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Eosinophilia as Initial Presentation of Occult Malignancy

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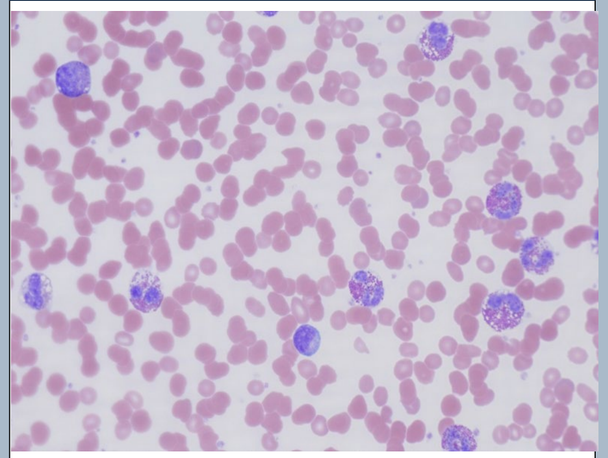
Introduction

Eosinophilia is not an uncommon finding on a routine complete blood count (CBC) during a primary care visit. The differential diagnosis is varied including allergic/atopic disease, drug reaction, infection, inflammatory conditions, and malignancy.

We present a case of extreme progressive eosinophilia secondary to a malignancy which would be of interest to the primary care clinician.

Imaging



Increased eosinophils in the peripheral blood of a patient with eosinophilia (Wright-Giemsa stain 400X)

Case History

An 80-year-old male was incidentally found to have leukocytosis on routine labs. White blood cell (WBC) was 27.5 K/ul with eosinophilia 4.3 K/ul (normal range 0-0.6 Kul) and Hemoglobin/Platelet counts were normal. Patient was asymptomatic. Denied history of medication change or allergy. Chest X-Ray (CXR) followed by Computed tomography (CT) showed 5 cm pulmonary mass with mediastinal lymphadenopathy. Patient developed progressively enlarging left neck mass, hoarseness, weight loss and decreased appetite in the next 3 weeks. WBC increased steeply to 65 K/ul with eosinophil count - 18.5 K/ul.

CT neck revealed a large heterogeneous mass of the thyroid extending to the trachea, esophagus, and mediastinum.

Patient decided not to proceed with further diagnostic workup and management given his age and comorbidities.

Discussion

Eosinophilia can be asymptomatic or present with nonspecific symptoms like cough, fatigue, skin rash or neuropathy. Eosinophilia work up starts with a comprehensive history detailing travel history, exposure to well water/spring water, analysis of past medical history to include asthma, atopy and especially medication history. Physical exam with attention to atopy/eczema and skin rash is vital. Work up may include a CBC, peripheral blood smear, stool test (for ova and parasite), IgE/tryptase levels and evaluation for occult malignancy (CXR is an ideal first step). Further testing with Bone marrow biopsy and CT scans is a consideration if a clear diagnosis is not achieved.

Discussion

Life-threatening complications of untreated hyper-eosinophilia include thromboembolism, endomyocardial fibrosis, cognitive disturbances, and respiratory failure. Incidence of eosinophilia is 1% in malignant tumors.

Malignancy encompasses hematological cancers (acute leukemia, chronic myeloid leukemia, systemic mastocytosis, lymphoid neoplasms) and solid tumors (lung, thyroid, breast and gastrointestinal tract cancers). Eosinophilia suggests advanced disease in solid tumors and portends poor prognosis.

Paraneoplastic eosinophilia has been reported in thyroid cancer (sclerosing muco-epidermoid) and lung cancer (squamous and adenocarcinoma). Pathophysiology of eosinophilia in solid tumors is related to bone marrow stimulation through cytokines (interleukin-5, granulocyte-macrophage colony-stimulating factor, and interleukin-2). Primary eosinophilia responds to steroids and hydroxyurea. Treating the underlying malignancy is the cornerstone of paraneoplastic eosinophilia management.