SUMMARY & CONCLUSIONS
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1. An attempt has been made to study the involvement of kidneys and the urinary tract among a total of 64 patients, of which 48 were unselected patients of diabetes mellitus and 16 were controls.

2. The age of the diabetic patients, ranged from 13 years to 78 years, of which 37 were males and 11 were females.

3. Age, sex, duration and severity of diabetes showed no relationship with the incidence of diabetic nephropathy when statistically analysed. Similarly age, sex and duration of diabetes had no correlation with the incidence of pyelonephritis except that the severity of diabetes of grade IV showed positive correlation with the incidence of pyelonephritis on statistical analysis.

4. All the diabetics studied had been poorly controlled before admission.

5. Among these 48 patients, 35 patients (73%) had renal or urinary tract involvement. Diabetic nephropathy was seen in 19 cases (39.6%). Two patients (4.1%) among these 19 patients showed edema, albuminuria and hypertension (K.W. syndrome). Chronic pyelonephritis plus urinary tract infection was seen in 19 cases (39.6%), of which 14 (29.2%) cases had only chronic pyelonephritis. Three patients (6.3%) among these 35 patients, had both nephropathy and pyelonephritis.

6. Adequate tissue for histological examination was obtained in 44 patients (33 males and 11 females). In one
patient kidney biopsy was not attempted due to high blood urea above 100 mgm per cent and in three others kidney biopsy was not successful. Only 3 patients developed gross hematuria and blood transfusion had to be given to one of these patients.

7. Mean age at the time of biopsy for males was 31.2 ± 13.6, for females 38.1 ± 14.3; mean age of onset of diabetes for males was 28.5 ± 13.9, for females 35.3 ± 14.6 and mean duration of diabetes at time of biopsy for males was 3.3 ± 4.1 and for females 3.0 ± 1.9.

8. Diffuse glomerulosclerosis was seen in 18 out of 48 patients (37.5 %); in 95 % of these it was of mild degree; nodular glomerulosclerosis was observed in only 2 cases (4.1 %). Exudative lesion was seen in one patient (2.1 %) only, and it was also accompanied by arteriosclerotic changes. Diffuse glomerulosclerosis was also associated in these two patients with nodular changes and one patient with the exudative lesion.

9. Peritubular hyaline cuffing was observed in 6 patients (12.5 %) but none of the biopsies showed Armanni-Ebstein tubular lesion.

10. Changes of chronic pyelonephritis which fulfilled the criteria of Weiss & Parker (1939), were found in 2 kidney biopsies (4.1 %) only, and both these biopsies showed diffuse glomerulosclerosis as well.

11. Arteriosclerotic changes in the blood vessels were noticed in 7 biopsies (14.6 %), and all these patients were
above the age 40. No renal pathology was seen in 26 biopsies.

12. The diagnosis of chronic pyelonephritis is difficult and the focal nature of the disease makes renal biopsy an uncertain procedure, whereas the radiological changes on I.V.P have been considered by all, to be late in appearance. Hence, (a) provocative urinary white cell excretion, (b) urinary colony count and (c) micturating cystogram were employed and showed:

Definite changes of chronic pyelonephritis on I.V.P. were seen in 5 patients (10.4%) and spastic changes of chronic pyelonephritis were observed in 3 cases (6.2%) only. Provocative urinary cell excretion was abnormal in 13 (27.1%) and urinary colony count was positive in 21 (43.7%). None of the patients with pyelonephritis had a positive vesico-ureteric reflux. A possible explanation may be that in diabetes the kidneys get affected through the hematogenous route.

13. Seven patients (14.5%) were considered to have "probable renal involvement" and 6 cases (12.5%) had "no renal involvement". The above conclusions have been derived on the results of various tests performed and on histological examination of the kidney biopsy under light microscopy.

14. None of the 16 controls showed any evidence of renal damage either on any of the various renal function tests performed or on histological examination of 5 kidney biopsies.
(62.5 %), 15 had diabetic nephropathy and the other 15 had diabetic nephropathy and the other 15 had no obvious renal pathology on kidney biopsy.

20. Thus, on adequate investigation renal involvement was found in 73 % and an additional 14.5 % had "probable renal involvement" in these 48 unselected diabetes.

21. It became possible to demonstrate renal or urinary tract involvement in more than 3/4 of the patients, mainly because recent investigative procedures were applied.