

TUBERCULOSIS

DATE: / /

Q7 Patho

- What is Tuberculosis?

It is an infectious disease primarily affecting the lung parenchyma and is most often caused by *Mycobacterium Tuberculosis*. It may spread to any part of the body including the meninges, kidneys, bones and lymph nodes.

TYPES :

- (1) Pulmonary TB
- (2) Avian TB (*Mycobacterium Avium* ; Birds)
- (3) Bovine TB (*Mycobacterium bovis* ; Cattle)
- (4) Miliary TB (Include blood stream and spread to all body parts).

RISK FACTORS :

- Close contact with person having TB.
- Immuno-compromised status (Elderly ; Cancer)
- Drug abuse & alcoholism
- People lacking adequate health care.
- Pre-existing medical condition (DM / CRF)
- Immigrants from countries with higher incidence of TB.
- Occupation
- Living in substandard condition.

- How does it happen? Pathophysiology?

- Firstly, the microorganism enters the body through droplet nuclei, and then the bacteria is transmitted to alveoli through the air-ways. The bacteria

deposits there and starts multiplying.
 • It is also transported to other parts of the body via blood streams and phagocytosed by Neutrophils and Macrophages.

• When the myobacterium reaches the pulmonary alveoli, the immune system has lodged in the alveolar macrophage and starts to engulf the pathogen by detecting its presence.

• But the myobacterium inhibits the macrophages to form phagolysosomes and it remains protected in the macrophages.

• The bacilli starts replicating inside the macrophages and the primary infection occurs.

• This activates the cell mediated immunity and the macrophages surround the cell to form a GRANULOMA.

• This leads to necrosis of tissue at infection site and also involve the nearby lymph nodes.

CLINICAL MANIFESTATION :

(1) Constitutional symptoms -

- Anorexia
- Fatigue.

- weight loss
- low grade fever.

(2) Pulmonary symptoms -

- Dyspnea
- Chest tightness
- Pain & inflammation
- Non-productive cough
- Non-healing bronchopneumonia.

ASSESSMENT and DIAGNOSIS:

- History
- Physical examination:
 - Unusual breath sounds (crackles)
 - Swollen / tender lymph nodes in neck or other areas.
 - Clubbing of fingers or toes
 - Fluid around lungs

If Miliary TB:

- Swollen liver
- Lymph nodes
- Spleen.

- Tests may include:

- Biopsy of the affected tissue.
- Bronchoscopy
- Chest CT scan
- Chest X-ray
- Sputum examination and cultures
- Tuberculin skin test (PPD)

MEDICAL MANAGEMENT:

Pulmonary TB is treated primarily with anti-tuberculosis agents for 6-12 months.

(1) First-line agents:

- streptomycin
- Isoniazid or INH
- Rifampicin
- Pyrazinamide
- Ethambutal.

(2) second-line agents:

- cycloserine
- Ethionamide
- Capreomycin
- Para-aminosalicylate sodium

(3) Third-line agents:

- Rifabutin
- Linezolid
- Thioacetazone
- Thioridazine
- Arginine