Case Report

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Eosinophilic Odyssey: A Case Report on Tropical Pulmonary Eosinophilia

Shakti Shishodia[1], Pallavi Sehgal[2], Dheeraj B Nair[3], Abhishek Snehy[4]

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Abstract

Tropical pulmonary eosinophilia (TPE) is a rare condition associated with helminthic infections, particularly wuchereria bancrofti, causing lymphatic filariasis. We present a case of TPE in a 27-year-old male who presented to the emergency department with fever, cough, and progressive dyspnea. The patient exhibited high total leukocyte count with eosinophil predominance, diffuse centrilobular nodules with ground-glass opacities on thoracic computed to mography (CT), and hepatomegaly with grade I fatty liver on abdominal ultrasound. The final diagnosis of TPE was confirmed by positive filarial antibody IgG and elevated total IgE levels. The patient responded well to a comprehensive treatment approach involving broad-spectrum antibiotics, antivirals, anti-parasitics, steroids, bronchodilators, oxygen supplementation, and supportive care. This case emphasizes the importance of considering TPE in patients with respiratory symptoms and eosinophilia and provides insights into the diagnostic workup, management, and current literature on this condition.

Keywords: Respiratory symptoms; Emphasizes; Bronchodilators; Oxygen supplementation; and Supportive care.

INTRODUCTION

Tropical pulmonary eosinophilia (TPE) is a rare clinical syndrome characterized by respiratory symptoms, peripheral eosinophilia, and elevated immunoglobulin E (IgE) levels. It is commonly associated with helminthic infections, particularly Wuchereria bancrofti, which is the causative agent of lymphatic filariasis. TPE presents a wide spectrum of clinical manifestations, ranging from asymptomatic eosinophilia to severe respiratory distress. This case report aims to present a case of TPE in a young adult male, highlighting the diagnostic workup and management strategies employed. Additionally, are view of the current literature on TPE will be provided.

CASE PRESENTATION

A 27-year-old male presented to the emergency department with a five-day history of fever, cough with minimal expectoration, and progressively increasing shortness of breath. The patient appeared ill but hemodynamically stable. Bilateral scattered crackles were detected on auscultation, and laboratory investigations

Author Affiliation: [1]Attending Consultant, [2]Associate Consultant, [3]Senior Consultant, [4]Consultant, Department of Emergency Medicine, Max Super Speciality Hospital, Vaishali 201012, Uttar Pradesh, India.

Coressponding Author: Pallavi Sehgal, Associate Consultant, Department of Emergency Medicine, Max Super Speciality Hospital, Vaishali 201012, Uttar Pradesh, India.

Email: pallavisehgal15@gmail.com

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showed a high total leukocyte count with eosinophil predominance.

Thoracic CT revealed diffuse centrilobular nodules with ground glass opacities, while abdominal ultrasound demonstrated hepatomegaly with grade I fatty liver. The patient's diagnosis of TPE was confirmed based on positive filarial antibody IgG and elevated total IgE levels. A comprehensive treatment approach, including broad-spectrum antibiotics, antivirals, anti-parasitics, steroids, bronchodilators, oxygen supplementation, and supportive care, led to significant improvement.

Review of Literature

TPE is primarily associated with lymphatic filarias is caused by Wuchereria bancrofti. The condition is characterized by a hypersensitivity reaction to microfilariae and their products. Eosinophilia is a hall mark of TPE, often accompanied by elevated IgE levels. Imaging studies, such as chest CT, typically reveal centrilobular nodules with ground glass opacities. Diagnostic confirmation can be achieved through serological testing, including filarial antibody IgG. Antihelminthic therapy with diethylcarbamazine (DEC) remains the mainstay of treatment for TPE. Supportive care with bronchodilators, steroids, and oxygen supplementation may also be necessary in symptomatic patients.

Management and Treatment

Based on the clinical presentation and investigations, the patient was initially managed with broad-spectrum intravenous antibiotics, anti virals, and anti-parasitic drugs. Intravenous and oral steroids were administered to control the inflammatory response. Bronchodilators were prescribed to relieve bronchospasm, and oxygen supplementation was provided to maintain oxygen saturation. The patient responded well to the treatment, showing improvement in symptoms and signs of resolution on follow-up investigations.

Diagnosis

The diagnosis of tropical pulmonary eosinophilia was established basedon the clinical presentation, laboratory findings, and imaging results. The presence of positive filarial anti body IgG and elevated total IgE levels supported the diagnosis. The absence of pulmonary arterial involvement on CT angiography ruled out pulmonary embolism.

DISCUSSION

Tropical pulmonary eosinophilia is an uncommon presentation, usually associated with filarial infections, particularly Wuchereria bancrofti. It is characterized by a hypersensitivity reaction to microfilariae and their products. The clinical presentation varies widely, and the diagnosis is often challenging due to its similarity to other respiratory conditions. Eosinophilia, elevated IgE levels, and imaging findings of centrilobular nodules with ground glass opacities aid in establishing the diagnosis. Treatment primarily involves anti-helminthic therapy, along with supportive care for symptom relief.

CONCLUSION

This case highlights the importance of considering tropical pulmonary eosinophilia as a differential diagnosis in patients presenting with respiratory symptoms, peripheral eosinophilia, and relevant travel history. Prompt recognition and appropriate management can lead to favorable outcomes. Further research is warranted to explore the pathophysiology, epidemiology, and optimal treatment strategies for tropical pulmonary eosinophili.

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