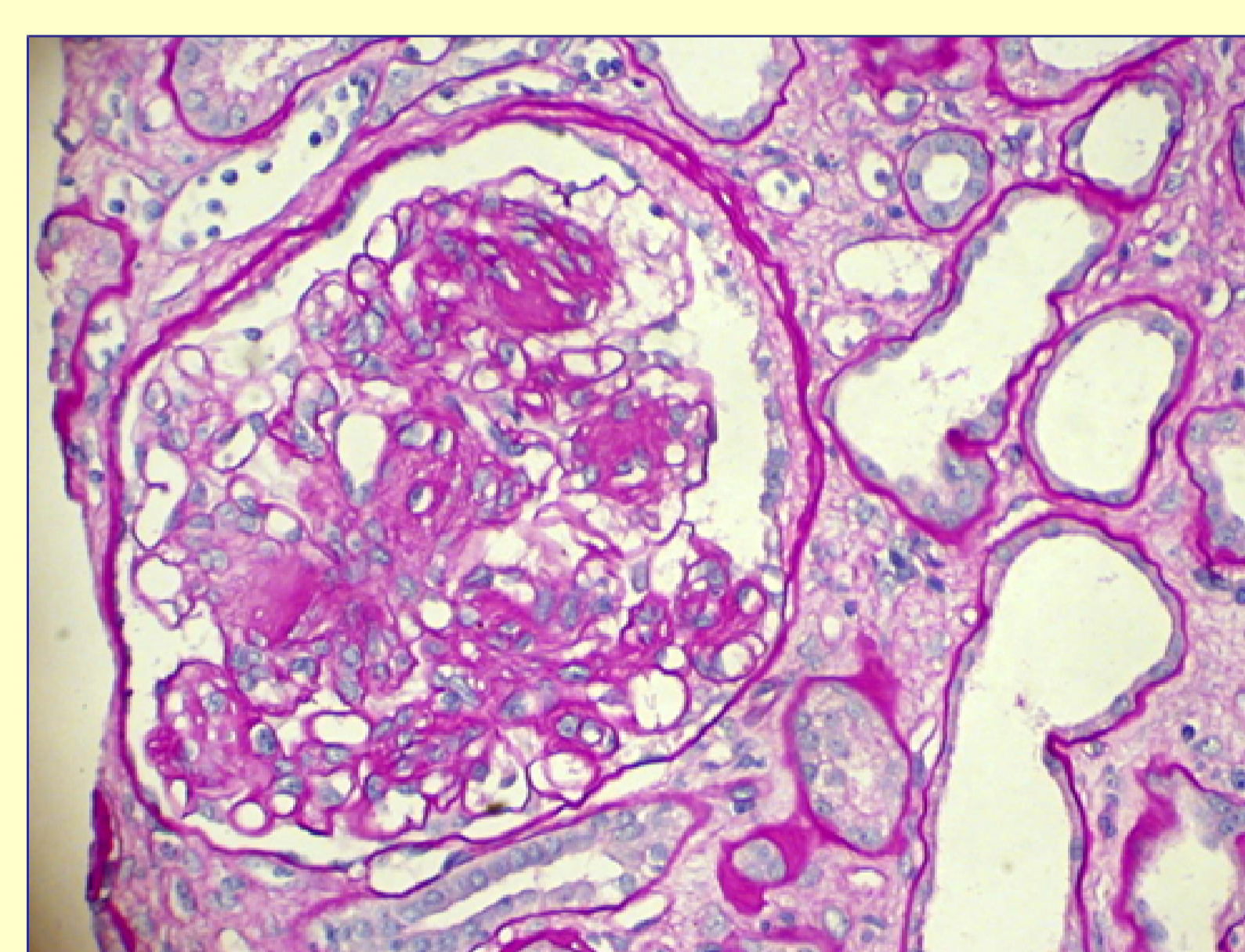


Fig.1 Diabetic nephropathy: mesangial expansion, nodular glomerulosclerosis and glomerular basement membranes thickening

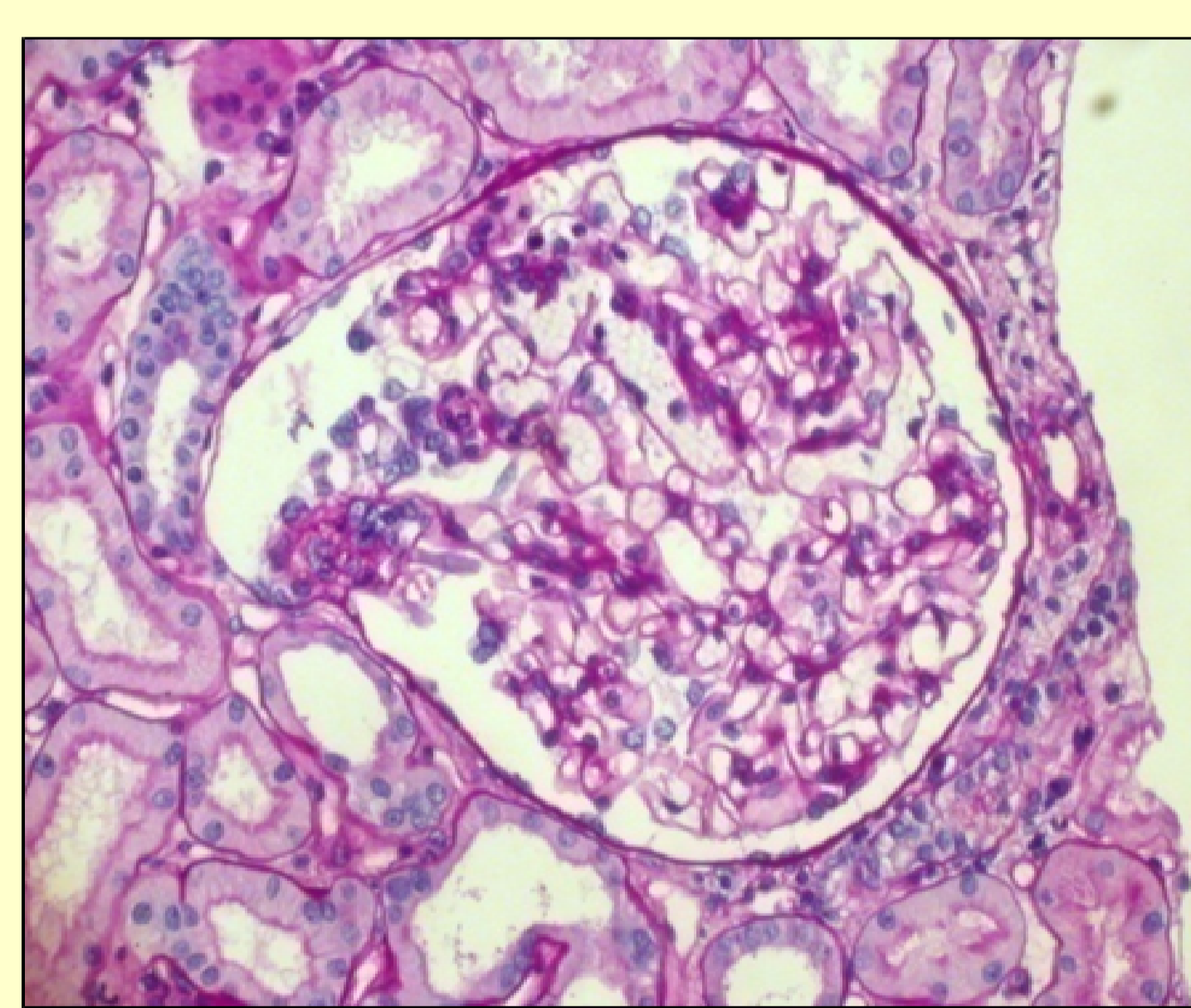


Fig. 2 Diabetic nephropathy associated with FSGS (patient from Group 2)

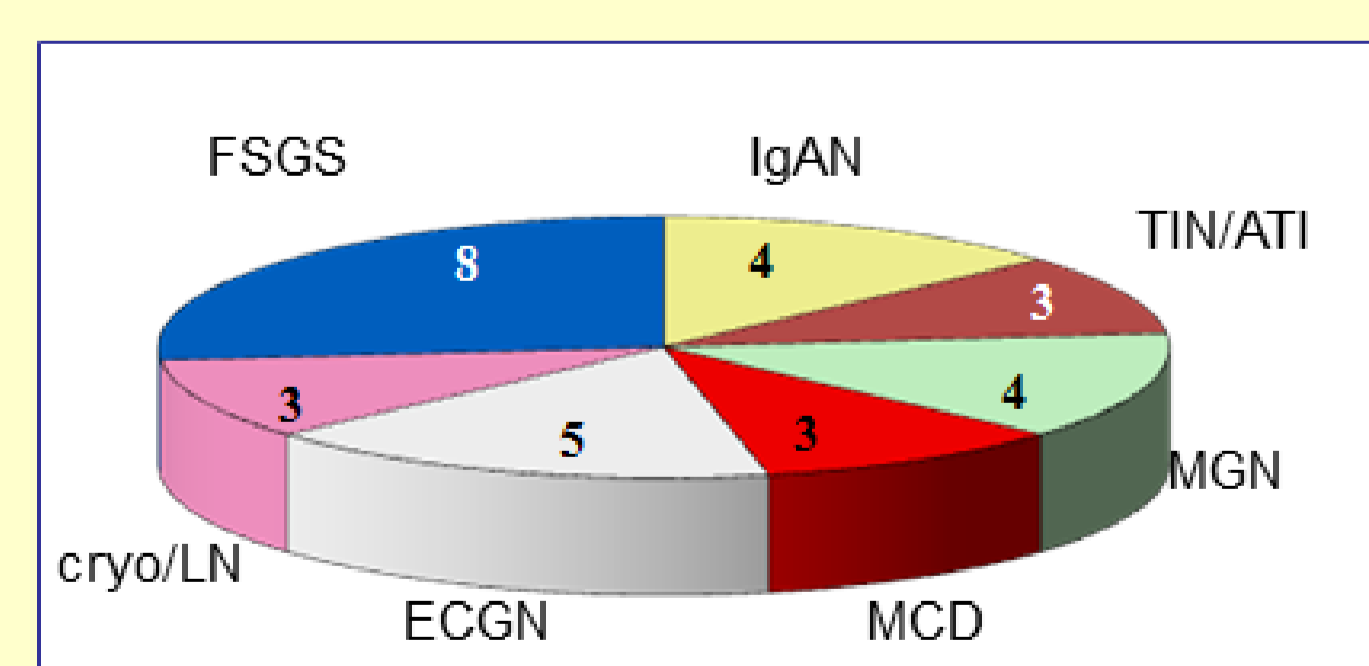


Fig. 4 Distribution of non-diabetic pathology totally observed in patients with type 2 DM

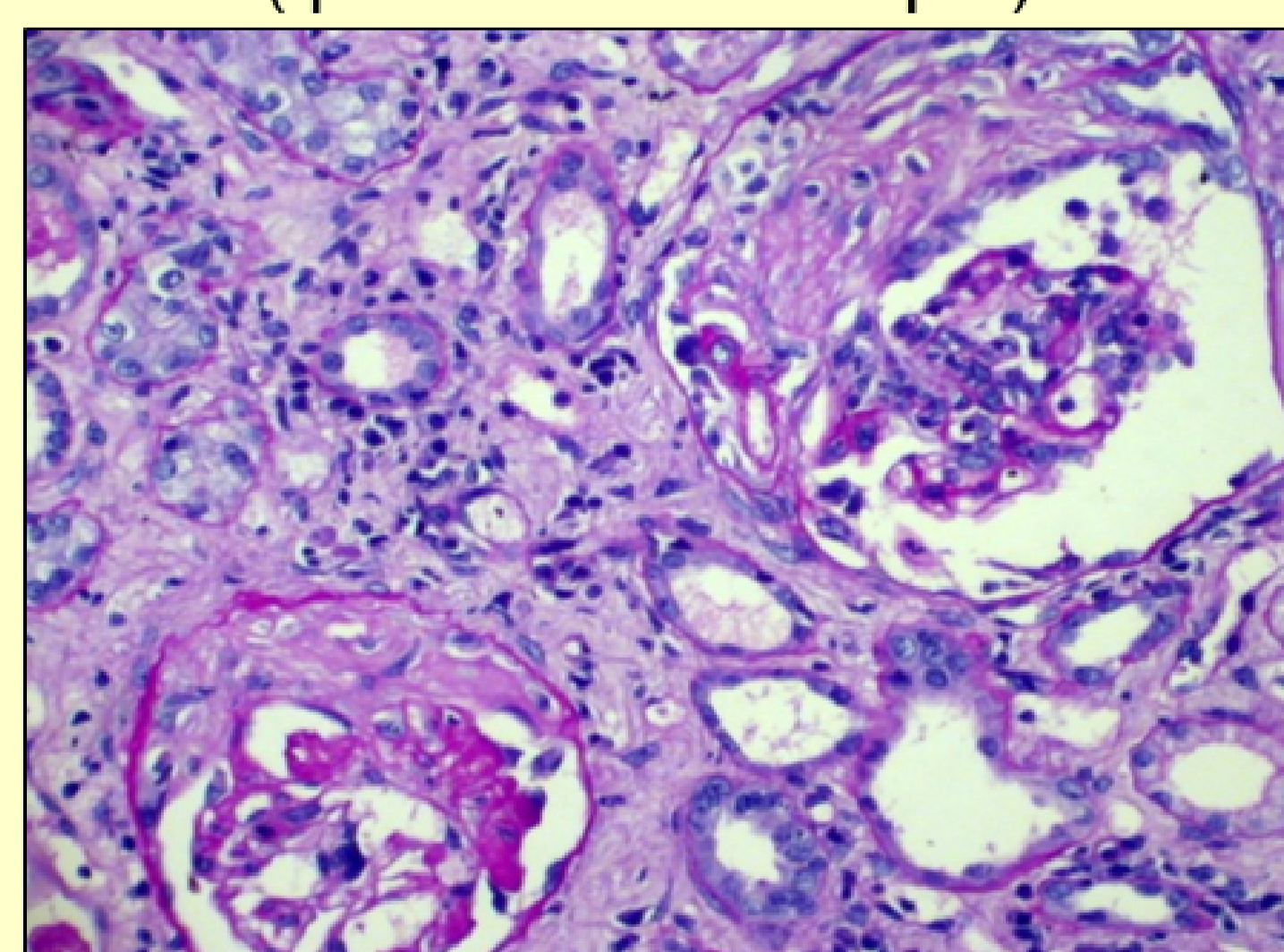


Fig. 3 Paucimmune necrotizing GN (patient with ANCA-vasculitis from Group 3)

CONCLUSIONS

Our data show that about 50% of proteinuric patients with type 2 DM could have non-diabetic renal lesions, which are accounted for by both the developing of different than DN kidney disease or the combination of latter with DN. Our data confirm the point of view that kidney biopsy should be considered in all cases of atypical clinical course of DN.

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