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Case Report

Eosinophilia with Respiratory Symptoms and Rash: A Diagnostic Challenge

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Introduction

Toxocariasis is a parasitic infection caused by the larvae of Toxocara canis or Toxocara cati, commonly transmitted through ingestion of soil contaminated with infected animal feces. This infection is common among children due to high chances of coming across contaminated physical surroundings [1]. The larvae may move to other parts of the body and present various clinical manifestations, particularly visceral larva migrans (VLM) that associated with peripheral eosinophilia, fever and hepatosplenomegaly [2]. Nevertheless, there is significant variability of the clinical manifestations which complicates the diagnosis especially in patients with no fever [3]. Here, we report a case of a 2-year-old boy with the clinical features of persistent eosinophilia, recurrent rash, and respiratory symptoms, Tyler, his case states that parasitic infections such as toxocariasis should be considered when clients present with eosinophilia since standard treatment of these symptoms may not alleviate the situation.

Objectives

In this case report we will discuss the clinical presentation, diagnostic workup, and treatment approach, while highlighting key learning points relevant to managing paediatric toxocariasis.

Case Description

Tyler was admitted with an increased eosinophil count in his Full Blood Count (FBC) and a history of recurrent rash (hives) and respiratory distress.

History of Present Illness

Tyler, a 2-year-old child, was transferred from peripheral hospital with concerns about persistent eosinophilia. One month before admission, he experienced a rash (hives) all over his body and increased work of breathing. He was initially diagnosed with pneumonia and treated with antibiotics during a 3-day hospital stay. Ten days later, he had another episode of rash and respiratory distress, diagnosed as an acute wheezy episode, for which he was treated with antibiotics, salbutamol nebulization, and an inhaler. During both episodes, he did not have a fever. One week before admission to CHI Crumlin, Tyler presented with fever and a sore throat. He was started on IV Co-Amoxiclav and referred to CHI due to persistent eosinophilia.

Physical Examination

Upon examination, the child was active and alert. The systemic examination was unremarkable, except for enlarged, hyperaemic tonsils. There was a mild, insignificant maculopapular rash on the abdomen (Table 1).

Test	Result	Normal Range
Hb	99 g/L	120-160 g/L
Platelets (PLTS)	847 x10^9/L	150-400 x10^9/L
WBC	26.1 x10^9/L	4.0-11.0 x10^9/L
- Neutrophils	8.22 x10^9/L	2.0-7.0 x10^9/L
- Lymphocytes	7.02 x10^9/L	1.5-3.5 x10^9/L
- Eosinophils	8.87 x10^9/L	0.04-0.4 x10^9/L
- Monocytes	1.72 x10^9/L	0.2-0.8 x10^9/L
- Basophils	0.26 x10^9/L	0.02-0.1 x10^9/L
CRP	11 mg/L	<10 mg/L
Ferritin	49.4 ng/mL	30-400 ng/mL
ESR	47 mm/hr	<20 mm/hr
IgE	321 IU/mL	<100 IU/mL
Toxocara ELISA	Positive (2.36)	Negative
Toxocara Western Blot	Positive (5 bands)	Negative
CTD Screen	6.70 HIGH	0.00-0.69
Anti-RNP	7.90 HIGH	0.00-4.90
CXR	Normal	-
US Abdomen	Hepatosplenomegaly with multiple hypoechoic nodules	-

Table 1: Clinical Investigations.

Radiological Studies:

- Chest X-Ray (CXR): Normal
- Ultrasound (US) Abdomen: Hepatosplenomegaly with multiple hypoechoic nodules in the liver. These findings are consistent with visceral larva migrans but are nonspecific, and other pathologies cannot be ruled out. Based on the clinical presentation, toxocariasis is the most likely diagnosis.
- Allergen Testing: Allergen testing for horse dander, mixed tree pollens, mould mix was negative.

Diagnosis:

- Toxocariasis
- Visceral Larva Migrans (VLM)
- Recurrent Eosinophilia

Consultations:

- Infectious Disease Team: Advised starting Albendazole and steroids.
- Rheumatology Team: Recommended a repeat CTD screen; no history of rash or arthritis.
- Ophthalmology Review: Normal, no abnormal findings.

Treatment and Medications on Discharge:

- Albendazole: 400 mg PO BD for 5 days
- Prednisolone: 6 mg PO OD for 5 days

Follow-up Plan:

Follow-up at the local hospital after discharge.

Discussion

This case highlights the importance of considering toxocariasis in paediatric patients presenting with persistent eosinophilia and recurring respiratory symptoms, even in the absence of fever. Tyler's initial diagnoses of pneumonia and wheezy episodes, without improvement despite appropriate treatment, point to the need for a thorough investigation when common causes do not fully explain the clinical presentation [4]. Positive Toxocara serology and characteristic findings on abdominal ultrasound confirmed visceral larva migrans (VLM) as the underlying cause. Persistent eosinophilia requires an extensive differential diagnosis, involving parasitic, autoimmune, and allergic conditions [5]. A systematic approach, with detailed serological and radiological investigations, as demonstrated in this case, is critical to identifying the cause. The

multidisciplinary involvement of infectious disease, rheumatology, and ophthalmology teams allowed for a comprehensive assessment, ruling out other possible conditions like connective tissue diseases [6,7]. Treatment with Albendazole and steroids proved effective in managing toxocariasis, underscoring the importance of early antiparasitic therapy in such cases [8]. The follow-up care plan highlights the necessity of monitoring both the patient's response to treatment and any potential complications.

Summary of Learning Points

1. In children with toxic eosinophilia and a history of respiratory distress toxocariasis should be considered when other causes of eosinophilia have been ruled out. The laboratory diagnosis can be confirmed by positive Toxocara ELISA and Western Blot test.

2. Hepatomegaly together with splenomegaly and multiple hypoechoic nodules in the liver are considerate features of VLM; however, these findings should be interpreted in conjunction with clinical and other laboratory data.

3. Therefore, there are always task to identify parasitic diseases (such as toxocariasis in the described case), autoimmune diseases, and allergies. Serologic, immunologic, and radiologic tests must be included for diagnosing the condition.

4. Infectious disease, rheumatology, and ophthalmology teams worked in coordination so that no other underlying causes were excluded in such a complex case, including connective tissue disease and ocular involvement.

5. The management of toxocariasis with Albendazole and steroids shows the efficacy of antiparasitic treatment in the treatment of parasitic diseases such as toxocariasis which cause rapid deterioration of symptoms if left untreated.

6. This is important since treatment response can be overlooked, especially when the patient is waiting for other tests such as allergen tests. Closely monitoring the counts of eosinophils and imaging may be necessary for the evaluation of the response of the patient to therapy and whether VLM has resolved completely.

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