

## Teaching Point: Renal histopathology in a patient with Nephrotic syndrome

### CLINICAL INFORMATION

The patient is a 32-year-old man who presented with a 3-year history of recurrent generalised body swelling, frothiness of urine, hypercholesterolemia and hypoalbuminemia.

He subsequently had a renal biopsy done on account of nephrotic syndrome. The renal tissue obtained was processed for light microscopy using hematoxylin and eosin, Jones

methenamine, periodic acid–Schiff (PAS) stains as well as immunoperoxidase stains (immunoglobulin [Ig] G, IgM, IgA and C3) [Figures 1-4].

### QUESTIONS

- 1 Describe the features shown in the histology slides 1-4
- 2 What is the histological diagnosis?

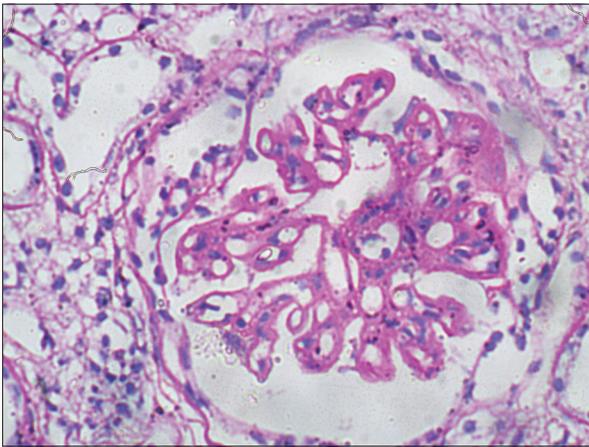


Figure 1:

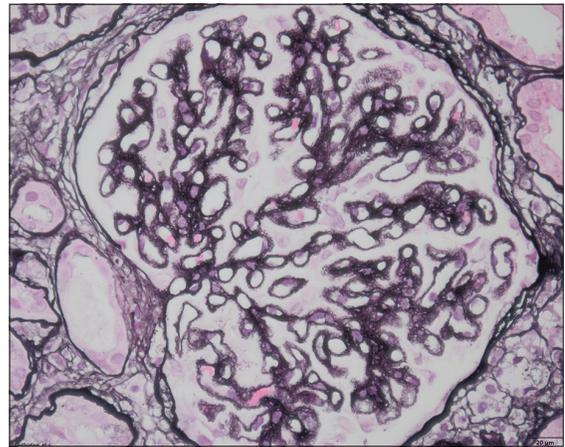


Figure 2:

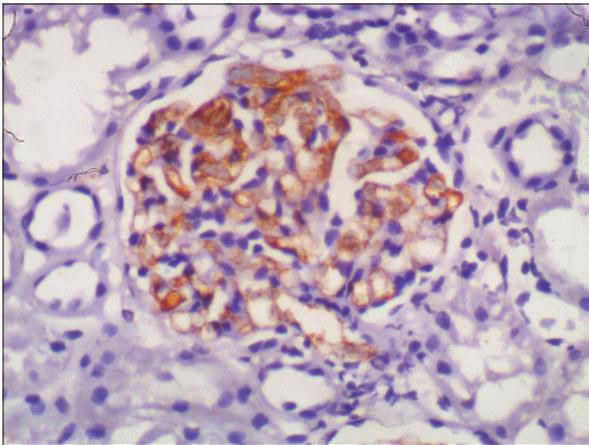


Figure 3:

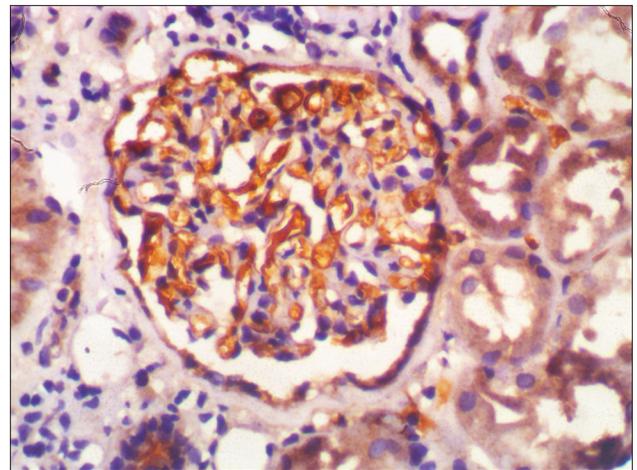


Figure 4:

The H and E stain and PAS stain show glomeruli with diffuse thickening of glomerular basement membrane with no hypercellularity or double contour formation [Figure 1]. There are spikes on the capillary basement membrane seen on JMS stain [Figure 2].

The immunoperoxidase staining shows granular IgG and C3 staining pattern along the capillary basement membrane due to subepithelial immune complex deposits in the glomeruli [Figures 3 and 4].

All the above histological features are consistent with membranous glomerulonephritis.

Membranous glomerulonephritis is a type of glomerular disease that manifests clinically as nephrotic syndrome. It is one of the most common histomorphological patterns seen amongst adult individuals presenting with nephrotic syndrome. It is much rarer as a cause of nephrotic syndrome in children in which case it is most often secondary to infections, for example, HBV infection.

Pathogenetically, it is most often a renal limited autoimmune disease characterised by the production of autoantibody against phospholipase-A2 receptor – an endogenous antigen – on the glomerulus and this is referred to as primary membranous glomerulonephritis. It could also be secondary to some systemic conditions as well as infections, for example, HBV, systemic lupus erythematosus, lung carcinoma, colon cancer, prostate cancer and drugs.

The resultant immune complex formed is deposited on the subepithelial space of the glomerulus leading to activation of complement which subsequently causes damage to the foot processes of the podocyte with resultant proteinuria.

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## Conflicts of interest

There are no conflicts of interest.

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