

Episode 19

In this week's episode of the CPSers, the crew discuss their schema for eosinophilia.

Problem Representation

A 70-year-old man with a history of adult onset asthma & nasal polyps presented with subacute low grade fevers and exercise intolerance, found to have a moderate peripheral eosinophilia, migratory pulmonary opacities, and pauci-immune glomerulonephritis with MPO-ANCA positivity.

Schemas

The CPSers' schema for eosinophilia distinguishes between **primary** (e.g., clonal, idiopathic) and **reactive** (in response to a stimulus) causes.

Diagnosis

Based on the history of refractory adult-onset asthma, eosinophilia, MPO-ANCA, and pauci-immune glomerulonephritis, the patient was diagnosed with Eosinophilic Granulomatosis with Polyangiitis (EGPA).

Teaching points

- Asthma is a disorder characterized by recurrent airflow obstruction, airway inflammation, and bronchial hypersensitivity. Given its episodic nature, a clinical diagnosis can be difficult. A recent study suggested that **up to 1/3 of patients** with a physician diagnosis of asthma **had current asthma excluded on further testing**.
- Elevations in the absolute eosinophil count (AEC) are categorized as mild (500-1500/uL), moderate (1500-5000/uL), and severe (>5000/uL). Hypereosinophilia is defined as an AEC > 1500/uL, due to an increased risk for tissue injury.
 - Eosinophils are tissue-dwelling cells (most commonly involving the organs in contact with the outside world - skin, lungs, and GI tract). The peripheral blood eosinophil count does not always correlate with tissue injury.
- Eosinophilic granulomatosis with polyangiitis (EGPA) is an ANCA-associated vasculitis that can involve virtually any organ but most commonly presents with pulmonary manifestations.
 - Classically, the natural history involves a progression through three phases of illness: allergic/asthmatic, eosinophilic, and vasculitic.
 - The diagnosis of EGPA is frequently *delayed*, but should be suspected in any patient with **worsening/medically-refractory adult-onset asthma and eosinophilia**.

Clinical Reasoning Pearl

It is important to distinguish between the **foreground** (the main presenting features) and the **background** (the patient's context) of a case to help us construct our problem representation. Occasionally, *unexplained* elements of the patient's background become relevant and can be integrated into the presenting syndrome.

For example

When evaluated in the context of glomerulonephritis and eosinophilia, the patient's reported history of poorly-explained adult onset asthma ultimately increased suspicion for EGPA.

References

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3. Noth I, Streck ME, Leff AR. Churg-Strauss syndrome. Lancet. 2003 Feb 15;361(9357):587-94.