CLINICAL FEATURES IN PULMONARY TUBERCULOSIS

Dr. Amitesh Aggarwal
Department of Medicine

Tuberculosis

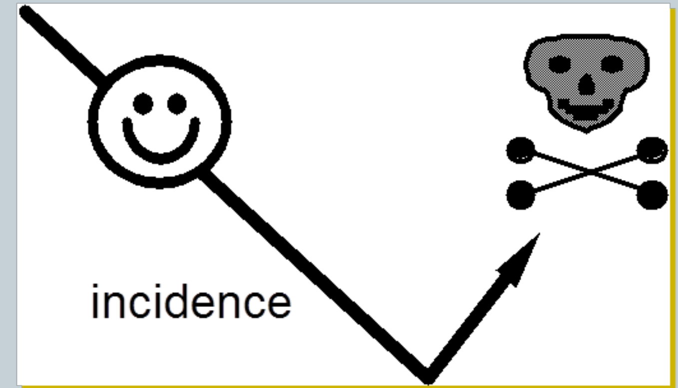
Captain of all the Men of Death

Great White Plague

devastating effect on society

100 years ago one in five of the population was destined to die of tuberculosis…

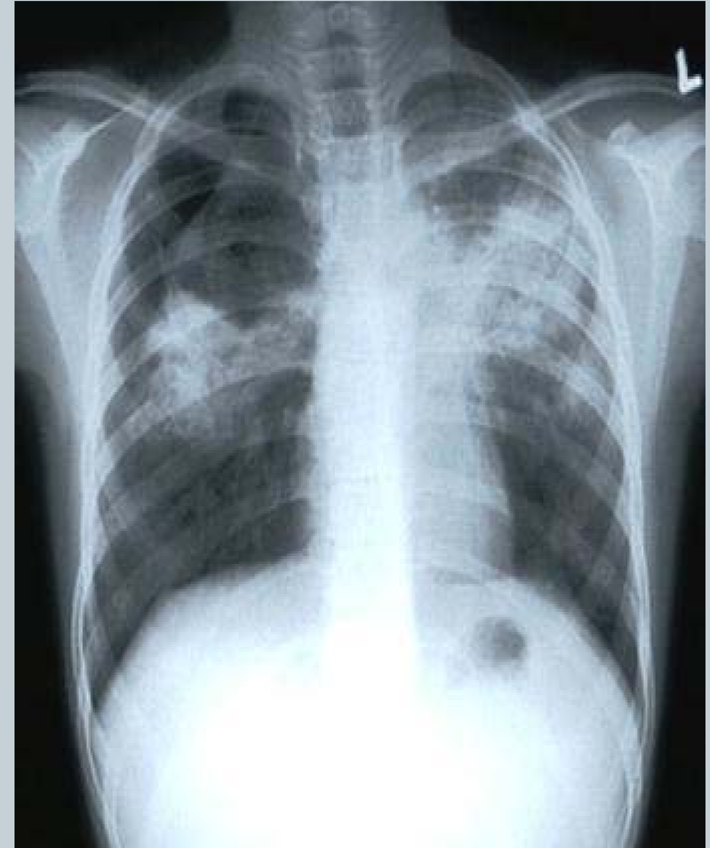
Tuberculosis is back!!



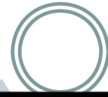
- 8m new cases
- 3 m deaths each year
- World’s single biggest killer
- > 3 million people doubly infected with HIV and TB
- 20-33% of world's population infected with *MTB*

Natural history

- Primary infection
  - Most individual- asymptomatic or non-specific symptoms: fever, malaise, weight loss, night sweats
  - Inhalation of tubercle bacilli
    - leads to lung infection
  - Ingestion of tubercle bacilli
    - tonsils & cervical nodes
    - small bowel with mesenteric nodes
  - Direct implantation into skin?



Calcified peripheral nodule in the lower right lung (Gohn's primary focus)

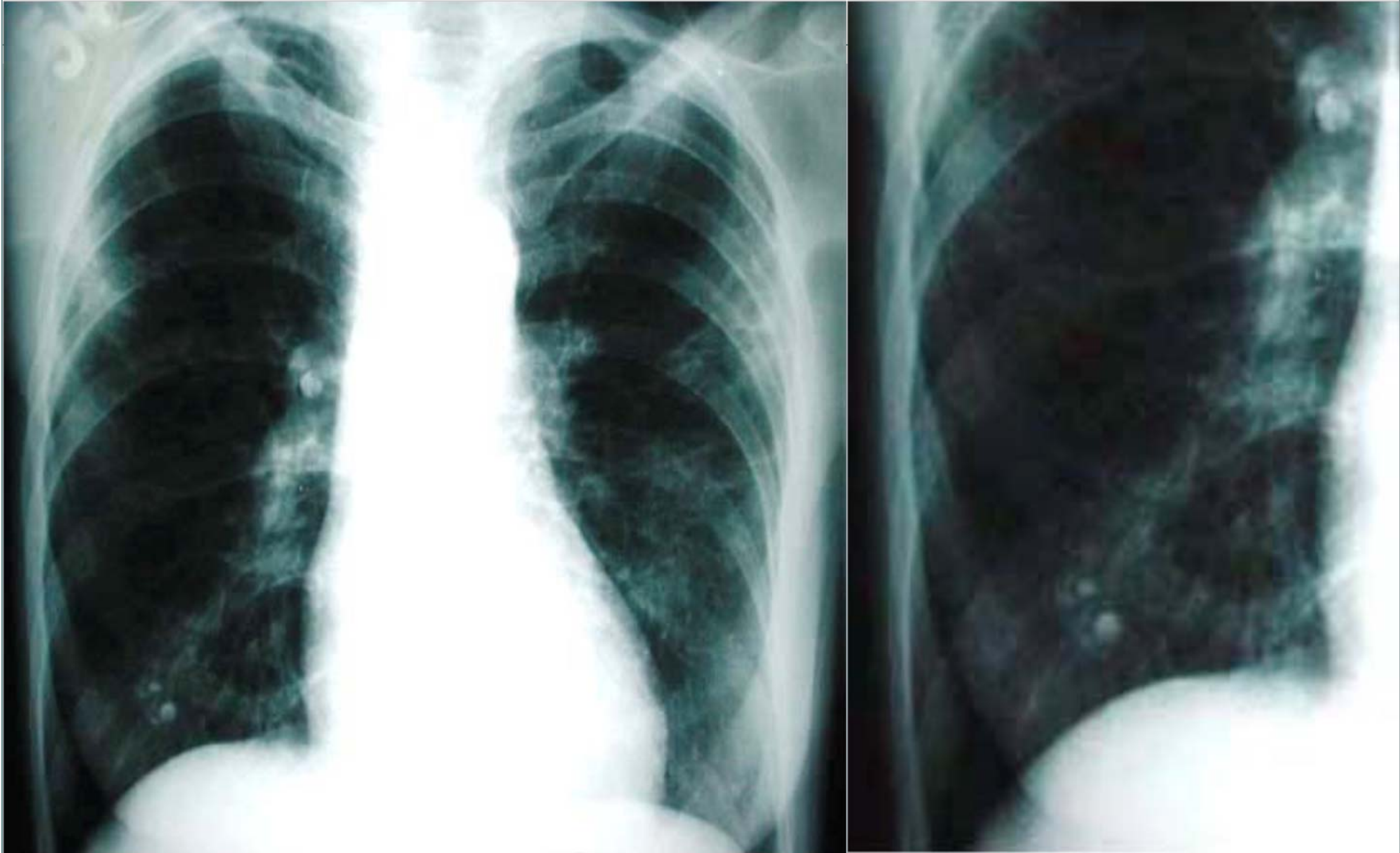


Primary Ranke's complex

Classical presentation

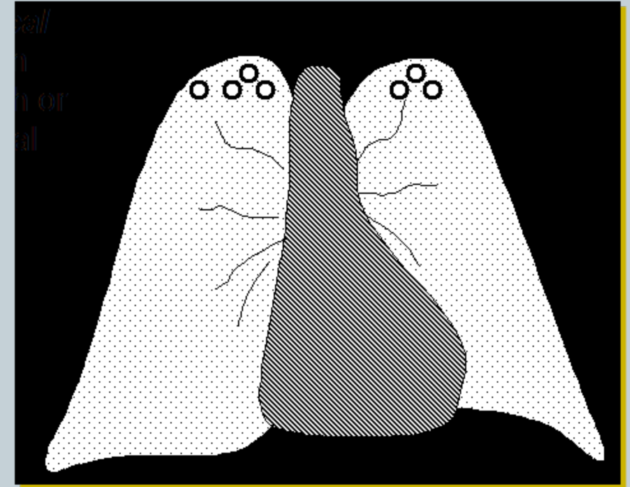
- a calcified peripheral lung nodule (Gohn's primary focus),
- lymph tracts toward the hilus (lymphangitis),
- enlarged local lymph nodes

Ranke's complex



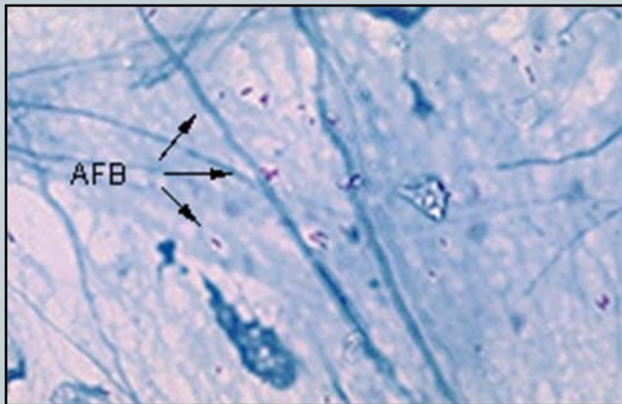
Simon foci

- In initial phase of *MTB* infection,
- Some tubercle bacilli reaching upper lobes of lungs,
- Creating small metastatic foci



Progressive Primary Infection

- local erosion by primary focus
  - pleural cavity = pleurisy
  - pericardium = pericarditis
  - bronchus = tuberculous bronchopneumonia (highly infectious)



- disseminated infection
  - miliary tuberculosis
  - multiple discrete granulomas resembling millet seeds
- metastatic infection
  - tuberculous meningitis
  - bone & joint
  - kidney
  - uterus/testis

HISTORY

PREDISPOSING CONDITIONS

- Malnutrition
- Alcoholism
- Advanced age
- HIV/AIDS
- Diabetes
- Gastrectomy
- Chronic renal insufficiency
- Silicosis,
- Paracoccidioidomycosis
- Leukemias
- Solid tumors
- Immunosuppressive drug treatments

HISTORY

- Often present with an insidious clinical onset
- Minimal or non-specific complaints in initial phase

With development of disease, two types of signs and symptoms can be recognized

- 1) Constitutional
- 2) Respiratory

Constitutional

- Lack of appetite & weight loss
- Low-grade evening fevers
- Night sweats
- Asthenia
- Irritability
- Migraine
- Thoracic pain

Respiratory

- Cough
- Dyspnea
- Thoracic pain
- Hemoptysis

Fever and sweating

- Bacillary multiplication increases in afternoon, with daily circadian rhythm cortisol peak, followed by evening fever
- *MTB* multiplies at a slow pace in comparison with other bacteria - inflammatory process is moderate, accompanied by low-grade fever
- Body responds to evening fever with night sweats to maintain the body temperature
- With massive dissemination, peaks of high fever can occur at any time of the day & accompanied by chills

Weight loss

- ‘Consumption’
- About 70 % cases
- Proportional to duration and extent of the disease

Dyspnea

- Not a common symptom
- No gross alteration in ventilation/ perfusion ratio, (except atelectasis, large cavities, large acute inflammatory infiltration)
- Cause- pleural effusions, pneumothorax, fibrosis in advanced disease
- More frequent in miliary form due to hypoxemia

Thoracic pain

- Pleural involvement
- An early and relatively frequent symptom.
- Generally of low intensity
- Disappears within two or three weeks after Rx
- Muscle strain due to persistent coughing

Cough

- Eventually develops in majority
- Initially nonproductive, Subsequently productive
- At any hour of the day
- Stimulus by alveolar inflammatory process or granulomatous impingement into respiratory airways
- After cure, respiratory symptoms (productive cough) persist in some for several years

Hemoptysis

- Blood streaking of sputum - frequently documented
- Recurrent hemoptysis (> 15-50 mL/day)
  - Bronchiectasis, fungus ball
- Massive hemoptysis (>400 mL/day) –
  - erosion of fully patent vessel located in wall of a cavity
  - rupture of a dilated vessel in a cavity (Rasmussen's aneurysm)
  - from aspergilloma formation in an old cavity
- Alert hemoptysis or bark
  - Bleeding in small lesions during cavities formation
  - can be the first manifestation

Physical examination

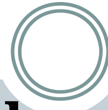
- Physical signs - related to extent of lesions, duration of disease and form of presentation
- Physical findings - limited use
- Many patients - no abnormalities
- Some - detectable crackles in involved areas during inspiration, especially after coughing
- Rhonchi - partial bronchial obstruction
- Amphoric breath sounds - large cavities
- Systemic features (fever, wasting, pallor, etc)
- Clubbing

Physical examination

The most common auscultation findings are:

- Coarse crackles in the area corresponding to the lesion (generally apical and posterior)
- Wheezing and ronchi in area of compromised bronchi
- Clinical signs of lung condensation
- Decreased vesicular sounds and broncophony - pleural effusion
- Amphoric breath sounds - large cavities

TB associated conditions



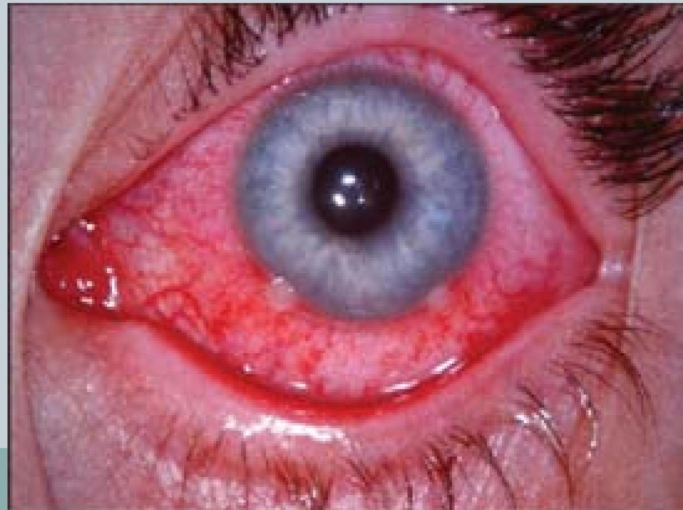
- Caused by delayed-type hypersensitivity to tubercle bacilli components
- Lesions themselves do not contain MTB
- Sometimes recurrent
- Mostly associated with primary TB infection
- Erythema nodosum (inflammation of subcutaneous adipose tissue)
- Phlyctenular conjunctivitis
- Erythema induratum of Bazin (nodular vasculitis)
- Polyserositis

Erythema nodosum

- Toxic allergic erythema with nodular lesions
- In skin or under it, 2 to 3 cm large
- Spontaneously painful
- Very painful under pressure
- Located bilaterally in feet and legs
- Accompanied by pharyngitis, fever and joint inflammation
- More frequent in girls over six years

Phlyctenular conjunctivitis

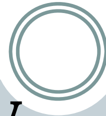
- Allergic keratoconjunctivitis
- Presence of small vesicles that usually evolve to ulcers and resolve without scars
- Associated with photophobia & excessive lacrimation



Tuberculosis in children

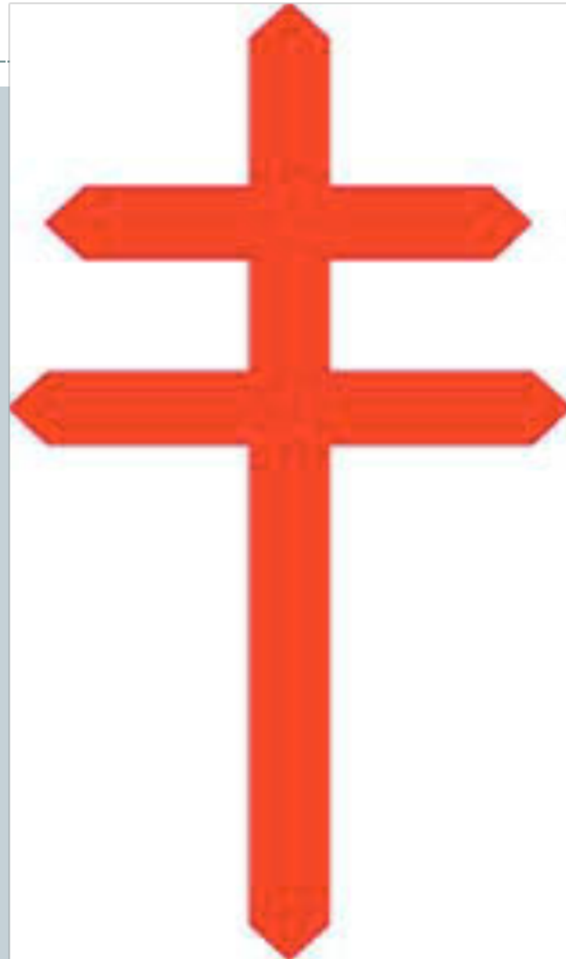
- TB in a child is a sentinel event indicating recent transmission
- Contacts should be evaluated to find the source case
- Children do not commonly infect other children
- Cough is rare and sputum production is scant

HIV & TB



- TB more aggressive in HIV+
- Reactivation rates much higher in HIV +
  - 10% lifetime risk of reactivation in HIV-negatives
  - 8% annual risk in HIV+
- Clinical presentations related to degree of immunosuppression (CD4)
- In partially compromised, typical pattern of UL infiltrates and cavitation, without significant lymphadenopathy or pleural effusion
- In severe compromised, primary TB–like pattern, with diffuse interstitial or miliary infiltrates, little or no cavitation, intrathoracic lymphadenopathy

Double-barred cross, symbol of anti-tuberculosis crusade



Download this presentation: http://dramiteshaggarwal.yolasite.com

For queries & feedback: dramitesh@rediffmail.com