Reticulonodular Presentation Of Tropical Pulmonary Eosinophilia

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Abstract

Tropical Pulmonary Eosinophilia (TPE) is a disease largely confined to the tropics. It is a syndrome mimicking clinically as bronchial asthma associated with moderate to severe leukocytosis and eosinophilia. The usual radiological features of tropical pulmonary eosinophilia are miliary mottling. Here we are presenting a case of tropical pulmonary eosinophilia presenting as reticulo-nodular shadows radiologically.

INTRODUCTION

The eosinophilic lung diseases are a heterogenous group of disorders that, except for the presence of eosinophils often bear little clinical relationship to one another. Weingarten[1] first described the condition of spasmodic bronchitis associated with leucocytosis, marked eosinophilia and a dramatic response to organic arsenicals in India as TPE. It is a syndrome characterized by fever, malaise, anorexia, weight loss, paroxysmal dry cough with dyspnea or wheezing, marked peripheral blood eosinophilia and spontaneous resolution in several weeks. Ill defined reticulo-nodular infilterates with a mottled appearance are characteristic radiographic findings. It responds quickly to diethylcarbamazine.

CASE REPORT

A 30 years old male presented to us with complaints of dry cough, mild breathlessness and left-sided dull aching chest pain of three weeks duration. There was no history of fever, weight loss, hemoptysis and passage of worms in the stool. He had taken antibiotics, bronchodilators and analgesics in the past without any relief. Physical examination of the chest revealed coarse crepitations in the right infrascapular area. Investigations revealed a hemoglobin level of 12gm%, total blood leukocyte count of 12000/cu mm and an absolute eosinophil count of 2924/cu mm. The sputum was negative for acid fast bacilli thrice. Mantoux test was negative. Stool examination did not show any ova or cyst. Urine, blood urea and blood sugar were normal. The chest radiograph revealed bilateral well defined diffuse reticulo-nodular shadows. The patient was treated with diethyl-carbamazine for three weeks. He had marked relief from symptoms and became asymptomatic in two week. His absolute eosinophil count became normal after three weeks of diethyl-carbamazine therapy.

DISCUSSION

As the name suggests, TPE is often observed in Southeast Asia and South America. Most reported cases have occurred in ethnic Indians, while it is uncommon in Chinese persons[2]. The etiologic agents are believed to be the microfilariae of parasites Wuchereria bancrofti and Brugia malayi. According to WHO, 78.6 million people are infected with these parasites worldwide but only <1% of infected people develop TPE[3]. Humans are infected with the bite of a mosquito, which introduces filariform larvae into the skin. On becoming adult worms in draining lymphatics, these release microfilariae which reach the bloodstream. TPE is probably related to the hypersensitivity reaction to filariae trapped within the pulmonary capillaries[4].

Most patients of TPE manifest the disease between the age of 25 and 40 years, although children and young adults may also be affected[4]. Males are more commonly affected than females in a ratio of 4:1. There is no known seasonal propensity to the disease. Obtaining a careful travel history is important for assessing the risk of TPE. Travel to or from areas endemic for parasites (eg, Asia, Africa, Latin America, South America, southeast region of the United States) is of particular relevance to TPE. Typical symptoms include 1 to 2 week period of low-grade fever, weight loss, fatigue, malaise and a paroxysmal nocturnal hacking cough.

Dyspnoea and wheezing are common, and the clinical presentation may resemble status asthmaticus. Chest pain, muscle tenderness and cardiac, pericardial and CNS involvement have also been reported[5]. Rarely, patients remain asymptomatic. Physical examination of the patients of TPE is notable for coarse crepts and rhonchi. Generalised lymphadenopathy and hepatosplenomegaly may be present, but they are less common in adults than in children[6].

Laboratory findings in TPE include extreme peripheral blood eosinophilia.An absolute eosinophil count greater than 2000 is seen in most patients (normal is as high as 250/micro lt). There can be marked elevation of total serum IgE which is usually more than 1000 U/ml. High titers of filarial-specific IgE and IgG, measured by complement fixation and hemagglutination techniques, are the crucial diagnostic findings[7]. Eosinophils as well as total and filarial specific IgE are also prominent in sputum and BAL fluid specimens. Microfilariae are not found in blood or sputum, and examination of stool or urine for ova and parasites is typically unrewarding. Pulmonary function tests are obstructive initially becoming restrictive later on. Diffusion capacity is markedly reduced in chronic disease. Diagnostic criteria given by Donohugh[8] help in making the diagnosis.

Ill-defined, diffuse reticulo-nodular infiltrates with a mottled appearance are characteristic radiographic findings in TPE. The mid- to lower lung fields are most commonly affected, but disease may appear anywhere in the lung. Bronchovascular markings may be prominent, and hilar adenopathy and Sometimes, it may also present as cavitation, pleural effusion, pneumothorax, hydro-pneumothorax and cardiomegaly. Consolidation is a rare radiological presentation of TPE[9]. Chest radiograph can be normal in 20% of the patients. Computed Tomography scan of the chest helps define the extent and distribution of the disease; helps distinguish between predominantly interstitial or alveolar infiltrates; helps detect lymphadenopathy, fibrosis, and bronchiectasis; may be helpful in distinguishing between malignancy and other etiologies; and may be needed if biopsy is contemplated. High-resolution CT scan is preferred to enhance the evaluation of the pulmonary parenchyma.

Diethylcarbamazine, a piperazine derivative used widely in the treatment of filarial infections, is the treatment of choice for TPE. When given for 1 to 3 weeks at a dose of 6 to 8 mg/kg a day, leads to abatement of symptoms and improvement in pulmonary functions, reduction in blood and BAL eosinophilia, a decrease in total and filaria-specific IgE and IgG and radiographic clearing within 1 to 3 weeks of treatment. Three full weeks of treatment is recommended for adult patients. Relapse may occur in 20% of patients in five years. It has been recommended that repeated monthly courses of Diethylcarbamazine at 2-3 months interval for 1-2 years should be given in cases of recurrent or relapsed cases[3]. Alternative anti-filarial drugs(eg Ivermectin) or a trial of corticosteroids may be useful therapies for the chronic variant of the disease.

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