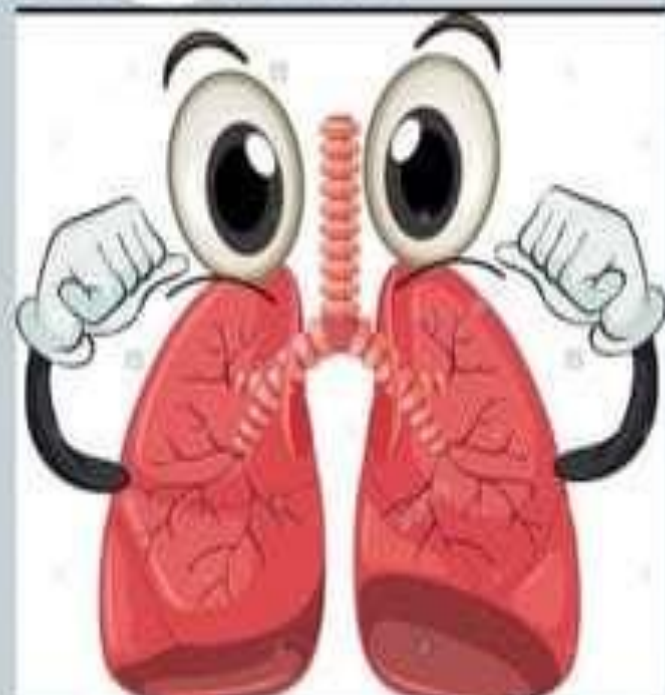


OCCUPATIONAL LUNG DISEASES



DEFINITION:



OCCUPATIONAL LUNG DISEASE ARE USUALLY DEFINED AS DISEASES ARISING OUT OF OR IN THE COURSE OF EMPLOYMENT.

(or)

Damage to the lung caused by dust or fumes or noxious substances inhaled by the workers in certain specific occupations is known as “occupational lung diseases”.

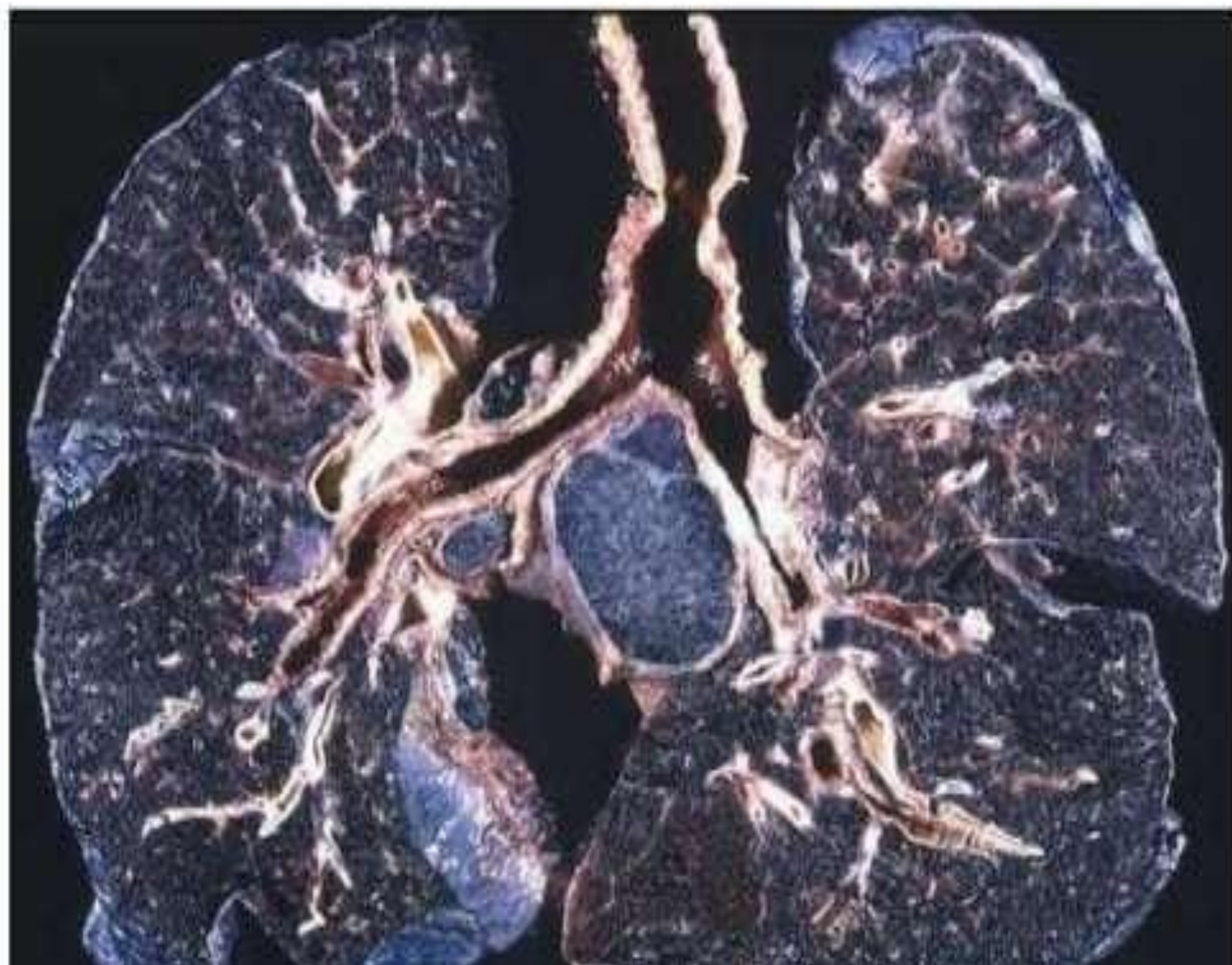
CLASSIFICATION

Occupational disease are grouped as under;

- ❖ Diseases due to physical agents (heat, cold, light, pressure, noise)
- ❖ Diseases due to chemical agents (Gases, dusts)
- ❖ Diseases due to biological agents (anthrax, encephalitis, fungal infections)
- ❖ Diseases of psychological origin (hypertension, peptic ulcer)
- ❖ Occupational cancer (cancer of skin, lung and bladder)

PNEUMOCONIOSIS

- Pneumoconiosis can be defined as the non- neoplastic reaction of lungs to inhaled minerals or organic dust and the resultant alteration in their structure excluding asthma, bronchitis and emphysema.
- It is also known as “ Black lung disease”





TYPES

- SILICOSIS – From silica dust
- ASBESTOSIS – From asbestos dust
- COAL WORKER – From coal dust
- BYSSINOSIS – From cotton dust
- BAGASSOSIS – From sugarcane dust
- FARMER'S LUNG – From mold spores or other agricultural products
- BERYLLIOSIS – From beryllium



- Among the occupational diseases, silicosis is the major cause of permanent disability and mortality. It is caused by inhalation of dust containing free silica or silicon dioxide.
- Particles between 0.5 to 3 micron are the most dangerous because they reach the interior of the lungs with ease.
- The particles are ingested by the phagocytes which accumulate and block the lymph channels.
- Pathologically, silicosis is characterized by a dense “nodular” fibrosis, the nodules ranging from 3 to 4 mm in diameter.



Clinical Features



- Chronic cough
- Dyspnea on exertion
- Fatigue
- Loss of appetite
- Chest pain
- Acute silicosis patients may also have fever and experience rapid, unintended weight loss
- Impairment of total lung capacity(TLC)
- Shortness of breath

INVESTIGATION

- History & physical examination
- Chest x-ray – snow storm appearance in the lung fields.
- CT Scan
- Sputum test – helps to evaluate other lung diseases, like TB



TREATMENT



There is no cure for chronic lung pain
Treatments can help to reduce symptoms

- Medication
 - steroid inhalers reduce lung inflammation
 - bronchodilators help to relax breathing passages
- Oxygen therapy
- Lung transplant - if you have advanced lung disease



an ounce of **prevention**



a pound of **cure**



PREVENTION

- ❖ Limit the time exposed to silica.
- ❖ Use respirators that protect you from inhaling silica
- ❖ Wear a mask or other protective clothing while you work around it.
- ❖ Stop smoking.
- ❖ Avoid secondhand smoke and areas with lot of dust, air pollution and allergens.

COMPLICATION

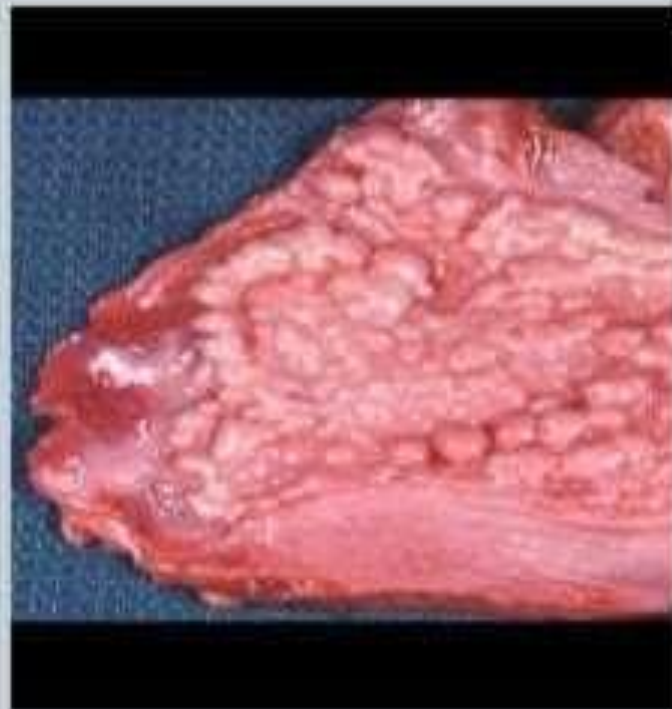


- SILICOTUBERCULOSIS – Silica is cytotoxic to alveolar macrophages so patients are at risk of tuberculosis.
- Autoimmune disorder – rheumatoid arthritis, scleroderma.
- Malignancy

ASBESTOSIS



- It is known as “diffused pulmonary fibrosis” which is caused by inhalation of asbestos fibers.
- It is most often seen with those who work with asbestos or asbestos containing products.
- The presence of asbestos in the lungs eventually causes scarring or “fibrosis” which may later result in the formation of tumors and the development of cancer.



SYMPTOMS OF ASBESTOSIS

- Asbestosis do not appear quickly.
- It take as long as to begin to recognize symptoms that indicate a problem with the lungs.
- Shortness of breath
- Dyspnea
- Persistent dry cough
- Blood in the sputum.
- Chest tightness
- Loss of appetite.
- Difficulty in swallowing.



INVESTIGATIONS

- Chest X-ray – irregular opacities in the lower lobes, heart border becomes shaggy.
- In later stages of diseases, there is a honey – comb likeness and volume loss.
- Pulmonary function test.
- Lung biopsy.
- Bronchial lavage.



Asbestosis – Related pleural abnormalities

Two types of abnormalities

- Pleural plaques
- Simple asbestos pleural effusions
- Diffuse pleural thickening
- Pleural plaques plus plaques at risk for other asbestos related diseases – (Pleural mesothelioma with them)
- Mostly asymptomatic, though some can cause dyspnoea, cough
- Latent periods 10-20yr
- No specific treatment
- Prognostic in certain cases



MESOTHELIOMAS

- Both pleural and peritoneal are also associated with asbestos exposure
- In contrast to lung cancer, these tumors do not appear to be associated with smoking. Relatively short term asbestos exposure of 1-2yrs, occurring up to 40yrs in the past, have been associated with the development of mesotheliomas.
- >80% of mesotheliomas are associated with asbestos exposure.

TREATMENT

- Removal of any ongoing asbestos exposure.
- Quit smoking.
- Immunizations against pneumococcal pneumonia and influenza.
- Patients may require home oxygen therapy.
- Corticosteroids and immunosuppressive drugs do not alter the disease.



BYSSINOSIS

- Byssinosis is a lung disease caused by prolonged inhalation of cotton fibre dust
- Other names for Byssinosis include Monday fever, brown lung fever disease, mill fever or cotton workers lung.



RISK FACTORS



- SMOKING
- IMPAIRED LUNG FUNCTION
- BRONCHITIS
- ASTHMA
- INFECTIONS
- HISTORY OF RESPIRATORY ALLERGY.



- Tightness in the chest **SYMPTOMS**
- Wheezing
- Coughing
- Dyspnea
- Fever
- Shivering
- Tiredness

GRADING OF BYSSINOSIS



- Grade 0 – No symptoms on first day of work
- Grade ½ - Occasional chest tightness or irritation of respiratory tract on every the first workday of week
- Grade 1 – Chest tightness on every first day of work week.
- Grade 2 – Chest tightness on first and other days of work week.
- Grade 3 – Chest tightness on first and other days of work week and physiological evidence of permanent disability.



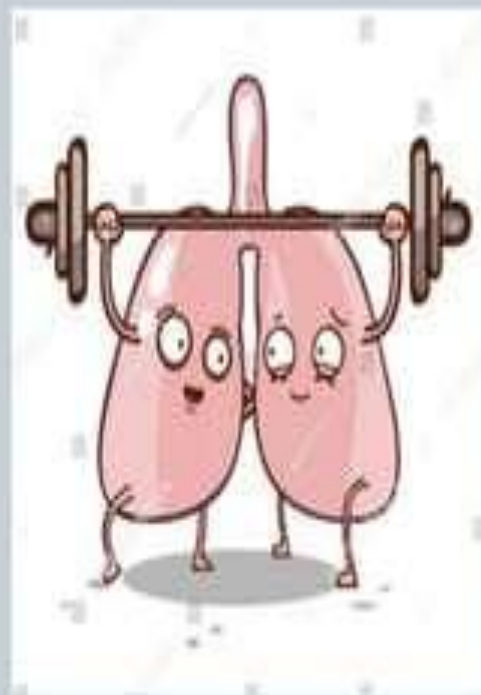
DIAGNOSIS

- Detailed medical history.
- Physical examination.
- Pulmonary function test.
- Chest X- ray
- CT
- Spirometry.



PREVENTION

- Enclosure of processing of cotton.
- Quit smoking.
- Wear protective gears.
- Increase ventilation.
- Avoid long term exposure.





BAGASSOSIS

- Bagassosis is the lung disease caused by inhalation of sugarcane dust.
- This is the form of hypersensitivity pneumonitis.



- Shortness of breath. SYMPTOMS
- Cough.
- Coughing blood
- Low grade fever

DIAGNOSIS



- A Chest is enough for a confirmatory diagnosis of bagassosis as it will show mottling of lungs or may show a shadow.

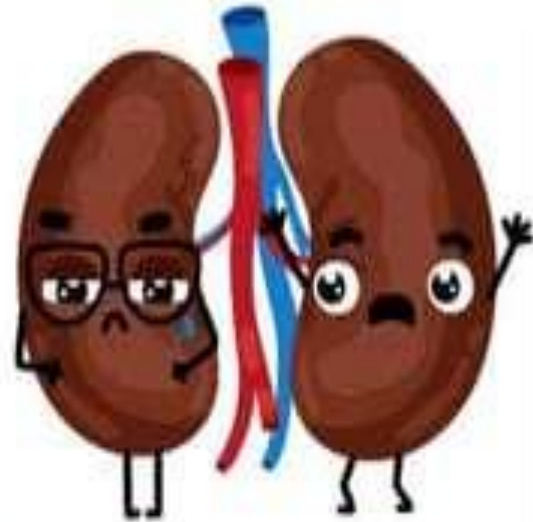
FARMER'S LUNG



- Farmer's lung is a disease caused by an allergy to the mold in certain crops.
- It is usually caused by breathing in dust from hay, corn, grass or animal feed, tobacco or some pesticides.

- Dry irritating cough
- Fever and chills
- Rapid breathing
- Rapid heart rate
- Shortness of breath
- Sudden feeling that you're sick

SYMPTO



DIAGNOSIS



- Pulmonary function test
- Bronchoscopy
- Lung biopsy

TREATMENT

- Avoid dusty work
- Wear a mask or other protective equipment
- Avoid exposure to the offending allergen.



BERYLLIOSIS

- Berylliosis or chronic beryllium disease is a chronic allergic type lung response and exposure to beryllium and its compounds, a form of beryllium poisoning.

Berylliosis

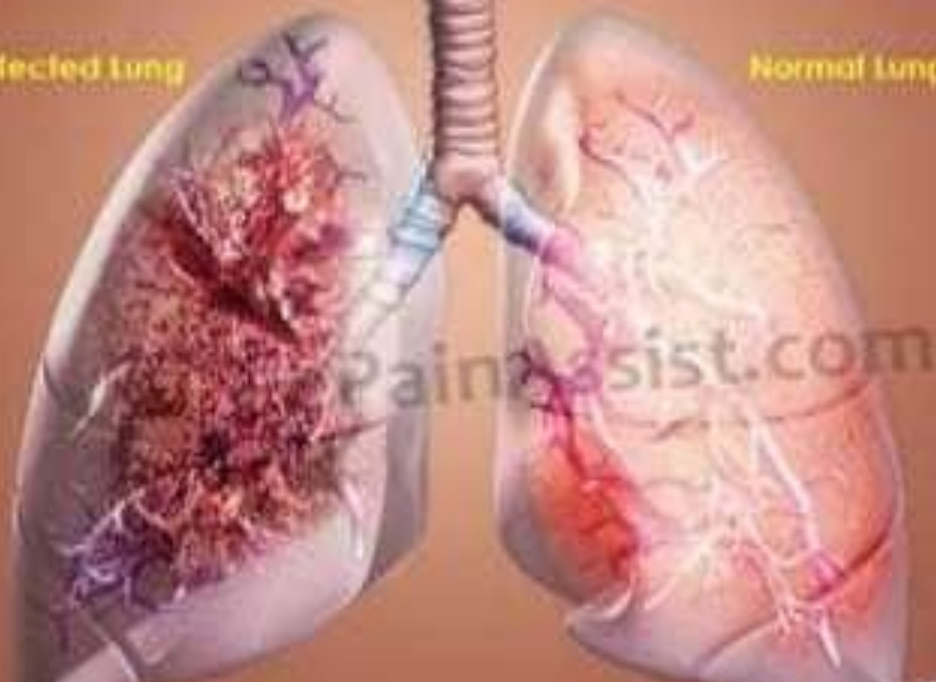
It is an occupational lung disorder which is caused in people who are involved with working with an element called Beryllium.



Beryllium

Infected lung

Normal lung





SYMPTOMS

- Cough
- Shortness of breath
- Chest pain
- Joint aches
- Weight loss
- Fever



DIAGNOSIS

- Complete medical history
- Physical examination – abnormal lung sounds may be heard.
- Chest X-ray
- Pulmonary function test
- Lung biopsy

TREATMENT



- Minimize exposure in the workplace.
- Corticosteroid drugs
- Breathing support such as use of ventilators.
- Regular monitoring and appropriate treatment should be done.

