

Pulmonary Eosinophilia

Group of diseases with radiographic abnormalities of pulmonary and peripheral Blood eosinophilia.

Causes:

- 1) Extrinsic (Known Causes)
 - 1) Helminths (Ascari, Filaria) ^{Löffler syndrome} Tropical pulmonary eosinophilia
 - 2) Fungi (Aspergillus fumigatus causing Allergic Bronchopulmonary aspergillosis).
 - 3) Drugs → Drug Rash with Eosinophilia with systemic symptoms (DRESS)

- 2) Intrinsic (Unknown or Idiopathic)

- 1) Chronic Eosinophilic pneumonia.
- 2) Eosinophilic granulomatosis with polyangiitis. (Churg Strauss syndrome).
- 3) Hyper eosinophilic syndrome.
- 4) Polyarteritis nodosa.

Pathophysiology & Clinical Features

1) Extrinsic

① Löffler Syndrome

→ Eosinophils in lungs in response to the parasitic infection. (Ascariades, Strongyloids), which enter due to contact with soil.

→ It is characterized by wandering radiological shadows, appearing in some part of lung for few days and disappearing in some other part appearing again.

2) Tropical pulmonary eisinophillia

(Weingarten's Syndrome)

- Due to mosquito borne Filarial infection, of Wuchereria bancrofti or Brugia malayi.
- They have symptoms of lymphatic filariasis, like non pitting edema.
- Lab ⇒ Eosinophilia ⇒ $(2,000 - 50,000 \text{ cells/mm}^3)$
Peripheral Blood smear, Antibodies ^{Normal} $(30-350 \text{ cells})$
- Complication ⇒ Pulmonary fibrosis.

3) Aspergillosis

Aspergillus fumigatus is fungi that grows best in cool, wet climate. It primarily affects the lung causing

- Acute 1) Allergic Bronchopulmonary aspergillosis.
Chronic 2) Chronic necrotizing Pulmonary aspergillosis.
3) Aspergilloma.
4) Invasive Aspergillosis.

1) Allergic Bronchopulmonary aspergillosis

Pathophysiology

Hypersensitive reaction to a chronic necrotizing infections (COPD, Cystic Fibrosis, Asthma).

↓
Colonization of Aspergillus fumigatus

↓
Simple aspergilloma

↓
Necrotizing

↓
Angioinvasion

↓
Death

① Allergic Broncho pulmonary aspergilliosis

→ Usually occurs complicating asthma or Cystic Fibrosis.

→ C/F → Cough and mucous plugs, curving bronchial casts.

→ Wheezing

→ Diagnostic Points

① Asthma

② Bronchiectasis Proximal

③ ^{Peripheral} Pulmonary Blood Eosinophilia $> 500 \text{ cells/mm}^3$

④ Total Serum IgE ↑

⑤ Skin Test Positive to Aspergillus

⑥ Antibody IgE against Aspergillus

⑦ Sputum Culture

→ Lab = Chest X ray → Lobar Collapse, Bronchiectasis

② Simple aspergilloma

→ Complicating Cavities left by Tuberculosis or sarcoidosis

→ C/F → Usually asymptomatic But

→ Lab → Radiographic abnormality present and skin test and antibody present.

→ A Non-specific symptoms like weight loss, hemoptysis may be present but rare

③ Chronic Necrotizing Pulmonary aspergilloma

→ Occurs in COPD with steroid dependent.

→ Manifests as subacute pneumonia unresponsive to antibiotic therapy.

→ B/F → Fever, Night Sweats, Cough, Weight loss

④ Invasive aspergillosis Profound

- Occurs with usually patient with neutropenia by immunocompressive drugs or disease.
- Their risk group are who had recent organ transplant especially Bone marrow and chemotherapy.

→ CLF → Fever, cough, dyspnea, pleuritic chest pain.

→ ^{CT} X-ray shows 'Halo'

④ DRESS SYNDROME (Drug Rash with Eosinophilia with systemic mark).

- Severe Drug hypersensitivity reaction, with skin mark, fever, lymphadenopathy, and systemic pneumonitis, Hepatitis etc.

→ Drugs like ~~the~~ sulphonamide, phenobarbital.

Intrinsic (Idiopathic)

① Chronic eosinophilic Pneumonia

→ Unknown Cause.

→ Fever, malaise, breathlessness, cough.

→ Occurs in isolation or with the Polyarticular nodosa, Scleroderma, RA, Ulcerative colitis.

→ Chest X-ray → Photographic negative of Pulmonary oedema usually in upper lobe.

→ Lab ↑ Eosinophils, ↑ ESR, ↑ IgE.

2) Eosinophilic Granulomatosis with polyangiitis

Churg's Strickland
Syndrome

Wegener's
granulomatosis

- Asthma
 - Atopy
 - Eosinophilia
 - Polyneuropathy
 - Pulmonary infiltrates
 - ANCA +ve.
- vasculitic and
granulomatous
- No asthma,
atopy, sinusitis
→ other symptom
of CGS

3) Hyper eosinophilic syndrome:

- Hypergammaglobulinemia
- ↑ Eosinophils with involvement of heart,
Nerve, Bone marrow