

# Pediatric Tuberculosis

# TB Burden in India

- Highest TB burden country (1/5<sup>th</sup> of global)
- 17<sup>th</sup> among 22 high burden countries in terms of TB incidence.

WHO Report 2009

# Pediatric TB: Characteristics

- Infection occurs for first time
- Well marked enlargement of regional lymphatic nodes
- Tubercle bacilli spread by lymphatic & hematogenous route
- Cavity in primary TB is thin walled
- Primary infection usually non-infectious
- Mortality mainly due to extrapulmonary TB
- Healing by mainly calcification

# Adult TB: Characteristics

- Tissues already exposed.
- Lowering of immune defences locally in lungs, leads to reactivation & mainly locally progressive disease.
- No significant regional or hilar LAP.
- Localized to one organ.
- Hematogenous spread uncommon.
- Main cause of death.
- Healing of lesions by fibrosis.

# Pathogenesis

## Primary TB:

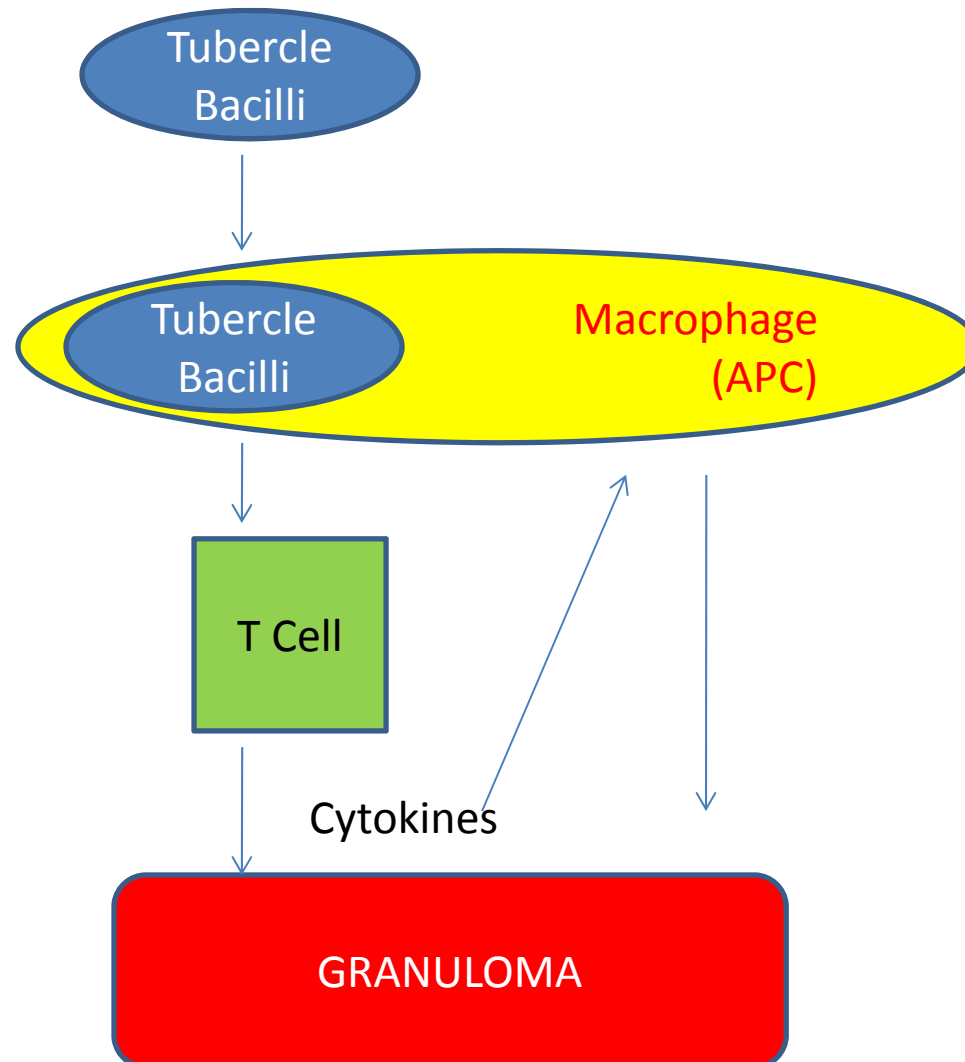
- Negative Mx to Positive Mx
- Airborne usually
- Incubation period: 4-8 weeks
- Primary focus: Apex of upper or lower lobe
- Primary focus in the lung, lymphangitis & enlarged hilar LN known as Primary Complex of Ranke

# Pathogenesis cont...

- Intracellular infection
- Spreads via lymphatics & blood stream
- Delayed type immunological reactivity
- Controlled by T lymphocytes.

# Host immune response to TB

CMI:



# Host immune response to TB cont ...

## DTH:

- Due to T suppressor cells
- Specific or non specific
- Leads to destruction of host tissues & may contain bacteria.



Tuberculosis without tubercles

# Response to TB infection

1. Only infection & no disease.
2. Primary complex development.
3. Progressive disease
4. Granulomatous necrotizing or destructive cavitory TB.
5. Pneumonic form with no cavity

# TB Spectrum

# Parenchymal Progression

- PC
- HPC
- Pneumonia
- Massive pneumonia
- Primary cavity
- Bronchopneumonia
- Pleurisy

# Complicated LN TB

- Mediastinal LN enlargement
- Partial bronchial obstruction
- Complete bronchial obstruction
- Rupture of subcarinal LN

# Hematogenous spread

- Miliary TB
- CNS TB
- Disseminated TB
- Dactylitis
- Isolated bone & joint involvement

# Chronic Pulmonary Tuberculosis

- Assmann's focus
- Pulmonary infiltration
- CPT: Cavitory  
Fibrous  
Fibrocaceous

# Impact of BCG Vaccination

Intrathoracic versus Extrathoracic



# RNTCP

- Based on internationally recommended DOTS
- Launched in 1997
- Expanded in phased manner
- Support from World Bank

# Objectives of RNTCP

- To achieve & maintain cure rate of at least 85% among new sputum positive (NSP) patients
- To achieve & maintain case detection of at least 70% of estimated NSP cases in the community.

# RNTCP cont...

- PWB started since 2006