

# Hypersensitivity Pneumonitis

Old Name: Extrinsic Allergic Alveolitis

# Introduction

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Hypersensitivity pneumonitis (HP) is an immunologic response in the lungs to the repetitive inhalation of specific antigens in a sensitized patient



Non-caseating granulomas, & peri-bronchial mononuclear cell & giant cell inflammation

# Causes

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- Antigens responsible are complex proteins from several sources
- These include agricultural dust, thermophilic fungi, avian proteins, & bacteria
- They can also be low molecular weight organic compounds
- These are the most common causes seen
  - Bird-fancier's & pigeon fancier's lung      - exposure to proteins in bird droppings
  - Farmer's and mushroom worker's lung      - Micropolyspora faeni & Thermoactinomyces vulgaris
  - Malt worker's lung      - Aspergillus clavatus
  - Bagassosis or sugar worker's lung      - Thermoactinomyces sacchari.

# Clinical Features

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- Acute
- Subacute
- Chronic

## Acute

- Results after a large exposure to an inciting antigen
- **Symptoms** - fever, rigors, myalgia, dry cough, dyspnea, & fatigue within 12 hours of exposure
- **Signs** - Bi-basal, fine inspiratory crackles
- Symptoms resolve after removal from offending antigen within approximately 48 hours
- Recurrence of symptoms on re-exposure is disease's hallmark

## Subacute/Chronic

- Occur after more prolonged lower-level antigen exposure
- Increasing dyspnea, weight loss, cough, Type-I respiratory failure & Cor-pulmonale
- Finger clubbing - 50% cases
- Example - Bird fancier's lung disease caused by the inhalation of avian proteins from feathers, skin, or guano

# Investigations

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## Acute

- Full blood counts – Neutrophilia
- ESR - Raised
- Arterial Blood Gases
- Serum antibodies - Indicate exposure or previous sensitization
- Chest X-Ray - Upper-zone mottling or consolidation
- HRCT scan Chest - Diffuse centrilobular micronodules & ground-glass opacities
- Lung function tests - Reversible Restrictive defect & reduced gas transfer during acute attacks



# Investigations

## Subacute/Chronic

- Chest x-ray – Upper zone fibrosis & may be honeycombing
- HRCT scan
  - Micronodules & ground-glass opacities + septal thickening & fibrosis.
  - In severe and chronic form, significant traction bronchiectasis & honeycombing
- Lung function tests -Restrictive defect with reduced DLCO
- Bronchoalveolar lavage - Increased lymphocytes & mast cells



# Treatment

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## Acute

- Removal of exposure to the offending antigen
- 35 to 60% O<sub>2</sub>
- Prednisolone -1 mg/kg daily, shortens disease course & prevents progression to fibrotic changes

## Subacute/Chronic

- Removal of exposure to the offending antigen
- Counsel patient for Allergen avoidance, or wear facemask or positive pressure helmet
- Long-term steroids - achieve radiological & physiological improvement
- Sometimes, other immunosuppressants are used for those with more severe symptoms

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