Case Report

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Microfilaria in Kidney Biopsy Presenting with Nephrotic Range Proteinuria - A Case Report

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ABSTRACT

Background: A 59 year old male from the North was referred with Nephrotic Syndrome and heavy proteinuria (8gm) and weakness. Urine examination showed 2-3 pus cells, 4+ protein. Two cores of renal tissue were submitted in buffered formalin and Michel's transport medium.

Objective: The case is presented for its rarity. The discussion will include immunological review and glomerular patterns of injury associated with Microfilaria.

Result: The immunofluorescence pattern was negative for IgG, IgM, IgA, C3, C4, C1q, kappa and lambda. The light microscopy revealed 3 glomeruli showing mild increase in mesangial cellularity. Tubules show cloudy change. Interstitium shows focal lymphoid infiltrate. An unusual finding is the presence of segmented microfilaria in glomerular capillaries.

Conclusion: Diagnosis of filariasis on kidney biopsy by identifying microfilaria is rare. High index of suspicion is required to diagnose filariasis due to its wide range of clinical presentation and laboratory findings. In the archives of 11O8 renal biopsies over a period of 4 years, this is the first case we came across.

Keywords: *Microfilariae, Kidney Biopsy, Nephrotic Syndrome, Filarial Nephropathy*

Introduction

Filariasis is an important public health problem in India, and 40% of the worldwide disease.[1] According to the limited literature available on the subject, approximately 45% of untreated microfilaremic patients have renal pathology, which manifests as microscopic haematuria (~35%) and/or proteinuria (~20%).[2] It is known to present in a wide variety of clinical picture with lymphatic and extra-lymphatic symptoms. Renal manifestations in these patients can range from asymptomatic proteinuria, chyluria, nephrotic syndrome, to acute glomerulonephritis. In department of Histopathology Metropolis Healthcare Ltd, Mumbai, we have received 858 native and 250 transplant kidney biopsies over a period of 4 years; one unusual native biopsy with microfilaria has been discussed.

Case Report

A 59 year old male from Delhi presented with whole body swelling since 15 days and weakness. Urine examination- 2-4 pus cells, 4+ protein, heavy proteinuria (8gm), no history of chyluria**.** Two cores of renal tissue were submitted in 10 % buffered formalin and Michel's transport medium. On histopathological examination, the light microscopy revealed glomeruli with mild increase in mesangial cellularity. There was no evidence of endothelial or epithelial proliferation or thickening of basement membrane. Occasional capillary loop in glomerulus revealed cross sections of segment of microfilariae. The latter showed parallel arrangement of nuclei throughout their length and were covered by sheath on external aspect (Fig 1(A, B, C)). On direct immunofluorescence of kidney biopsy the glomeruli were negative for gG, IgM, IgA, C3, C4, C1q, kappa and lambda antibodies. Electron microscopy could not be performed. Thus, diagnosis of filarial nephropathy with minimal change disease was offered.

Discussion

The parasites causing filariasis belong to the superfamily of Filarioidea. Four different parasites, each transmitted by its own specific vector, are responsible for three clinical diseases.[3] The different parasites are identified by their location, periodicity, morphological characteristics, and clinical presentation of the disease they cause. Several studies have recently shown a clear association of filariasis and glomerular disease,[3] however the exact incidence of renal involvement in filarial infection is very difficult to estimate. Asymptomatic urinary abnormalities are reported in 11-25% of patients, nephrotic syndrome is seen in 3-5% of cases. Proteinuria and or haematuria have been reported in 50% of patients with lymphatic filariasis. 25% showed glomerular proteinuria.[4] Two third of the patients with nephrotic syndrome and 38% of patients with nephrotic syndrome in filarial endemic regions exhibit

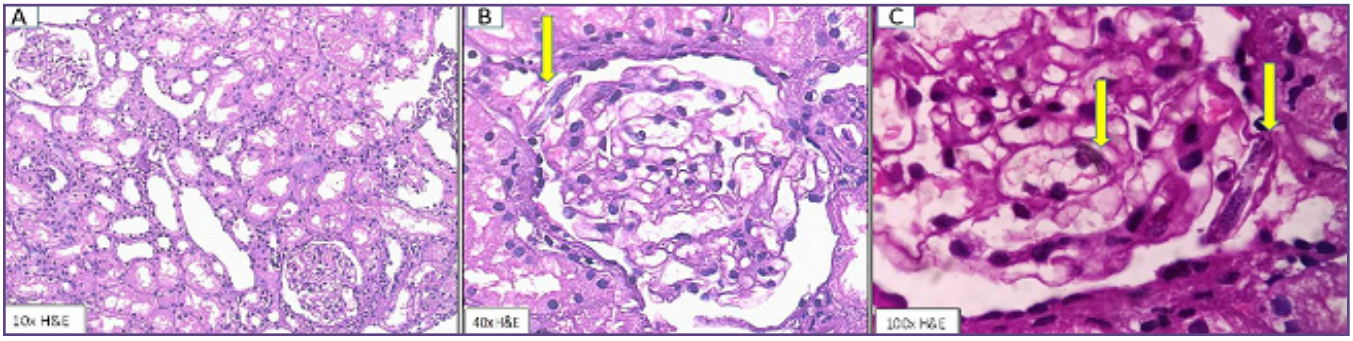

Fig. 1: Minimal change disease with Microfilariae in glomerular capillaries.

antibodies to microfilarial antigen by enzyme –linked immunosorbent assay.[5] Renal abnormalities in filariasis have been attributed to two factors: (1) mechanical damage to glomeruli and (2) immune complex deposition.[2,6] According to some studies, damage caused by deposition of immune complexes in the glomerular basement membrane is likely to be a far more common cause of renal pathology in filariasis.[7] Several patterns of glomerular pathology are described with filarial nephropathy and include minimal change disease as in the present case, collapsing focal segmental glomerulosclerosis, mesangiocapillary, and diffuse and mesangioproliferative glomerulonephritides.[4] Microfilarae seen in capillary lumina, peritubular capillaries, arterioles. Electron Microscopy: podocyte effacement and electron dense deposits in subepithelial, subendothelial and intramembranous location.[4] Immunofluorescence: IgM, IgG, C3 in mesangium and along capillary loops.

Conclusion

Diagnosis of filariasis on kidney biopsy by identifying microfilaria is rare. High index of suspicion is required to diagnose filariasis due to its wide range of clinical presentation and laboratory findings

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