

Mycobacteria-Chlamydia- Mycoplasma-Legionella Groups

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Mycobacteria Group-1

- **Acid-Fast Bacilli**.. Aerobic.. Cell Wall.. Protein-polysaccharides.. High Phospholipids (mycolic acid, waxes).. Necrosis. Resistant to Dryness, low Acidity, Alcohol, detergents.. Susceptible to UV-light, Heat, Common Human, Asymptomatic persons, domestic Animal, Birds, Environment..kill 3-5 Million yearly
- Human/animals Pathogens.. Slow intracellular growth (2-6 weeks) Nonpathogenic species.. genital tract, skin (*M. smegmatis*.. rapid growth..3-7 days).
- Common Pathogens: Mostly *M. tuberculosis* ..Few percentage *M. bovis* .. Animals, Dairy products.. ***Atypical Mycobacteria***.. pigmented and non-pigmented Environment.

Mycobacteria Group-2

- **Pulmonary Tuberculosis**/ Exudative type: Mostly Children (90%).. Asymptomatic infection by droplet infection. Primarily mild Lung lesion.. Recovery.. Hypersensitivity.. Immunity.. Infection not necessary Disease
- **Active-Productive type**: Adult infection.. Reactivation of old tuberculosis lesions may affect any Body site, Mostly Lung.
- Lab Diagnosis: Direct AFS.. Ziehl-Neelsen stain, Culture.. Lowenstein -Jensen Medium, Sputum, urine, Pleural fluid, CSF, Biopsy.
- Treatment: Combination of anti-tuberculosis drugs (6-24 months). Prevention.. **BCG vaccine** (Bacilli Calmette-Guerin)..Children.

Chlamydia group

- Chlamydia Cell.. Small Gram-ve wall, obligate intracellular ..Dimorphic growth.. Infectious stage.. Elementary bodies responsible for attaching to the host mucosa cell and promoting its entry.. Inclusion bodies
- Chlamydia trachomatis: A common cause of STD worldwide.. Nonspecific urethritis.. Prostatitis, Vaginitis.. Cervicitis, infertility
- Newborns with chlamydial conjunctivitis: have mild to severe eyes redness, swollen eyelids, discharge from the eyes which can be thin and watery or thick and yellow.. Trachoma .. Blindness if not treated.
- Chlamydia pneumoniae.. Cause of Atypical pneumonia.. Mild-severe pulmonary infection.. All ages
- Diagnosis & treatment : McCoy tissue culture, serological test (Specific antibodies), PCR test.. No Vaccine

Chlamydia inclusion bodies/Acid-Fast Mycobacteria



Mycoplasma group

- The smallest Bacteria .. Lack Cell Wall.. Lipid bi-layer Membrane.. Aerobic.. Respiratory/Urinary Mucosa.. Human, Animals, Birds.
- 1-M. pneumoniae: Human pathogens.. Infection Pharyngitis, Bronchitis, Pneumonia.. Dry cough.. Fever, Common old children & Young adults.. Less Elderly... Common infection in Fall-Winter.
- 2-M.hominis/M.genitalium : Part of oral- genital flora cause, cause Nonspecific Urethritis, Vaginitis, Cervicitis.
- Diagnosis & treatment: Sputum, Urine Culture, Cold-Agglutination Test, ELSA Specific antibodies, PCR, Antibiotics.. No Vaccine.

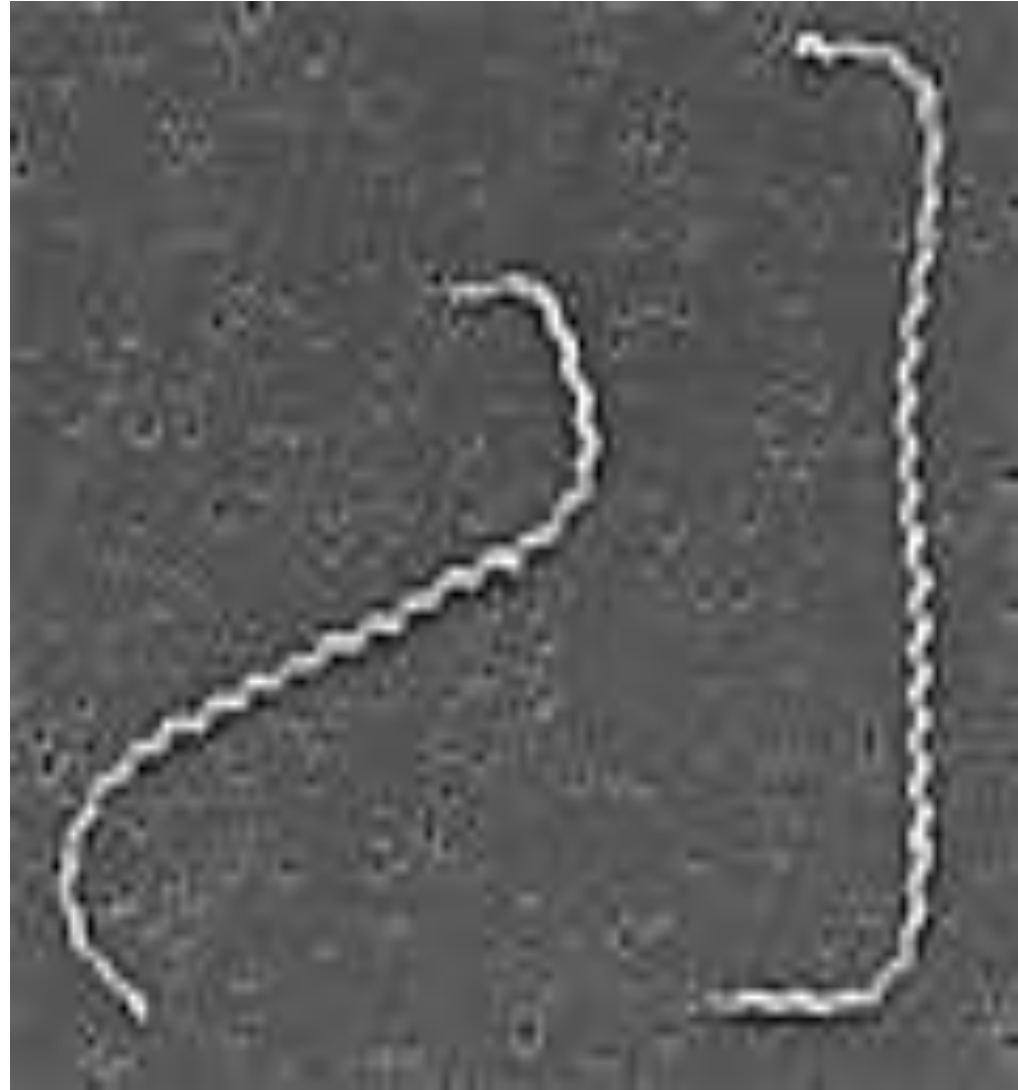
Legionella pneumophila

- **Legionnaires' disease** -1976 USA_Thin G-ve Coccobacilli-Filaments.. Facultative Anaerobes.. Survive 0-60 C.. Cold/Hot Water.. Air Condition, Wet Soil, Droplet infection ..Aerosols, Fine sprays , Respiratory Mucosa Lung..
Intracellular.. Monocyte-Macrophage.. Extracellular growth.. Not contagious disease.
- Clinical Features: High Fever, dry Cough, vomiting, and stomach discomfort, Diarrhea. Other common symptoms include headaches, muscle aches, chest pain, and shortness of breath, Pneumonia, Renal Failure, Death..
Old/ Immunodeficient / heavy Smoking Persons.
- Diagnosis & treatment: Special Culture Media, Blood-sputum culture, Detection Specific antibodies, PCR, Antibiotics.. No Vaccine.

Spirochetes Group-1

- Gram-ve.. Spiral forms.. Long.. which have long helically coiled cells (5-20um).. Common Human, Animals, Arthropodes.. Nonpathogenic /Pathogenic.
- 1- *Treponema species*: Nonpathogenic.. Oral cavity.
- 2-*Treponema pallidum*: Syphilis.. Venereal Disease.. Sexual Contact.. entering the host via breaches in squamous or columnar epithelium.
- It gains access to host's blood and lymph systems through tissue and mucus membranes. Incub. 2-week-Few Months.. Acute-Chronic Infection.. Mucosa/Skin Lesions-Chancres.. Genitalia, Anal area/Mouth.. Systemic Disease.. Affect Any Body Organ.. Meningitis, Hepatitis, Nephritis, Granulomatous lesions.. Pregnancy.. **Congenital Syphilis**.. Pregnancy

Legionella- Spirochete Cells



Spirochetes Group-2

- **Diagnosis:** Direct Dark-field Microscopy.. Serological Test.. VDRL, Fluorescent Trep. Antibody-Test (FTA).. No Culture.. Antibiotics
- **Borrelia Burgdorferi:** Lyme Disease.. Common USA, Biting Insects (Ticks).. Wild Animals, Rodents, Birds ..Incub. Few Weeks-Months..Single/Multiple Skin Lesions.. Systemic Disease.. Arthritis, CNS.. Cardiac Abnormalities..
- 4- **Borrelia species:** Worldwide.. Epidemic/Endemic Relapsing Fever.. Biting Insects (Human Lices/ Animal Ticks).. Septicemia.. Low-High Fever, Chills, Severe Headache, Common Relapses.
- **5-Liptospiral diseases:** Zoonosis, mild-severe fatal systemic .. Weils's disease ..high Fever, Jaundice, vasculitis, Bleeding.
- **Diagnosis:** Serological Tests, Special culture.