ANCA-negative EGPA: Churg Strauss syndrome in a young Nigerian woman

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Abstract

Eosinophilic granulomatosis with polyangitis (EGPA), formerly known as Churg-Strauss syndrome (CSS), is a rare systemic vasculitis of unknown aetiology characterised by necrotising small-vessel vasculitis and eosinophil-rich granulomatous inflammation of tissues and vessels, associated with asthma and peripheral blood eosinophilia.[1] We report the rare case of a 36-year- old lady with a one-year history of difficult-to-treat bronchial asthma with rhino-sinusitis, vasculitic skin lesions, symptoms of peripheral neuropathy, peripheral blood eosinophilia and chest x-ray showing hyperinflation with pulmonary infiltrates. A diagnosis of EGPA was made and patient made significant improvement on therapy.

Introduction

Eosiniphilic granulomatosis with polyangitis (EGPA) is a rare systemic vasculitis of unknown aetiology characterised by necrotising small-vessel vasculitis and eosinophil-rich granulomatous inflammation of tissues and vessels, associated with asthma and peripheral blood eosinophilia.[1] This syndrome is more common in patients with bronchial asthma at incidence of 34.6-64.6 cases per million persons.[2] This syndrome is diagnosed by the presence of any four or more of the six criteria according to American college of Rheumatology including; bronchial asthma, peripheral blood eosinophilia greater than 10%, paranasal sinusitis, pulmonary infiltration, histologically confirmed vasculitis and neuropathy.[3] This case is presented because of the rarity and the need for its consideration in patients with difficult-to-treat bronchial asthma and multiple organ involvement.

Case report

A36-year-old single woman presented to our clinic with recurrent episodes of cough associated with wheezing, shortness of breath and progressive weight loss. She also complained of hyperpigmented skin rashes on the dorsum of the hands and feet with tingling and numbness of the feet over the one year duration. She had history of atopy since childhood and currently had itchy red eyes and recurrent symptoms of rhino-sinusitis with nasal polyps for which she was on follow up in the Ear Nose and Throat (ENT) clinic. She had been placed on twice daily inhaled corticosteroids plus long-acting beta agonist (fluthicasone propionate/salmeterol) with intermittent rapid-acting beta agonist (salbutamol) by her primary care physician but treatment was irregular and her asthma had been difficult to control with frequent flare ups necessitating her referral. She had never used a leukotriene axis modifier like montelukast or zafirlukast before. There was no haematuria or urinary symptoms and there was no orthopnoea or paroxysmal nocturnal dyspnoea. She had never smoked cigarettes or ingested alcohol and was not known to be hypertensive or diabetic. Drug, family, social history and occupational exposure were unremarkable.

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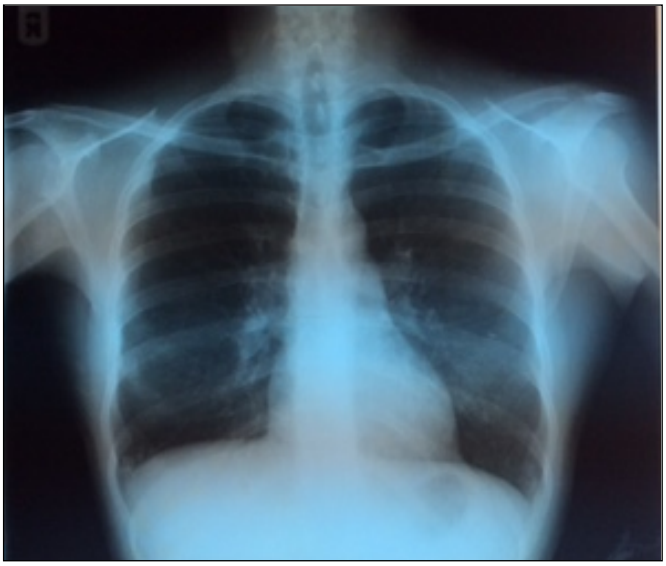

Figure 1: Posterior anterior chest x-ray showing hyperinflation with widespread pulmonary infiltrate

Examination revealed an acute on chronic ill looking, wasted young woman who weighed 47kg. She was pale, febrile (37.9°C), anicteric with maculopapular vasculitic eruptions on the dorsum of her hands and feet. She was centrally cyanosed with an SPO_2 of 88% in room air and had mild pitting pedal oedema. No digital clubbing and no significant peripheral lymphadenopathy.

Her respiratory rate was 30 cycles per minute, and she had decreased chest movement with hyper-resonant percussion note and decreased breath sounds with prolonged expiration and both inspiratory and expiratory ronchi. ENT examination showed nasal polyps. There was no significant abdominal and cardiovascular finding, but nervous system examination showed impaired fine touch sensation in the lower limbs.

Spirometry with reversibility testing showed an obstructive pattern of pulmonary function abnormality (Table 1) with minimal reversibility of 3.7% to suggest airway remodelling.

Table 1: Spirometry and reversibility results

Parameters	Pre-broncho-dilator	Post-bron-chodilator	FEV1 Reversibility
FVC (L)	2.76	2.96	-
FEV1 (L)	1.88	1.95	3.7%
FEV1/FVC	68	66	-
PEF (L/min)	276	306	-
FEF (L/min)	1.25	1.21	-

Forced vital capacity (FVC), Forced vital capacity in 1 second (FEV1), Peak expiratory flow rate (PEFR), Forced mid-expiratory flow rate (FEF)

The electrocardiogram showed sinus tachycardia (125/min), but was otherwise unremarkable.

Her full blood count showed a packed cell volume of 32%, with leucocytosis (total white cell count 20.2 x 10^9/L) and marked eosinophilia of 25%. The erythrocyte sedimentation rate was 97mm in the first hour (Westergreen method). Serum urea, electrolytes and creatinine and liver enzymes were unremarkable. Tuberculin skin test, HIV serology, anti-netrophil cytoplasmic antibodies (c-ANCA and p-ANCA), rheumatoid factor and LE cells were negative. A chest x-ray showed hyperinflation with widespread pulmonary infiltrates and was not suggestive of other types of eosinophilic lung diseases. Her thyroid function test was also within normal limits and stool microscopy showed no parasites. There was no facility for nerve conduction studies and skin biopsy was not done.

Based on the clinical features of difficult to treat bronchial asthma, pulmonary infiltrates, nasal polyps, peripheral neuropathy and peripheral blood eosinophilia, a diagnosis of Churg-Strauss syndrome was made. She was counselled and an asthma treatment action plan was made with the suboptimal inhaler technique assessed and reinforced. She was treated with fluthicasone propionate/salmeterol inhaler (50/250) µg twice daily, ipratropium bromide inhaler 200mg twice daily, Salbutamol inhaler 200 µg PRN and tabs Prednisolone 20mg daily. Tabs calcium 600mg twice daily, tabs pregabalin 75mg nocte and Rabeprazole 20mg daily and antibiotics were also added to her regimen because of anticipated long-term steroid therapy.

Oral steroid was tapered over a three-month period and she was followed up for one year. She showed remarkable clinical improvement as evidenced by an 8kg weight gain and a progressive fall in the eosinophil count to 20% at the fourth month of therapy and 5% at one year. She is currently on follow-up in the asthma clinic.

Discussion

Eeosinophilic granulomatosis with polyarteritis (EGPA) is a rare diffuse vasculitis which commonly presents with asthma.[4,5] It was first described by Churg and Strauss in the early 1950s,[6] and the clinical features which they described are still relevant today. The aetiology of this syndrome is considered autoimmune, and potential triggers including inhaled allergens, vaccines, desensitising medications, infections and the Loffler's syndrome have been postulated.[5,7] The American College of Rheumatology in 1990 developed a set of clinical criteria for the diagnosis of CSS with a specificity and sensitivity 85% and 99.7% respectively, comprising of four out of six of the following – bronchial asthma, eosinophilia >10% in peripheral blood, non-fixed pulmonary infiltrates, paranasal sinus abnormalities, mononeuropathy (including multiplex) or polyneuropathy, and extravascular eosinophils on tissue biopsy containing a blood vessel.[3] The index case had four of the listed criteria. ANCA is a useful marker in EGPA. It is detectable in about 40% of patients, and ANCA-negative patients typically have cardiac and respiratory involvement.[8] She had florid respiratory symptoms and her c-ANCA and p-ANCA results were negative, similar to the findings of a Korean study with prominence of respiratory symptoms.[2] The commonest extra-pulmonary manifestations of this syndrome are neuropathy and vasculitis, which the index patient had.[9] Following diagnosis and initiation of therapy, she showed considerable clinical improvement following the commencement of oral steroids. This has been the mainstay of treatment and has seen transformation of the prognosis of the disease from near certain mortality to one which is now considered relatively favourable.[10] She showed no evidence of visceral involvement based on her clinical assessment and laboratory tests.

The drawback in this case was the late diagnosis, probably due to late presentation to tertiary care. Encouraging case finding and clinical diagnosis of the EGPA among treatment-resistant asthma patients may be the way to go for resource poor settings, as the incidence is relatively higher among asthmatics.[2] This distinct clinical presentation should be kept in mind, and the emphasis on pathologic evidence, which is not pathognomonic for diagnosis, de-emphasised.[7]

Author declaration

There are no competing interests to declare. Informed consent of the patient was obtained for the writing of this case report

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