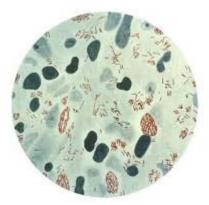


Mycobacterium leprae



• Morphology:

- ✓ 1st discovered by Hansen, also known as Hansen's bacillus.
- ✓ Appear as agglomerates; the bacilli being bound to each other by a lipid masses are known as Globi.
- ✓ Cigar bundle-like appearance.
- ✓ Less acid-fast.

Organism	Generation time
Mycobacterium leprae	12-13 days
Mycobacterium tuberculosis	14 hrs
Coliform bacilli	20 minutes

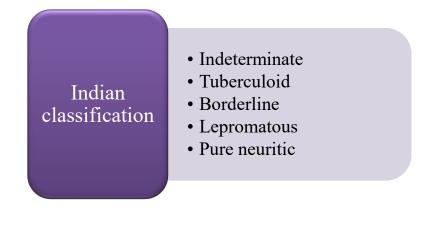
- Note: in 1960 Shepard demonstrated the multiplication infootpad of mice at low temperature (20°c).
- Diseases caused are:

.

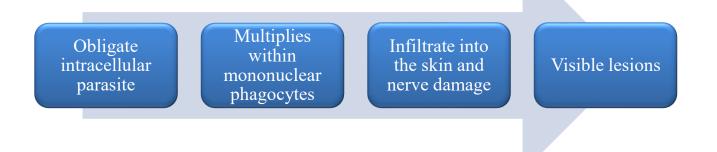
- Tuberculoid form of leprosy
- Lepramatous form of leprosy
- Intermediate type of leprosy
- Leprosy:
 - Epidemiology
 - ✓ Incubation period: from months up to 4 years (2-5 years on average)
 - Definition:
 - ✓ Chronic granulomatous disease
 - ✓ Involving the skin, peripheral nerves and nasal mucosa



✓ Exclusively human infections.



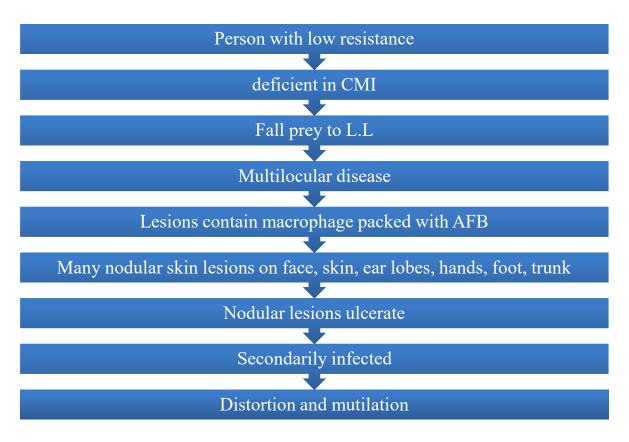
• Pathogenesis:



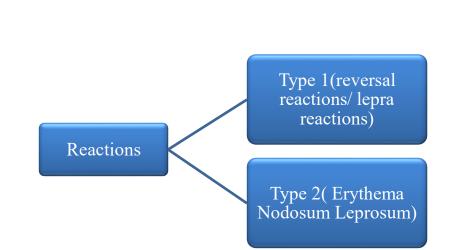
- Note: Only human pathogen to attack peripheral nerves.
- Mode of transmission:
 - 1. Respiratory mode
 - 2. Skin to skin contact
 - 3. Insect vectors: bedbugs, mosquito
 - 4. Exposure to infected animals



• Lepramatous Leprosy (L.L)



- Bacilli invade nose, mouth, respiratory tract and shed in nose and oral secretions.
- Invade vascular channels continuous bacteraemia.
- Bacillaemia is common.
- Lepromin test negative (-ve).
- Poor prognosis.
- Tuberculoid Leprosy (T.T):
 - CMI is intact.
 - Paucibacillary.
 - Few skin lesions, well-demarcated, macular patches.
 - Lesions show mature granuloma, epitheliod cells, excess lymphocyte, few AFB.
 - Nerves are thickened, hard and tender.
 - Prognosis is good.
 - ✤ Immunity:
 - ✓ Acute exacerbations of chronic diseases.
 - ✓ Allergic reaction.



- ✓ Type 1:
 - Seen in borderline cases
 - \rm 4 CMI
 - ↓ Infiltration of lymphocytes
 - Reduction of bacilli
 - ↓ Erythema, swelling, pain, tenderness

✓ Type 2:

- Immune complex reaction to Ag released from dead bacilli.
- Neutrophil infiltration, IgG and compliment deposition in lesion.
- Seen only in lepramatous type and borderline lepramatous cases.
- Few months after chemotheraphy.
- 4 Constitutional symptoms like fever, arthritis, indocyclitis.

✓ Lepromin test:

- Described by Mitsuda in 1919.
- Skin test for delayed hypersensitivity.
- Study immunity in leprosy.
- Antigen Lepromin.
- Lepromin H- Human derived
- Lepromin A Armadillo derived
- ✓ Uses of Lepromin test:
 - To classify lesions o leprosy.
 - To access the prognosis and response to treatment.
 - To access resistance of individual to leprosy.

Reactions in Lepromin Test

Early reaction of Fernandes

- Erthyema and induration (1-2 days, lasts for 3-5 days)
- Analogus to Tuberculin Test
- Not significant

Late reaction of Mitsuda

- 1-2 weeks, peaks in 4 weeks
- Infiltration of lymphocytes, eoitheliod ells and giant cells
- Measures CMI induced lepromin

- ✓ Laboratory Diagnosis:
 - Bacterial diagnosis
 - Culture
 - Biopsy and cytology
 - Immunological tests for detecting CMI L.T

✓ Serological Tests:

- Molecular diagnosis
- Culture foot pad of mouse, inoculation
- Detection of antibodies
- Molecular methods

✓ Treatment:

- Paucibacillary 6 months
- Rifampicin once a month
- Dapsone daily
- Multibacillary 2 years
- Clofazamine daily
- \checkmark Prophylaxis:
 - Vaccines: BCG,
 - BCG + killed lepra bacilli