Eosinophilia and Fleeting Pulmonary Shadows in a Middle Aged Man

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ABSTRACT

We present an unusual case of a malignancy associated with severe eosinophilia and fleeting pulmonary shadows. Initially limited to the lung, the illness progressed to involve multiple organs with marked increase in eosinophilia.

Keywords: eosinophilia, malignancy

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CASE HISTORY

A 49-year-old Malay man first presented in November 1995 with productive cough for a month and an episode of haemoptysis. The only significant findings were that of diminished breath sounds over the base of the right lung and opacities seen in the right mid and lower zones of the chest radiograph (Fig. 1). He was then treated for pneumonia with clinical improvement.

Between November 1995 and February 1996, he had recurrent episodes of fever and cough as well as persistent right chest pain. He was prescribed three courses of antibiotics and hospitalised once for pneumonia with subsequent clinical and radiographic improvement. Sputum examinations were repeatedly negative for Mycobacterium. The leukocyte count was 17,300/µl with 18% eosinophils in January 1996.

In May 1996, he again had fever and cough and was hospitalised. By then, he had already lost 4 kg. No abnormalities were found during physical examination but the chest X-ray again showed diffuse opacities in both lung fields. Leukocyte count this time was 24,100/µl with 29% eosinophils and IgE was 122 IU/mL. He was then treated empirically with Diethylcarbamazine for tropiocal pulmonary eosinophilia.

However, within a week of discharge, he was readmitted for acute left upper abdominal pain and persistent cough. On examination, mitral regurgitation and hepatosplenomegaly were found. The lungs were clear and no lymphadenopathy was detected. The chest X-ray showed diffuse reticulo-nodular opacities.

Serial blood counts showed leukocytes increasing from 18,900/µL (16% eosinophils) on 2 June 1996 to 53,200/µL (23% eosinophils) on 1 July 1996. Bronchoscopy was normal; broncho-alveolar lavage (BAL) showed 16% eosinophils while the trans-bronchial lung biopsy was non-specific. Bone marrow aspirate showed 17% eosinophils but the trephine biopsy only showed a reactive marrow. Moderate pericardial effusion with mitral and tricuspid regurgitation were detected on echocardiography. High resolution CT scan of the thorax showed multiple lung nodules and CT of the abdomen revealed splenomegaly. Microfilaria serology was negative. Lung function showed mild obstructive pattern (FEV1 69% predicted, FEV1/FVC of 71%) with impaired diffusion (DLCO 58% predicted).

The diagnosis of idiopathic hypereosinophilic syndrome was made and he was started on high dose steroids. Hydroxyurea was eventually added as the eosinophil count continued rising. He was subsequently re-admitted for increasing dyspnoea from pericardial tamponade. CT scan of the thorax then showed a large mediastinal mass in addition to pulmonary nodules. Pericardiocentesis was done and mediastinoscopic biopsy showed a poorly differentiated carcinoma. The serum α-fetoprotein and human chorionic gonadotrophin levels were not elevated. However, the tissue stained weakly for α-fetoprotein.

The patient was then transferred to the oncologist and chemotherapy with bleomycin, etoposide and cisplatin was initiated at the end of August 1996 for possible germ cell tumor. He initially responded clinically and radiographically after two cycles of chemotherapy with a corresponding drop in eosinophil count. However, despite continuing chemotherapy, the tumor relapsed and progressed with a corresponding rise in eosinophil count. He eventually succumbed to the illness on January 1997.

DISCUSSION

The association of eosinophilia with pulmonary infiltrates (PIE) form a subgroup of eosinophilic lung disease. This clinical syndrome represents a diagnostic challenge because of the markedly different disease entities that may give rise to it. These usually include

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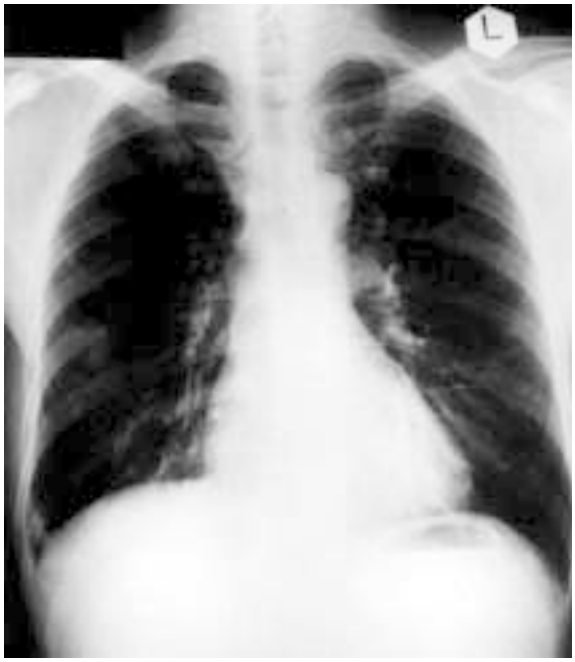

Fig. 1 Chest X-ray on initial presentation showing opacities in the right mid and lower zone.

Loeffler's syndrome, chronic and acute eosinophilic pneumonia, acute hypereosinophilic syndrome and parasitic infections among others[1]. Malignancies are not usually recognised as a cause of eosinophilic lung disease and has only been described in haematologic malignancies[2]. Kawasaki et al (1991) and Miyake et al described the association with lymphoma and Tan et al (1987) with acute lymphoblastic leukaemia.

Malignancies are more commonly associated with peripheral eosinophilia. It is usually associated with carcinomas from mucin secreting epithelium such as those from the lung, gastrointestinal tract[3] and uterus as well as with haematologic malignancies. Thoracic malignancies associated with eosinophilia include large cell carcinoma, squamous cell carcinoma and undifferentiated carcinoma. Most cases described succumb rapidly from the malignancies[4]. The associated eosinophilia is believed to indicate intact T-cell function; the major component being IL-5, the major cytokine involved in eosinophil production.

Treatment of patients with PIE that may be caused by a mitotic lesion represents a diagnostic and therapeutic challenge. The patient's clinical presentation may mimic a condition that requires treatment with corticosteroids such as Idiopathic Hypereosinophilic Syndrome, pleurisy and pericarditis. Initiation of steroid treatment in these patients may alter the course of the illness as some haematologic malignancies respond to these agents.

Our patient illustrates the diagnostic challenge in the management of PIE when the cause is not a common one. The clinical features in this group of patients overlap as tissue damage caused by the marked eosinophilia appear to share common features. The development of hepatosplenomegaly, pericardial effusion and features of cardiomyopathy mirror that of HIS[5], a condition treatable with corticosteroids. Hence, the management of these patients would require the clinician to consider a wide range of differentials and pursue tissue diagnosis whenever possible.

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