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