AN ANALYSIS OF PERCUTANEOUS RENAL BIOPSIES IN FIFTY CASES OF NEPHROTIC SYNDROME*

Saleem Sadiq, N.A. Jafarey and S.A. J. Naqvi

Abstract

The analysis of renal biopsy findings in 50 cases of Nephrotic Syndrome reporting at the department of Nephrourology, Jinnah Postgraduate Medical Centre, Karachi from 30th March, 1976 to 30th April, 1977 is reported. Out of 50 cases, 39 cases (78%) were diagnosed as cases of primary glomerular diseases, while secondary glomerular diseases were diagnosed in 11 cases (22%). Comparing the incidence of various diseases causing Nephrotic Syndrome in our series with those of Kark et al. (1958 b) and Blainey et al. (1960) a high incidence of proliferative glomerulonephritis and amyloidosis kidney in our series was noticeable.

Introduction

This paper describes the renal biopsy findings in 50 patients of nephrotic syndrome, attending the Department of Nephrourology, Jinnah Postgraduate Medical Centre, Karachi from March, 1976 to April, 1977.

Material and Methods

Patients: Percutaneous renal biopsies of 50 patients of Nephrotic Syndrome were studied. The patients were a series of continuous non-selective cases of Nephrotic Syndrome reporting at the department of Nephrourology, Jinnah Postgraduate Medical Centre, Karachi, from 30th March, 1976 to 30th April, 1977.

Criteria of Selection: The criteria for selection of the patients was the presence of proteinuria, hypoalbuminaemia and oedema of varying degree.

Renal Biopsies: Percutaneous renal biopsies were performed by the method of Kark et al. (1958 a). The specimens were fixed in 10% formalin and processed as for paraffin embedding. The paraffin embedded tissue was sectioned serially at 5-6 microns thickness stained with the following stains:

1. Hematoxylin and Eosin (H&E)
2. Periodic acid Schiff (P.A.S.)
3. Congo Red

The stained slides were then studied and a histological diagnosis made. The histological classification adopted by Kark et al. (1958b) and Blainey et al. (1960) was followed.

Observations and Results

An analysis of the histological diagnosis made on the renal biopsies is shown in Table I. Out of a total of 50 cases, 39 (78%) showed primary glomerular disease and 11 (22%) showed secondary glomerular disease. The diagnosis was on the basis of glomerular changes. Tubular and interstitial changes were of secondary importance.

Table I: Histological Diagnosis in 50 Renal Biopsies

Disease	*Number*	*Percentage*
A. Primary Glomerular Disorders		
1. Minimal change	6	12
2. Proliferative Glomerulonephritis	16	32
3. Membranous Glomerulonephritis	10	20
4. Chronic Glomerulonephritis	7	14
Sub-Total:	39	78
B. Secondary Glomerular Disorders		
1. Amyloidosis	7	14
2. Diabetic Glomerulosclerosis	2	4
3. Hypertensive Glomerulosclerosis	1	2
4. Others		
— Multiple Myeloma.. ..	1	2
Sub-Total:	11	22
Grand Total:	50 cases	

Representative photographs of some of the lesions seen in this study are presented in figures 1-6.

Fig. 1. Minimal change glomerular lesion showing a glomerulus of normal size and cellularity. The basement membrane shows no thickening. The capillaries are patent (H & E x 175).

Deptt. of Pathology and Nephrourology, Jinnah Postgraduate Medical Centre, Karachi.

*This paper is based on the thesis submitted in partial fulfilment of the requirements for the Master of Philosophy Degree granted by the University of Karachi in August, 1977.

Fig. 2. Proliferative glomerulonephritis showing a glomerulus with increased size and cellularity. The basement membrane is not thickened (H & E x 175).

Fig. 3. Membranous glomerulonephritis showing a glomerulus with markedly thickened basement membrane and normal cellularity (P.A.S. x 175).

Fig. 4. Chronic Glomerulonephritis showing a glomerulus which is shrunken in size and hyalinized (H & E x 175).

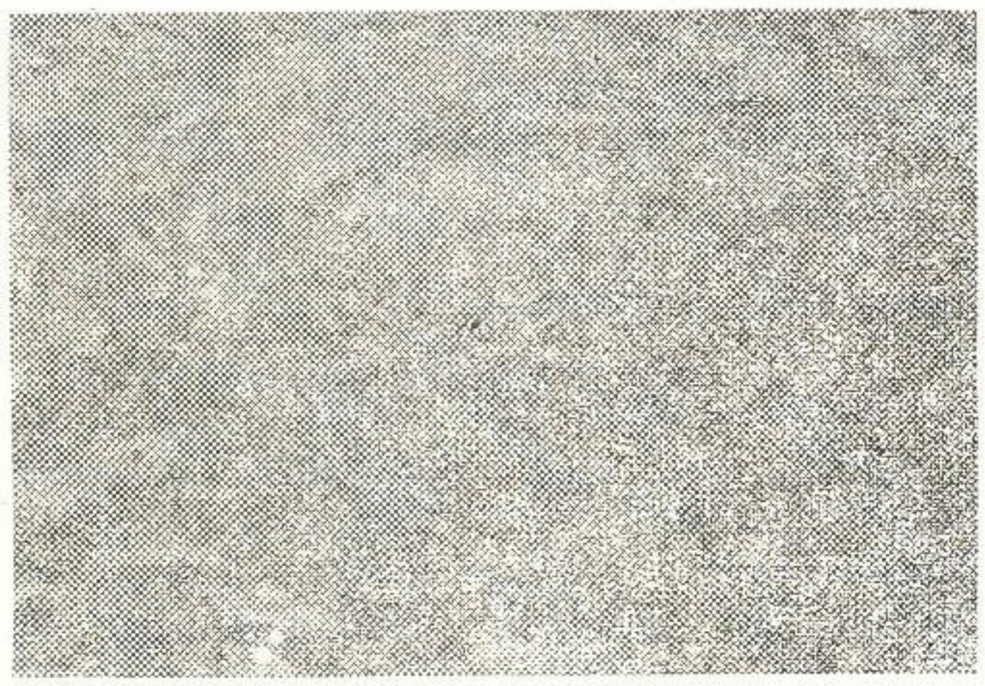

Fig. 5. Diabetic glomerulosclerosis showing a glomerulus with the typical Kimmelstiel-Wilson nodule (H & E x 175).

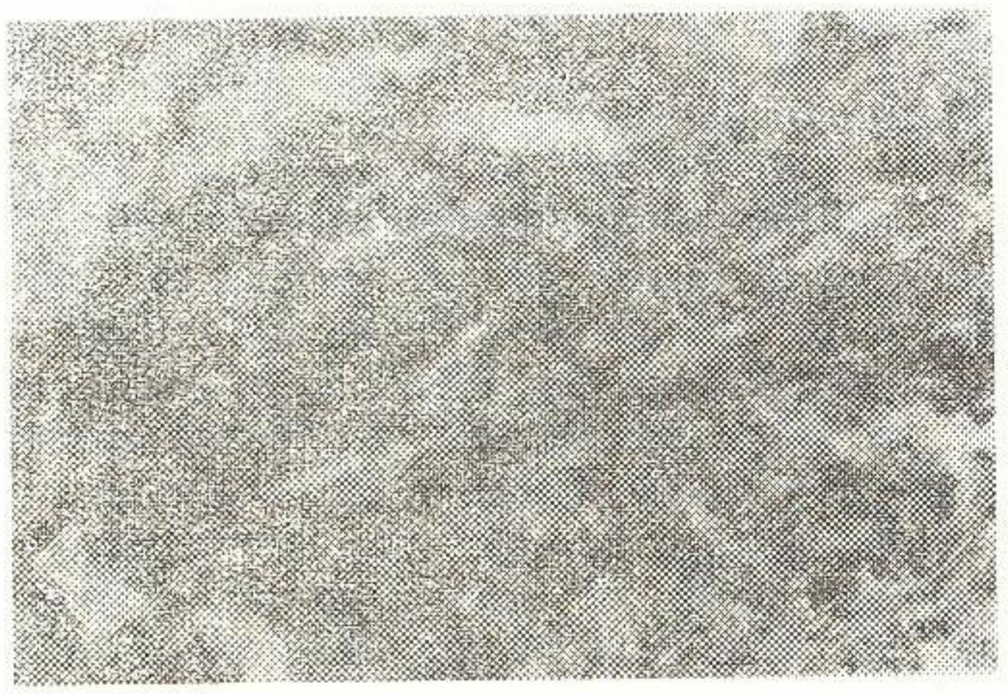

Fig. 6. Amyloidosis kidney showing a glomerulus which is enlarged in size and filled with homogenous hyaline material (Congo red x 1975).

Discussion

The incidence of various diseases causing Nephrotic Syndrome in our patients has been described. Comparison of the incidence of the various lesions causing Nephrotic Syndrome in our series of patients with those of Kark et al. (1958b) and Blainey et al. (1960) is given in Table II.

In our series, the highest incidence was of primary glomerular diseases, having been seen in 78% cases. Kark et al. (1958b) and Blainey et al. (1960) have reported 58.1% cases and 72.4% cases of primary glomerular diseases in their respective series. Conversely the frequency of secondary glomerular diseases was less than the above two series. Kark et al. (1958b) reported 41.8% cases and Blainey et al. (1960) reported 27.6% cases. In our series, there were only 22% cases of secondary glomerular diseases.

In the cases of primary glomerular diseases, an important observation was the very high frequency of proliferative glomerulonephritis (32%) in our series. As parasitological, biochemical and immunological parameters were not investigated in this study, the exact aetiological agents in these cases of proliferative glomerulonephritis could not be determined.

The total number of cases of secondary glomerular diseases were low, but the number of cases of amyloidosis of kidney were high (14%). The high frequency of amyloidosis could be explained by the fact that 6 out of 7 cases were patients of tuberculosis for the last several years.

References

Blainey, J.D., Brewer, D.B., Hardwicke, J. and Soothill, J.F. (1960) The Nephrotic Syndrome. Diagnosis by renal biopsy and biochemical and immunological analysis related to the response to steroid therapy. Quart. J. Med., 29:235.

Kark, R.M., Muehrcke, R.C., Pollak, V.E., Pirani, C.L. and Kiefer, J.H. (1958) An analysis of five hundred percutaneous renal biopsies. Arch. Intern. Med., 101:439.

Kark, R.M., Pirani, C.L., Pollak, U.E., Muehrcke, R.C. and Blainey, J.D. (1958) The nephrotic syndrome in adults: A common disorder with many cases. Ann. Intern. Med., 49:751.

Table II: Comparison with Other Workers

Diagnosis	*Kark etal.* (1958*b*) *Total cases* 98 *per centage*(%)	*Blainey et al.* (1960) *Total cases* 29 *per centage*(%)	*Present series* *Total cases* 50 *per-centage*(%)
A. Primary Glomerular Disorders:			
1. Minimal change	11.2	20.7	12
2. Proliferative glomerulonephritis	6.1	20.7	32
3. Membranous glomerulonephritis	28.5	20.7	20
4. Chronic glomerulonephritis	—	10.3	14
5. Membrano-proliferative glomerulonephritis	12.2	—	—
Sub-Total	58.1%	72.4%	78%
B. Secondary Glomerular Disorders:			
1. Amyloidosis	3	10.3	14
2. Diabetic glomerulosclerosis	15	—	4
3. Hypertensive glomerulosclerosis	1	6.9	2
4. Disseminated Lupus Erythematosis	18.3	3.4	—
5. Renal Vein Thrombosis	2	3.4	—
6. Others	2	3.4	2
Sub-Total	41.8%	27.6%	22%