Teaching Point
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Renal failure with large echogenic kidneys

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Case report

A 36-year-old male Ugandan refugee presented to casualty with a 2-month history of pyrexia, night sweats, weight loss, malaise, and a productive cough. He had no past medical history apart from malaria. He was a married farmer and had left Uganda 2 months earlier. On examination he was febrile, with generalized lymphadenopathy, oral candidiasis, and mild peripheral oedema. He was oliguric, in pulmonary oedema with additional signs of bilateral consolidation and tender hepatosplenomegaly.

Investigations showed that he was in renal failure with a plasma urea of 33.5 mmol/l and creatinine of 1161 mmol/litre. Urine microscopy revealed red and white blood cells only. He was nephrotic with 3.4 g proteinuria per 24 h and a plasma albumin of 16 g/l. His sputum was positive for acid-fast bacilli. An ultrasound scan of his abdomen showed two large and highly echogenic kidneys at 15 and 14 centimetres (Figure 1). An HIV test was positive. The working diagnosis of HIV associated nephropathy (HIVAN) was confirmed on a renal biopsy. The histology showed the characteristic changes of HIVAN: (1) focal and segmental glomerulosclerosis with glomerular capillary collapse, (2) microcystic tubular dilatation and atrophy with large tubular casts, (3) interstitial inflammation and fibrosis, (4) tubuloreticular inclusion bodies on electron-microscopy (Figures 2, 3).

He was treated with dialysis and antituberculosis antibiotics, but shortly after being established on CAPD, he died of overwhelming sepsis secondary to Pseudomonas peritonitis.

HIV associated nephropathy (HIVAN)

Clinical features

HIVAN is a renal manifestation of HIV disease seen almost exclusively in black American, African, or Caribbean patients [1]. HIVAN is associated with proteinuria, disproportionately low albumin relative to the degree of peripheral oedema and rapid progression to end-stage renal disease in 4–16 months. HIVAN can present at any stage of HIV disease and even be its first manifestation. If dialysis is available survival correlates with progression of HIV disease with most patients dying from sepsis [2,3]. There is no specific treatment for HIVAN, in particular ACE inhibitors and Zidovudine are not of proven benefit [4]. Some groups have found a significant benefit in using steroids in slowing the progression of renal failure but not survival [5].

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Diagnosis

The presentation of nephrotic syndrome with severe renal failure in a black patient should raise the possibility of HIVAN. The characteristic ultrasound appearance of very echogenic, large kidneys is highly suggestive of HIVAN and probably due to the presence of the large, multiple, hard protein casts in dilated tubules. The differential diagnosis for this ultrasound appearance is other causes of cast nephropathy such as myeloma, crystalluria causing tubular obstruction or infiltration with amyloid or lymphoproliferative disorders.

Teaching point

Large, brightly echogenic kidneys in black patients with renal failure is suggestive of HIV associated nephropathy. Severe hypoalbuminaemia (<20 g/l), out of proportion to peripheral oedema, is very common in HIV associated nephropathy.

References