

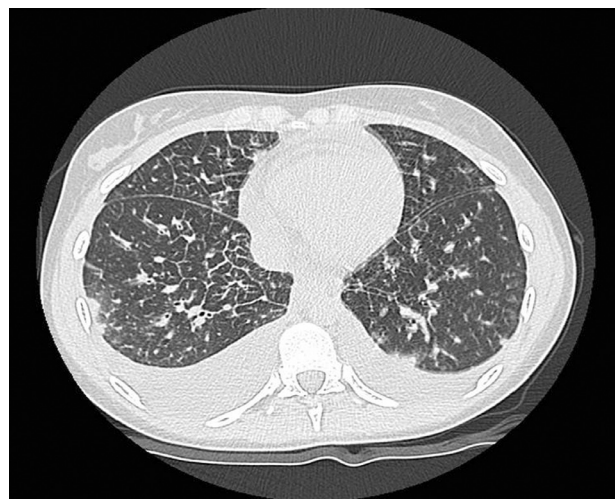
Churg-Strauss syndrome in childhood: a rare form of systemic vasculitis posing a great diagnostic challenge

Sirs,

Churg-Strauss Syndrome (CSS) is characterised by necrotising vasculitis affecting small to medium-sized vessels, associated with asthma and eosinophilia. We describe a case of CSS and highlight the diagnostic challenges associated with this condition.

A 16-year-old girl, offspring of a Caucasian non-consanguineous couple, presented with fever and malaise, subcutaneous oedema, a 'non-blanching' rash on lower limbs, and arthralgias. She had five previous hospital admissions due to severe asthma. She subsequently developed dyspnoea and wheeze, and severe abdominal pain accompanied by diarrhoea and vomiting. On examination, she had subcutaneous oedema localised on her face and back, hepatomegaly, lymphadenopathy, vasculitic rash and asymmetrical arthritis. Auscultation of her chest revealed scattered wheeze and reduced air entry bilaterally. Blood pressure was normal and urinalysis was clear. Positive findings from the investigations performed were: raised WCC ($22 \times 10^9/l$ reference range (rr): $3.5-12 \times 10^9/l$) with marked eosinophilia ($9 \times 10^9/l$ rr: $0.5-1.5 \times 10^9/l$), thrombocytosis ($600 \times 10^9/l$ rr: $150-450 \times 10^9/l$), and elevated ESR (118mm/h rr: $5-20$ mm/h), CRP (160mg/dl rr: $0-10$ mg/dl) and total IgE (3200 KU/l rr: $20-100$ KU/l); perinuclear-ANCA (p-ANCA) was weakly positive. High-resolution thorax CT revealed microvascular changes, pulmonary infiltrates and interstitial tissue changes (Fig. 1). Her lung function was severely compromised. MRI of her sinuses showed frontal sinusitis. Oesophagogastroduodenoscopy with a biopsy revealed eosinophilic oesophagitis. In the context of primary eosinophilic disorders considered in the differential diagnosis, she had a bone marrow aspirate that was hyperactive, with no evidence of malignant infiltrate. T cell clonality studies were normal and she tested negative for FIP1L1-PDGFR mutation. Based on the findings of persistent asthma, paranasal sinusitis, peripheral blood eosinophilia and pulmonary infiltrates she was diagnosed with CSS. She was treated with corticosteroids and 6 monthly intravenous pulses of cyclophosphamide. On discharge, her lung function tests and her inflammatory markers improved. Remission is sustained with low dose prednisolone and azathioprine. Prompt diagnosis and intensive treatment has contributed to satisfactory disease control, although long-term sequelae are yet to be determined.

Fig. 1. High resolution CT of the chest showing interstitial changes, peribronchial wall thickening secondary to eosinophilic infiltration, and bilateral pleural effusions.



CSS is a rare condition affecting 1-3 per 100,000 adults per year (1), while the incidence in the paediatric population cannot be estimated.

The EULAR/PRES endorsed consensus criteria for the classification of childhood vasculitides recognise CSS as a form of predominantly small-vessel, granulomatous primary systemic vasculitis (2).

Typical laboratory findings include normochromic-normocytic anaemia, raised WCC, persistent eosinophilia and elevated IgE; p-ANCA are positive in 25% of cases. Commoner causes of persistent eosinophilia need to be excluded while differentiation from primary hypereosinophilic syndromes (HES) remains complex. HES is a rare and heterogenous group of disorders in which hypereosinophilia is caused by two distinct pathogenic mechanisms. In myeloproliferative HES, eosinophilia is due to the occurrence of a chromosomal deletion on 4q12 leading to the creation of the FIP1L1-PDGFR fusion gene; in lymphocytic HES, it is due to increased interleukin(IL)-5 production by a clonally expanded T cell population, characterised by a CD3-CD4+ phenotype. Diagnostic criteria include marked bone marrow and peripheral eosinophilia ($>1.5 \times 10^9/l$) for more than six months, with diffuse organ infiltration and dysfunction, in the absence of an underlying cause of eosinophilia, despite extensive investigations (3).

Management of CSS mainly depends on the organ involvement at the time of diagnosis. Corticosteroids are the first line of treatment; however, 20% do not respond while 25-44% of patients relapse. Cyclophosphamide is effective for steroid resistant cases or for those with pulmonary, cardiac or central nervous system involvement at the onset of the disease; azathioprine is used as maintenance treatment (4).

Without treatment, the 5-year survival rate

is 25%. Prompt diagnosis and focused treatment has clearly improved prognosis, but mortality rate remains 11% in adults and 18% in children (5). The main causes of death in children include sepsis following prolonged immunosuppression, cardiac and gastrointestinal complications.

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