HETEROGENOUS SPECTRUM OF NEPHROTIC SYNDROME IN A HIV POSITIVE PATIENT: A CASE REPORT

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Abstract: HIV-associated nephropathy (HIVAN) encompasses a wide spectrum of kidney diseases requiring different treatments. Since the introduction of antiretroviral therapy (ART), there has been a change in pattern, and we discovered that there is a variable group of immune complex nephropathies. In this setting, it is important to diagnose potentially treatable coincidental diseases like syphilis, which is a reemerging infection in (HIV) patients. Here, we describe a case demonstrating the importance of a broad differential diagnosis in HIV patients presenting with a nephrotic syndrome underlining the importance of a kidney biopsy.

Case presentation: A 43-year-old man of Caucasian ethnicity presented with a nephrotic syndrome. His medication included non-steroidal anti-inflammatory drugs (NSAID). Laboratory studies: revealed negative test results for ANA and ANCA, low C4, no monoclonal gammopathy, and negative antibodies to hepatitis B and C virus. Antibodies for HIV and Treponemal pallidum were positive (positive rapid plasma regain (RPR) test result, 1/128). Because of a suspicion of neurosyphilis, Penicillin G was started. At the same time bictegravir/emtricitabine/tenofovir alafenamide was started.

Kidney biopsy:

- Light microscopy:

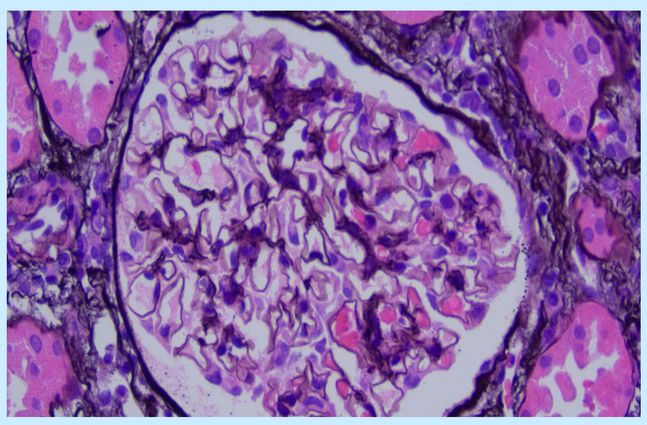
11 glomeruli without significant abnormalities and an acute tubulointerstitial nephritis with plasma cells.

- Immunofluorescence:

Bright granular glomerular positivity for IgG, C3, C1q and kappa and lambda along the glomerular basement membrane. No glomerular staining for IgA and IgM. Staining for IgG4 and PLA2R were negative.

- Electron microscopy:

Two glomeruli with segmental subepithelial electron-dense deposits and podocyte foot process effacement.



Challenging final diagnosis:

- An acute tubulo-interstiial injury, possible due to HIVAN/syphilis infection/NSAID/associated with mebranous GN
- Glomerulopathy, possible due to HIVAN or membranous GN

Response to Penicillin G
➔ membranous nephropathy secondary to syphilis

Table 1: Pathologic classification of HIV related kidney diseases
** Serology tests for Treponema pallidum should be considered in the work-up of nephrotic syndrome in HIV patients.

Glomerular-dominant	**Podocytopathies** - Classic HIVAN - FSGS - Minimal change disease - Diffuse mesangial hypercellularity - Other podocytopathy in the setting of HIV **Immune complex-mediated glomerular disease** - IgA nephropathy - Lupus-like glomerulonephritis - Lupus nephritis - Membranous nephropathy (indicate whether HBV positive, HCV positive, Treponema pallidum positive**, PLA2R positive) - Membranoproliferative pattern glomerulonephritis (indicate whether HCV positive) - Endocapillary proliferative and exudative glomerulonephritis - Fibrillary or immunotactoid glomerulonephritis - Other immune complex disease in the setting of HIV
Tubulointerstitial-dominant	Tubulointerstitial injury in the setting of classic HIVAN Acute tubular injury or acute tubular necrosis - Ischemic - Toxic (associated with ART) Drug-induced (other than ART) tubulointerstitial nephritis Direct renal parenchymal infection by pathogens Immunologic dysfunction-related tubulointerstitial inflammation - Diffuse infiltrative lymphocytosis syndrome - Immune reconstitution inflammatory syndrome Other tubulointerstitial inflammation
Vascular-dominant	Thrombotic microangiopathy in the setting of HIV Arteriosclerosis
Other	Diabetic nephropathy Age-related nephrosclerosis

Swanepoel C. R. et al. Kidney disease in the setting of HIV infection: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference. Kidney International. 2018;93:545-559

Take home message:

- diverse potential causes of nephrotic syndrome in a patient (with HIV)
- the added value of renal biopsy to further differentiate between different causes of HIVAN.
- the importance of excluding treatable causes like syphilis infection.
- we recommend to include the serology tests for Treponema pallidum, a reemerging disease, in the work-up of patients presenting with nephrotic syndrome in patients with underlying HIV infection.

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