EGPA

Overview

Hello clinical problem solvers! This is Rafael Medina dos Santos. I am a medical student at the State University of Maringá from Brazil. This time, I will walk you through an illness script for eosinophilic granulomatosis with polyangiitis (EGPA).

Vasculitides are a group of autoimmune diseases that can arise as primary conditions or secondary to an established illness like systemic lupus erythematosus or rheumatoid arthritis. The hallmark of these diseases is a vascular inflammation resulting in vessel wall destruction (which may lead to aneurysm or rupture) and luminal narrowing (with tissue ischemia and necrosis as a consequence).

Vasculitides can be divided based on the injured vessels size: large vessel (aorta and its major branches), medium vessel (main visceral arteries like renal and mesenteric arteries), and small vessel vasculitides (capillaries, arterioles, and venules).

Antineutrophil cytoplasmic antibody (ANCA) is helpful to differentiate a subset of the small vessel vasculitides. These include granulomatosis with polyangiitis (GPA), eosinophilic granulomatosis with polyangiitis (EGPA), and microscopic polyangiitis.

The focus of this video is EGPA which is an ANCA-associated vasculitis almost invariably associated with asthma.

Epidemiology

EGPA is the least common ANCA-associated vasculitis. In the USA, its prevalence is approximately 18 cases/million and the highest prevalence reported is from Australia, at 22.3 cases/million.

The mean age at diagnosis is 40 years old and men and women are equally affected.

Clinical manifestations

EGPA is characterized by 3 phases: allergic, eosinophilic, and vasculitic phases.

The prodromal allergic phase is marked by allergic rhinitis, nasal polyps, and asthma (90%). It may last months to many years.

In the eosinophilic phase, there are peripheral eosinophilia and tissue infiltration especially in the lung and GI tract.

The vasculitic phase is noticeable for systemic symptoms like fever, fatigue, weight loss, and malaise with the disease affecting a wide range of organs, from the heart and lungs to the peripheral nerves and skin.

Other organ involvement

Most patients with EGPA have asthma that arises later in life who have no family history of atopy. In addition to the more common symptoms of cough, dyspnea, sinusitis, and allergic rhinitis, alveolar hemorrhage and hemoptysis may also occur.

Nerve involvement is a common manifestation and patients should be examined for evidence of a sensory neuropathy or mononeuritis multiplex. In patients with mononeuritis multiplex, axonal degeneration develops as a result of nerve ischemia caused by the vasculitic process leading to a sudden onset of painful, focal or multifocal weakness, or

sensory loss. Paresthesia or sometimes painful hyperesthesia may occur before the onset of motor or sensory deficiencies. Mononeuritis multiplex most commonly involves the peroneal nerve but also many others including the cranial nerves resulting in cranial nerve palsies. Cerebral hemorrhage and infarction may also occur and are important causes of death.

GI symptoms are common in EGPA and likely represent an eosinophilic gastroenteritis characterized by abdominal pain, watery or bloody diarrhea, and colitis. Other manifestations including ischemic bowel, pancreatitis, and cholecystitis have also been reported.

Cardiomyopathy, heart failure, acute pericarditis, constrictive pericarditis, myocardial infarction, and other electrocardiographic changes all may occur. Cardiac involvement often portends a worse prognosis. It's actually the most common cause of death in these patients. Pathophysiologically, cardiac manifestations are derived from coronary vasculitis, extravascular granuloma, and cardiac eosinophilic interstitial infiltrates.

EGPA can also lead to renal manifestations. This may include proteinuria, glomerulonephritis, renal insufficiency, and rarely, renal infarct. There are focal or diffuse crescentic glomerulonephritis, and less frequent eosinophilic infiltrates and granuloma.

Many patients also develop skin manifestations including palpable purpura, skin nodules, livedo reticularis, Raynaud's phenomenon, and urticarial or gangrenous necrotic lesions.

DDx

Regarding differential diagnosis, you should think of eosinophilia pneumonia, hyper eosinophilic syndrome, allergic bronchopulmonary aspergillosis, and fungal pneumonia. For an approach to eosinophilia, check out our diagnostic schema for eosinophilia on the CPSolver's website.

Dx

You should suspect EGPA in a patient with eosinophilia greater than 1500 /mL and late-onset asthma with spirometry often revealing an obstructive process.

p-ANCA/MPO is positive in 40-60% of the cases.

Nonspecific lab abnormalities may be present and include a marked elevation in ESR, a normochromic normocytic anemia, an elevated IgE, hypergammaglobulinemia, and positive rheumatoid factor and antinuclear antibodies (ANA).

Chest x-ray can show many abnormalities including bilateral, nonsegmental, and patchy infiltrates that often migrate and may be interstitial or alveolar in appearance. Additionally, reticulonodular and nodular disease without cavitation can be seen, as can pleural effusions and hilar adenopathy. CT findings commonly include bilateral ground-glass opacity and airspace consolidation. Other CT findings include bronchial wall thickening, hyperinflation, interlobular septal thickening, lymph node enlargement, and pericardial and pleural effusions.

Biopsy shows eosinophilic infiltration, necrotizing vasculitis, and perivascular granulomas.

Tx

Regarding treatment, patients are initially treated with steroids like prednisone. However, those with evidence of neurologic, cardiac, renal, or GI involvement should be treated with cyclophosphamide in addition to glucocorticoids.

During maintenance of the treatment, steroid sparing agents like methotrexate and azathioprine are generally used to prevent long-term steroid use consequences like increased risk of infections and bone fractures.

I hope you all learned something today and enjoyed this video. See you next time!