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Microfilariae-associated nephrotic range proteinuria

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Figure 1 | Milky white urine.

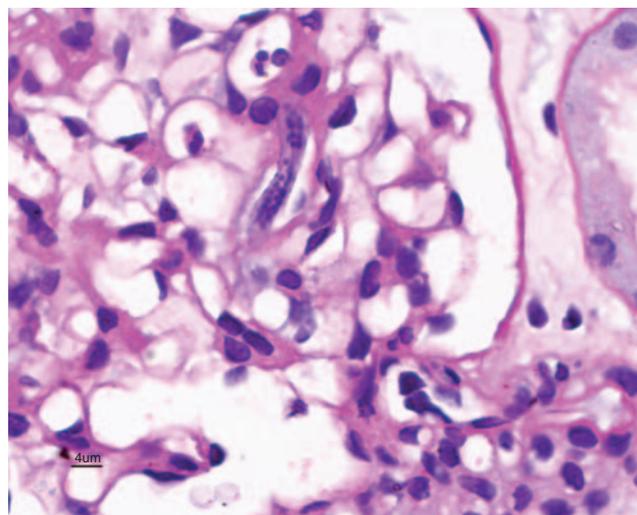


Figure 2 | Glomerulus revealing sheathed microfilariae in the capillary lumen ($\times 100$, periodic acid Schiff stain).

A 50-year-old man presented with pedal edema and episodes of hematuria that had started 1 month before. Systemic examination revealed mild pedal edema and petechial rashes on both lower limbs, without lymphadenopathy. The urine color was noted to be milky white (Figure 1). Urine analysis showed 3+ albumin and numerous red blood cells. Urine spot protein creatinine ratio (PCR) was 14.8. Serum albumin was 3.3 g/dl (33 g/l) and total cholesterol was 175 mg/dl (4.5 mmol/l). Serum creatinine level was 0.5 mg/dl (44.2 μ mol/l) and serum C3 complement level 0.53 g/l. Urine triglyceride level was 628 mg/dl (7.090 mmol/l) and urine ether test was positive, which confirmed chyluria. Complete blood count revealed leukocytosis and neutrophilia. Peripheral smear did not show microfilaria. Kidney biopsy showed 15 glomeruli, 6 of which were remarkable for the presence of microfilariae in

the capillary lumen (Figure 2). Immunofluorescence study (IgG, A, M, C3, and C1q) was negative. The patient was treated with oral diethylcarbamazine 6 mg/kg/day in three divided doses for 21 days and discharged. On follow-up, after 1 month, his urine color normalized, with PCR 0.2 and absence of triglycerides. The patient resides in the eastern belt of India, where *Wuchereria bancrofti* is endemic.

There are two ways by which microfilariae can cause glomerular disease: (1) direct physical invasion of the kidneys, or (2) immune-mediated disease. The latter group of diseases includes mesangioproliferative glomerulonephritis (GN), mesangiocapillary GN, or membranous GN. Granulomatous inflammatory reaction with eosinophilia is also described in the glomeruli and interstitium with microfilariae infestation.