TUBERCULOSIS(Part 2)

SITES

- Virtually anywhere
- Lungs
- Pleura
- Lymph node

PULMONARY-
CLINICAL SCENARIO

SYMPTOMS(Pulmonary)

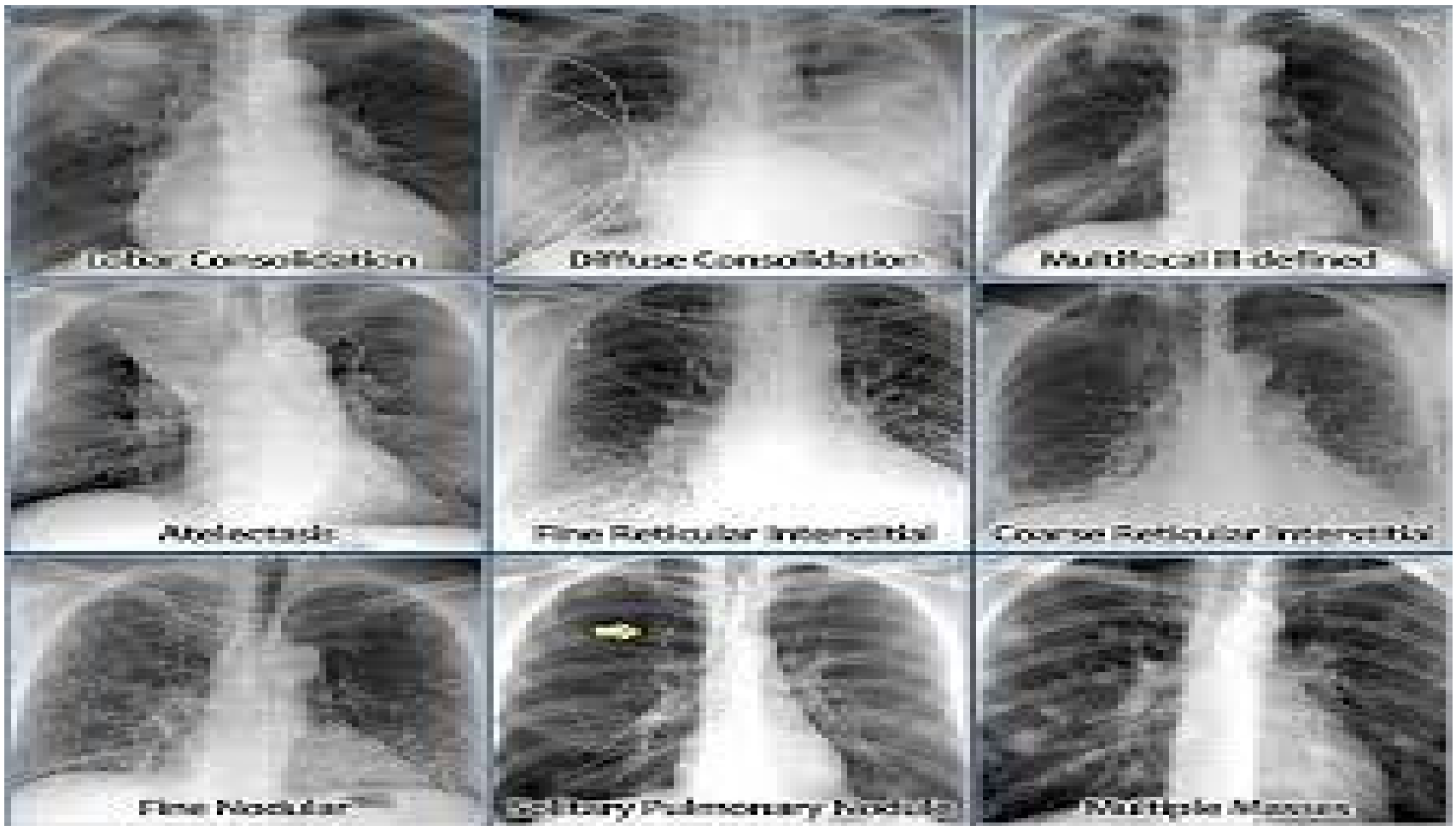
- Cough± exp (≥2 weeks)
- Fever
- Appetite/weight loss
- Chest pain
- Haemoptysis
- Dyspnea

SIGNS

- General
  - Emaciated
  - Anaemic
  - Clubbing
  - Cyanosis
  - LN
  - Edema

PRESENTATION(signs)

- Respiratory
  - consolidation
  - fibro-cavitatory disease
  - Collapse
  - Effusions
  - Pneumothorax
  - hydro-pneumothorax
- Wide variety of clinical findings



PRESENTATION(Pulmonary)

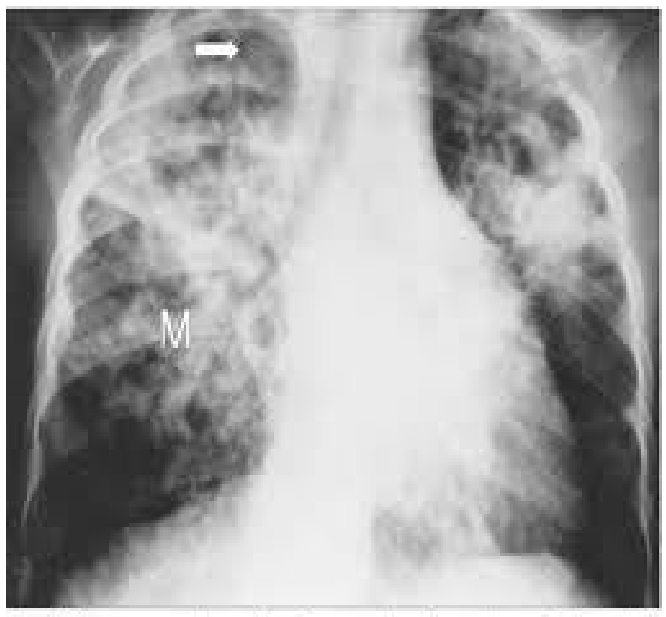
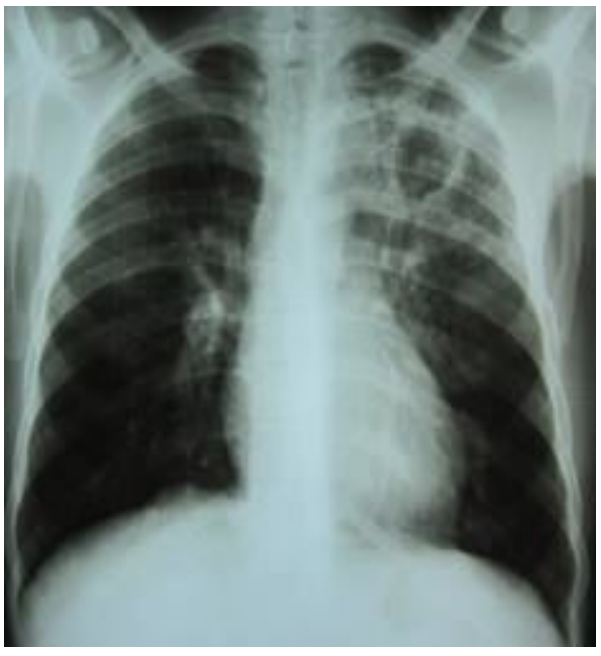
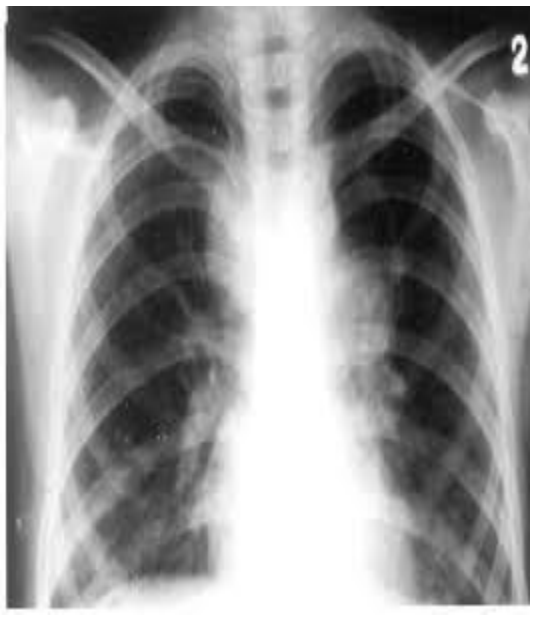
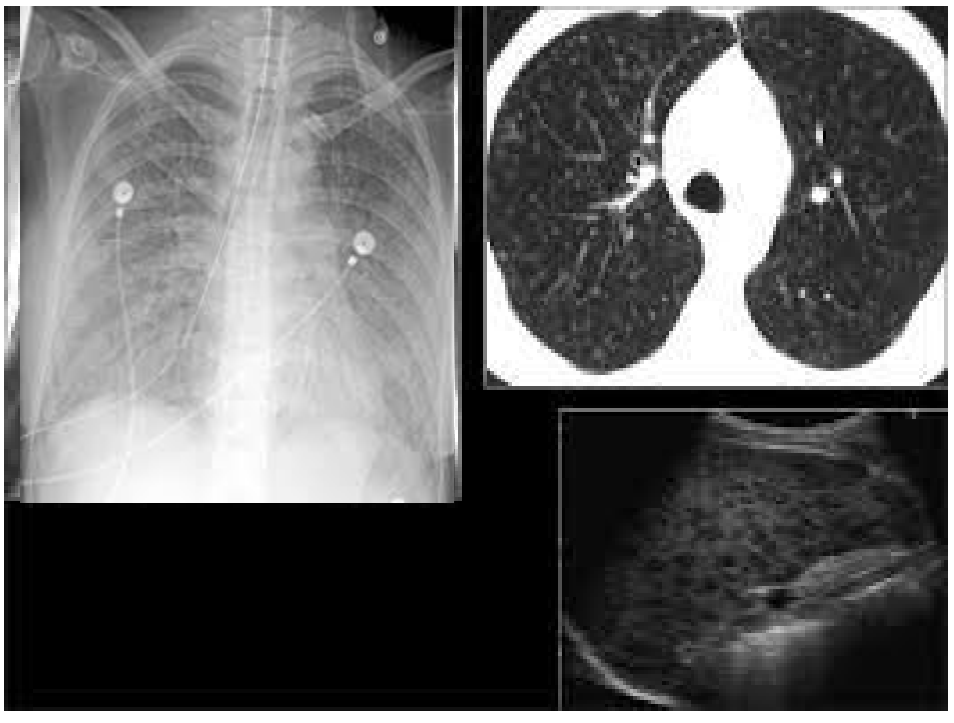
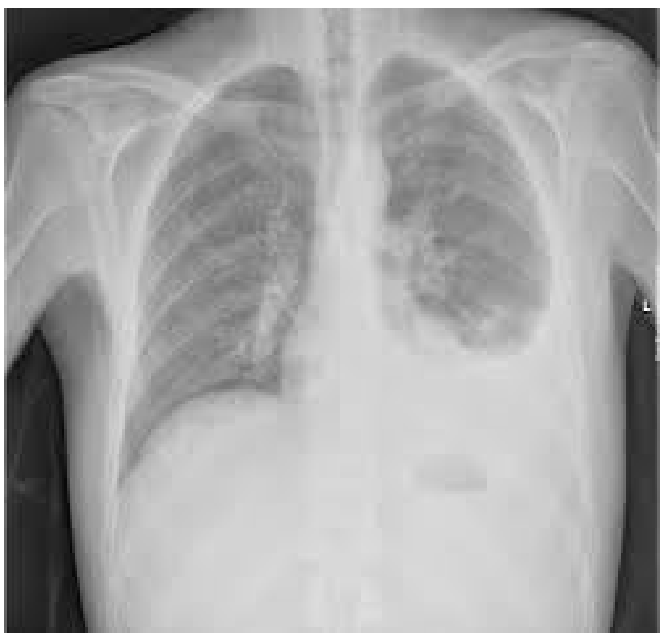


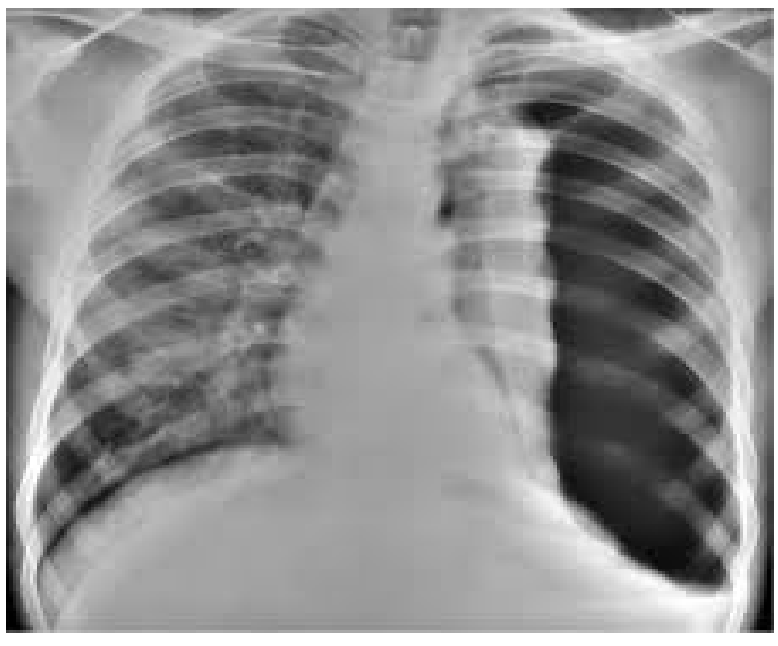
Figure 1. Chest x-ray upon admission. M = miliary pattern. Arrow shows cavities in the right upper lobe.







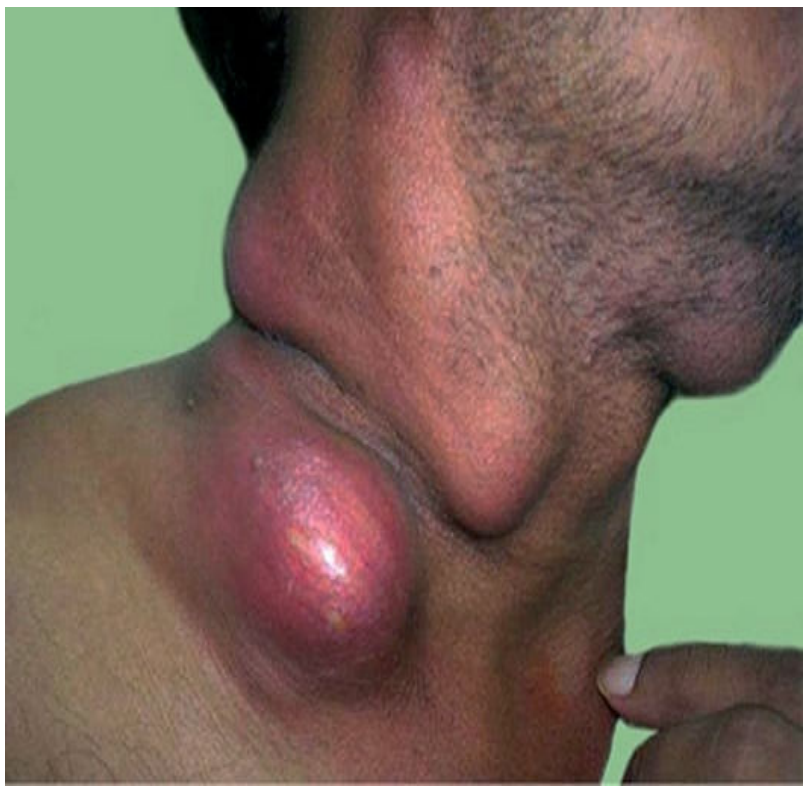




EPTB-PRESENTATION

LN TB

- LN-site
- painless enlargement ,systemic symptoms<50%
- Matting
- Sinus/fistula
- FNAC/Bx/NAAT/smear/culture



SKELETAL TB

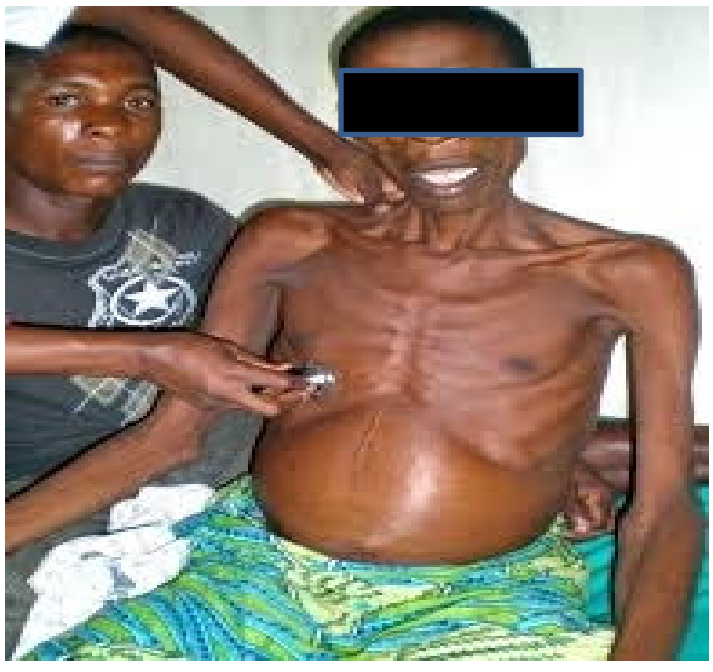
- Site
- Pain/joint swelling/dec range of motion.
- Draining sinuses and abscesses
- Systemic symptoms
- Radiographic changes m/b nonspecific

CNS TB

- Tuberculous meningitis(MC), intracranial tuberculomas, , cranial nerve palsies and communicating hydrocephalus , cranial vasculitis may lead to focal neurologic deficits.
- Malaise, headache, fever, or personality change,A/S,seizures/focal defects
- CSF –lymphocytic,increased protein,ADA,CB NAAT

Koch's abdomen

- Site-gut/peritoneum/LN
- pain,nausea/vomitting
- altered bowel habbits
- Distension
- Diagnosis:ascetic fluid analysis/LN sampling/radiology



Miliary

- Fever/dec appetite/wt loss/vague-elderly
- Haematogenous
- Fulminant disease -septic shock, ARDS,MOF
- CXR/Liver/spleen BX/BM
- Haematological-anaemia(NCNC),hyponatremia

PRESENTATION(Extra-Pulmonary)

- Genitourinary-infertility, urinary difficulties

- CVS-pericarditis(pain/dyspnea)

CLINICAL CLUES-EPTB

- **Ascites -lymphocyte predominance and negative bacterial cultures**
- **Chronic lymphadenopathy (especially cervical)**
- **CSF -lymphocytic pleocytosis / elevated protein /low glucose**
- **Pleural effusion -Exudative / lymphocyte predominance/negative bacterial cultures**
- **Joint inflammation (monoarticular) with negative bacterial cultures**
- **Persistent sterile pyuria**
- **Unexplained pericardial effusion, constrictive pericarditis, or pericardial calcification/Vertebral osteomyelitis involving the thoracic spine**

COMPLICATIONS

- **Local-**
  - ARDS/respiratory failure
  - Bronchiectasis/PTOAD
  - aspergilloma
  - haemoptysis (symp)
  - Pleural -Empyema/pneumo
  - Extensive lung destruction
  - Rt middle lobe syndrome
  - Scar ca

- **Systemic-**
  - shock
  - amyloidosis
  - disseminated tb-(laryngeal tb)
  - Cor-pulmonale

INVESTIGATIONS

- Active infection
- Latent Infection
- Drug resistance

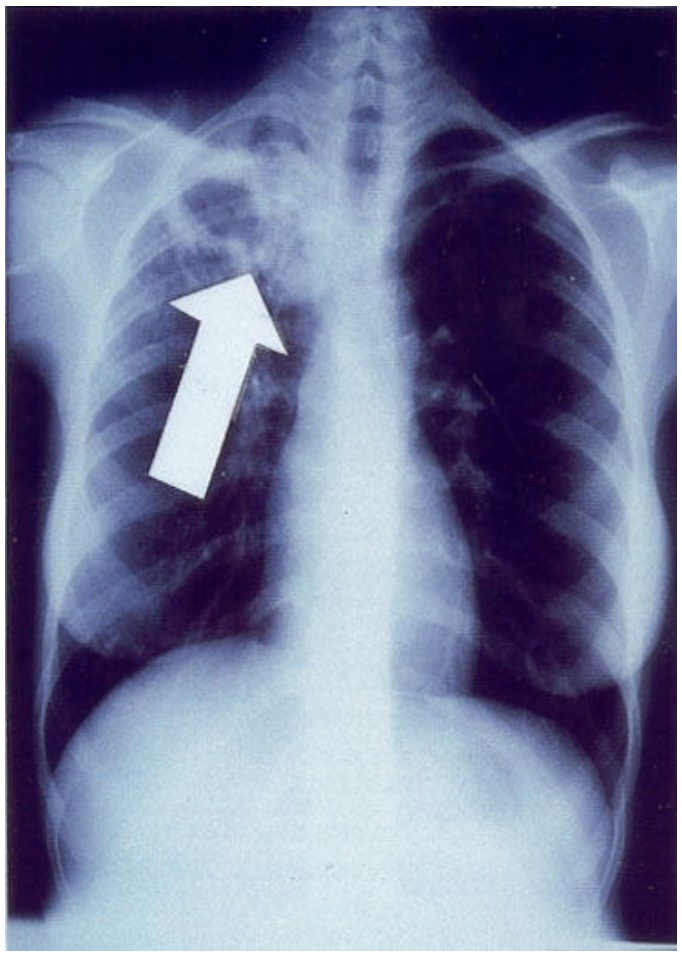
TESTS FOR ACTIVE TUBERCULOSIS

ACTIVE TUBERCULOSIS

- Radiology-X-ray
- Microbiological-smear /culture
- NAAT-gene expert

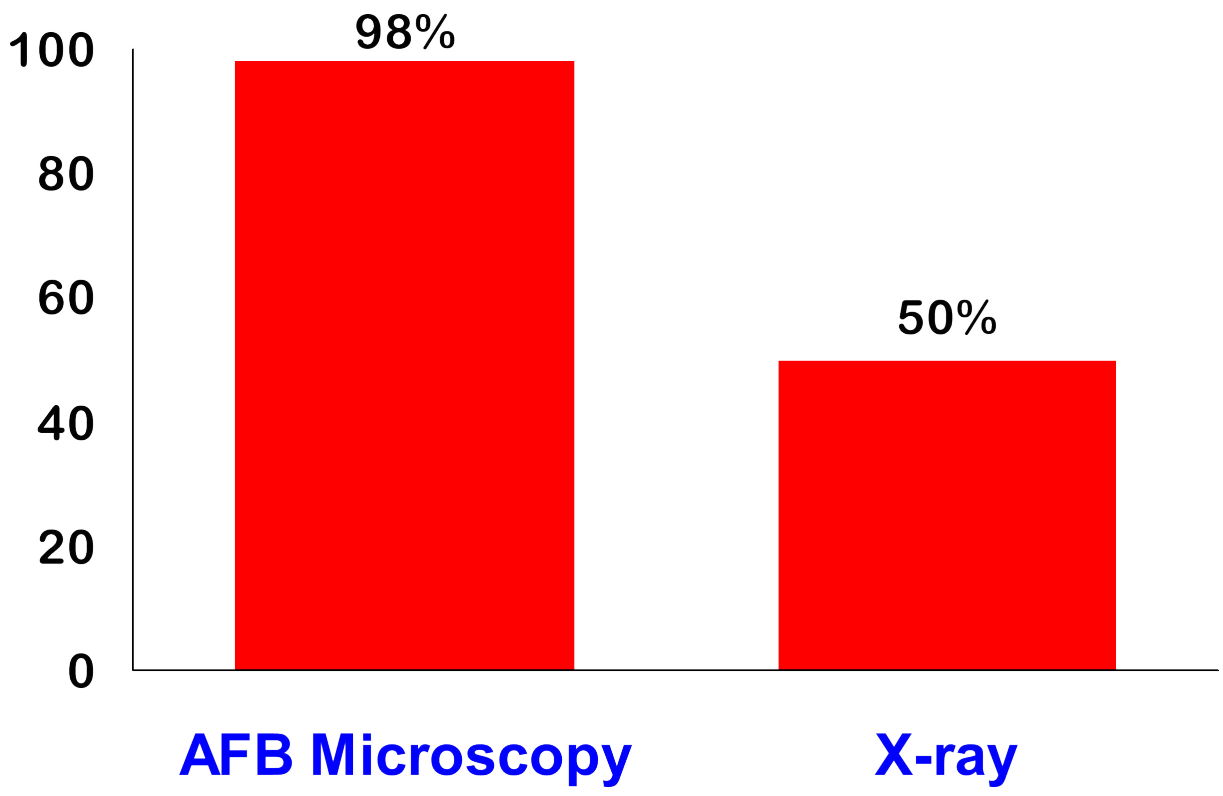
CXR

- Abnormalities often seen in apical or posterior segments of upper lobe or superior segments of lower lobe
- May have unusual appearance in HIV-positive persons
- **Cannot confirm diagnosis of TB!!**
- **Sensitive,specificity is low**



- No chest X-ray pattern is absolutely typical of TB
- 10-15% of culture-positive TB patients not diagnosed by X-ray
- 40% of patients diagnosed as having TB on the basis of x-ray alone do not have active TB

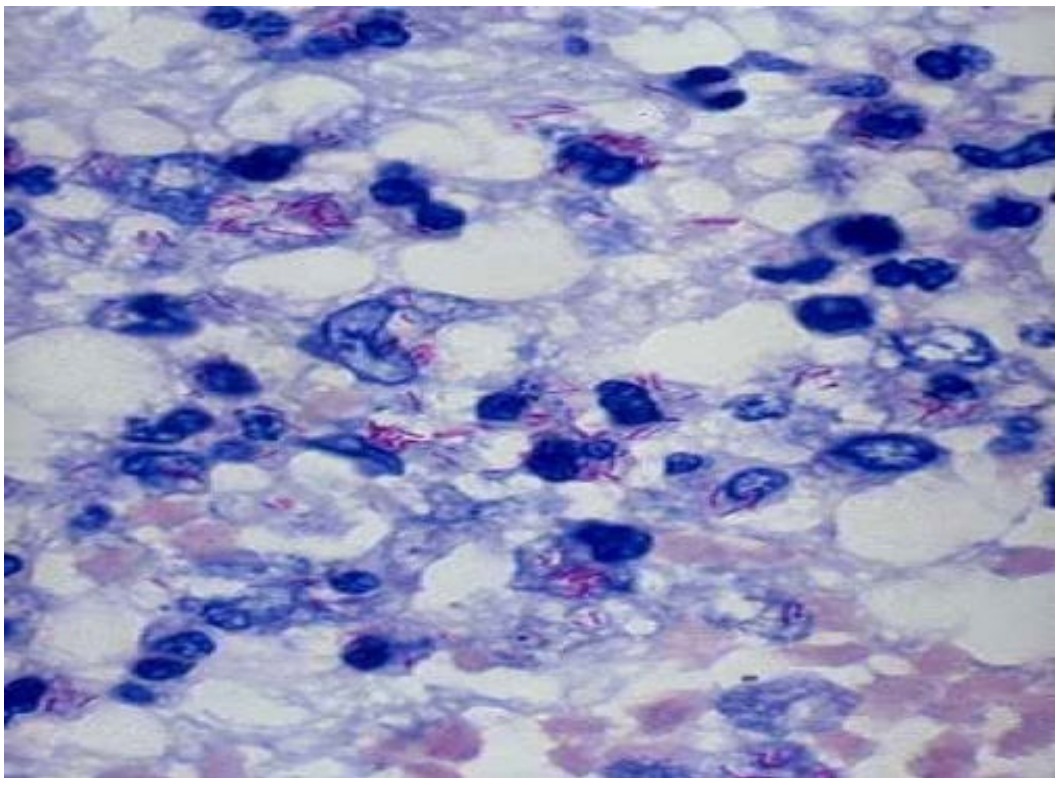
Proportion of patients with pulmonary TB who have positive AFB smears



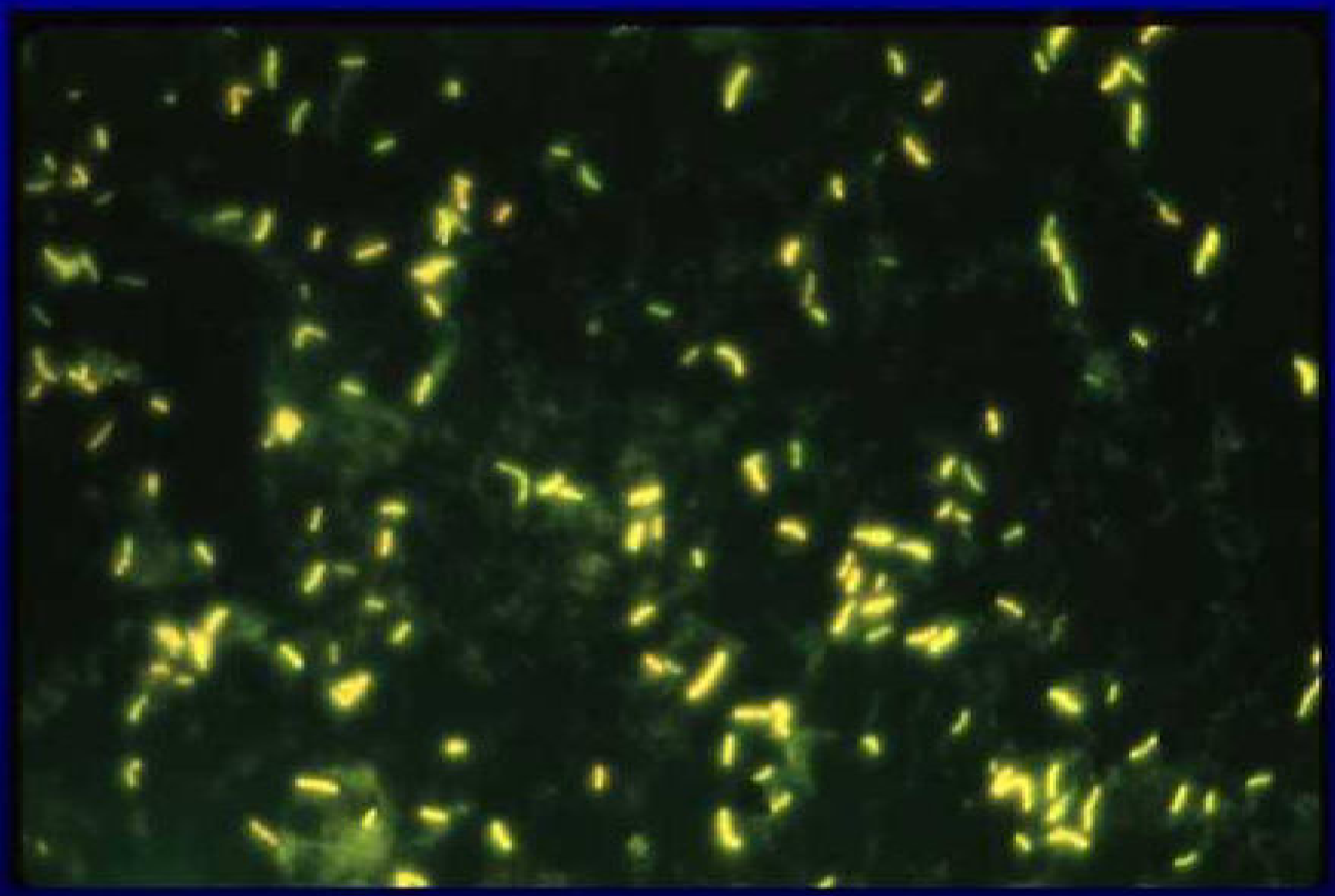
SPUTUM SMEAR

- Rapid , r**esults within hours**
- **Inexpensive**
- **simple, relatively easy to perform**
- Reliable(40-64%sensitive,90%specificity)

AFB - Ziehl-Nielson stain



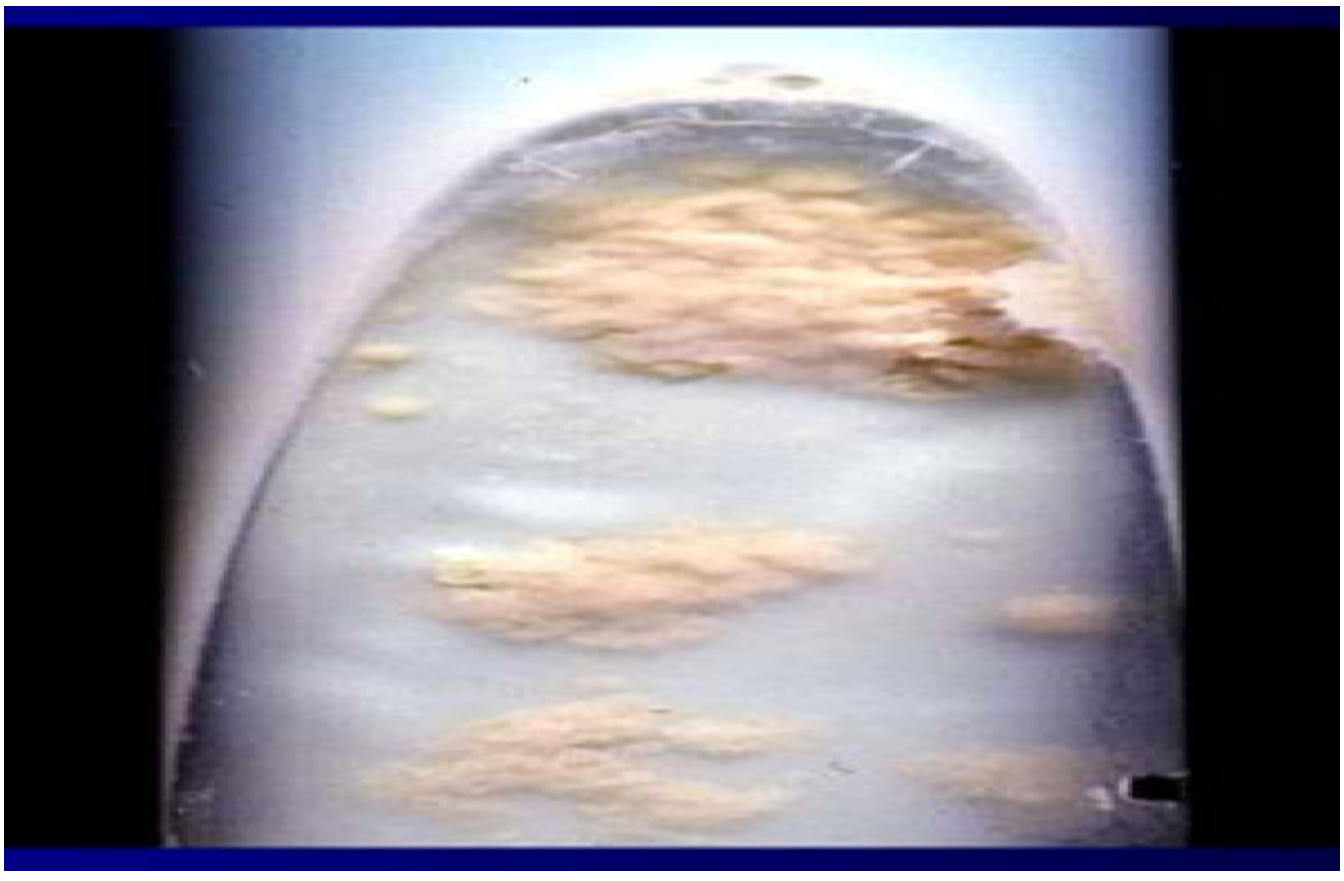
Sputum - TB Auromine/Rhodamine



CULTURE

- Gold standard for TB diagnosis(100 bacilli)
- Culture all specimens, even if smear negative
- Conventional(LJ-6-8wks)
- Rapid –liquid culture-Bactec/MGIT
- Allows DST Vs smear

Colony Morphology – LJ Slant



IMMUNOLOGICAL TESTS

- BANNED
- Antigen/antibody detection method(ELISA)
- Not specific, rapid, expensive
- Cannot differentiate active/past infection.

TESTS FOR LTBI

WHAT is LTBI?

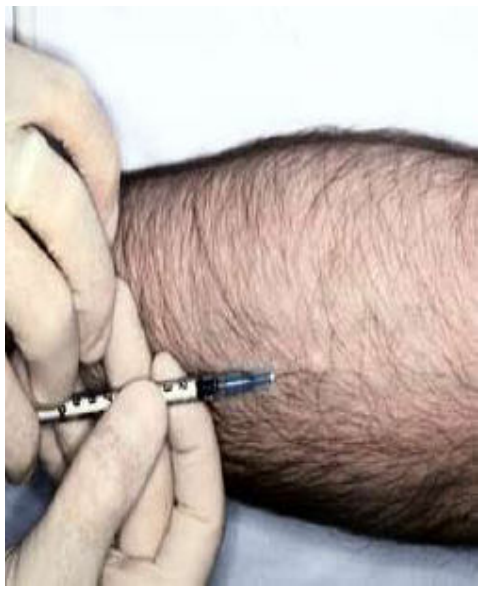
1.PPD-

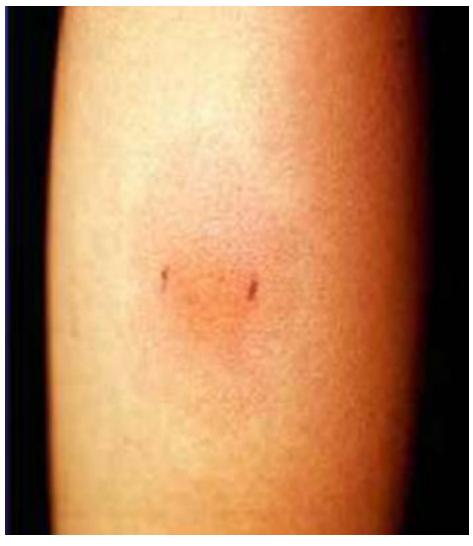
infection with M tuberculosis produces a Delayed Type Hypersensitivity (DTH) to certain antigenic components

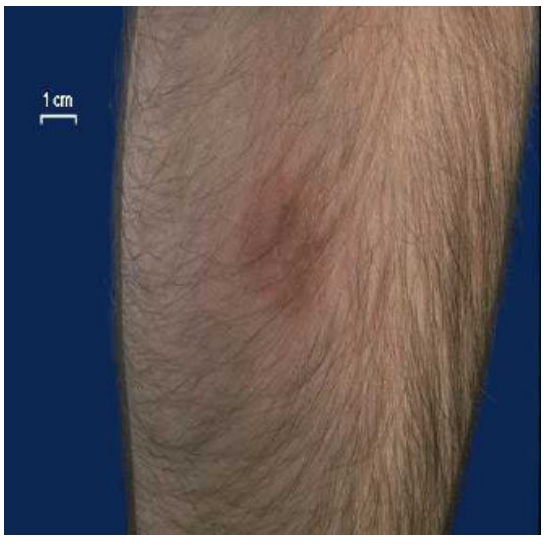
2.Interferon gamma release assays –Quantiferon gold/Elispot test

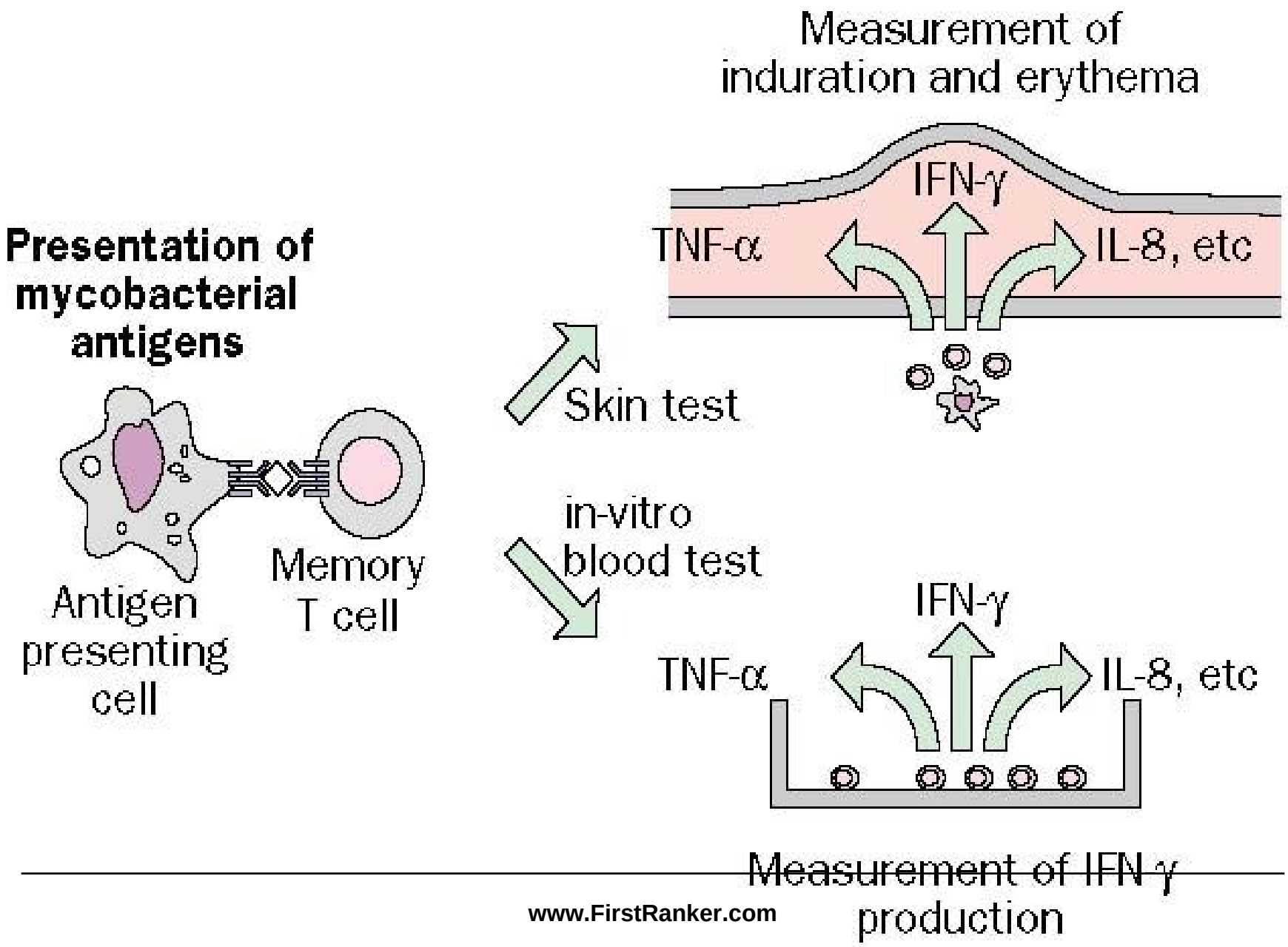
- single patient visit
- assesses responses to multiple antigens
- does not boost anamnestic immune responses
- Less reader bias/reading
- moderate concordance between TST and QFT

Mantoux test









Limitations

- Active Vs inactive disease
- Old Vs new
- BCG /MOTT(though IGRA are less affected)

TESTS FOR DRUG RESISTANCE

DRUG RESISTANCE

- Conventional/rapid culture & DST
    - GOLD standard
- NAAT-gene xpert LPA

MANAGEMENT

Principles of chemotherapy

- Variable bacilli population:rapid growers,slow growers,dormant
- Longer duration
- 2 phases of treatment
- Need for multiple drugs to treat(spontaneous resistance)