Glomeruloid haemangioma and POEMS syndrome

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Case

A 49-year-old milkman presented after the acute onset of blurred vision, anorexia, malaise, weight loss and ankle swelling. There was also a 4-month history of progressive dyspnoea, weakness, paraesthesiae, tinnitus and hearing loss and earlier nerve conduction studies had revealed a demyelinating peripheral neuropathy. After a normal CT scan, undertaken because the patient had papilloedema, the patient's blood pressure (200/120) was treated with atenolol and he was referred to the Centre for Nephrology at the Royal Free and University College Medical School.

On examination he had a 6 mm purple nodule on the anterior chest wall and gynaecomastia. Blood pressure was 130/95, the patient was β-blocked and loud P2 and S3 heart sounds were heard. Ankle and sacral oedema, bilateral pleural effusions and ascites were present but there was no palpable organomegaly or lymphadenopathy. Fundoscopy showed bilateral papilloedema and a single right flame-shaped haemorrhage. The blind spot was enlarged bilaterally and Rinne's test was positive bilaterally. Examination of the peripheral nerve system revealed upper limb hyporeflexia and proximal loss of power, absent reflexes, and reduced distal sensation in the legs.

Routine investigations demonstrated significant renal impairment, urea 21 mmol/l (0.5–4.7), creatinine 174 μmol/l (60–120) without significant proteinuria (0.14 g in 24 h), a neutrophilia, a raised alkaline phosphatase of 199 (50–130 U/l) and an acute inflammatory response with ESR 50 mm/h (0–15), CRP 60 mg/l (0–5). Haemoglobin, platelets, albumin, bilirubin, transaminases, clotting studies, calcium, a myeloma screen and creatinine kinase were normal. Echocardiography confirmed the clinical diagnosis of pulmonary hypertension. CSF protein was raised (2.6 g/l), and matching IgG oligoclonal bands were found in CSF and serum. Hypogonadotrophic hypogonadism and primary hypothyroidism were found during the investigation of the patient's gynaecomastia. Ultrasound demonstrated splenomegaly and normal-size kidneys.

Light microscopic examination of the renal biopsy (Figure 1) showed glomerular hypercellularity, with endocapillary and mesangial proliferation, accentuation of the lobular outline of the glomerular tuft and mild focal interstitial fibrosis. Silver staining revealed capillary loop irregularity but double contours and spikes were not present. Immunofluorescence showed scanty mesangial granules of C3. No immunoglobulin deposition was identified. Electron microscopy showed mesangial expansion and interposition of mesangial cells between endothelium and new basement membrane. No electron dense deposits were seen. There was a marked electron-lucent expansion of the sub-endothelial space of the glomerular capillaries (Figure 2).

The diagnosis in this case was suggested by biopsy of the lesion found on the patient’s chest. Review of the biopsy in the histopathology and dermatology departments suggested that the appearances were consistent with a glomeruloid haemangioma, a lesion strongly associated with POEMS syndrome (Figures 3 and 4). The patient was immunosuppressed with prednisolone and azathioprine, and hypertension treated with nifedipine and bendrofluazide. He was anticoagulated and replacement treatment with thyroxine and testosterone patches initiated. This regimen has been successful and the patient is left with minimal residual
Fig. 1. Glomerulus showing increased mesangial matrix, increased mesangial cellularity and prominent endocapillary cells (periodic acid Schiff, magnification ×360).

Fig. 2. Electron micrograph showing mesangial sclerosis and electron–lucent expansion of the sub-endothelial space of glomerular capillaries (magnification ×8220).

Fig. 3. Skin with glomeruloid haemangioma showing typical glomerulus-like structures within dilated vascular spaces in the dermis (haematoxylin and eosin, magnification ×150).

Fig. 4. Glomerulus-like structures within an ectatic dermal vascular space (haematoxylin and eosin, magnification ×360).
symptoms. The inflammatory markers, LFTs, renal function and pulmonary artery pressure are now within the normal range and ascites has resolved.

Discussion

Glomeruloid haemangioma is a term coined by Chan and colleagues in 1990 to describe a multi-focal vascular lesion associated with POEMS syndrome [1]. The skin lesions may be multiple and appear as red to purple papules over the trunk and proximal limbs. On microscopic examination, lesions show ectatic dermal vascular spaces filled with aggregates of capillaries. At low power these structures resemble glomeruli. Vascular lesions may appear before the full-blown POEMS syndrome develops.

POEMS syndrome (also known as Crow-Fukase syndrome, Takatsuki’s disease, Japanese multisystem disease) is a rare multisystem disease characterized by polyneuropathy, organomegaly, endocrinopathy, monoclonal paraproteinaemia and skin lesions. Renal involvement is not part of the original description of the syndrome but haematuria, proteinuria and renal failure may accompany the other clinical features [2,3]. Patients may become dialysis dependent [4]. A thrombotic microangiopathy may be found in the vasa nervorum, in addition to the kidney [5,6]. Successful immunosuppression in patients with POEMS is well recorded but there are no controlled trials.

References