Chlamydia

- *Chlamydia* is a Gram-negative coccobacilli bacterium with high lipid content cell wall, but does not contain atypical peptidoglycan; perhaps it contains a tetra peptide linked matrix.
- Lacking the mechanisms for energy production. Thus, it is an obligate intracellular parasite**.**
- Exists in two morphologically distinct forms: the small, extra cellular infectious elementary body (EB) and the large, intracellular non-infectious reticulate body (RB). The EB is not biologically active, but is resistant to environmental stresses and can survive outside the host cell for a limited time.

Virulence factors

- Contains lipopolysaccharides, which helps cause damage to the host's body.
- Inside the host, binds with sialic acid receptors, which are usually found in mucous-rich environments. They have important roles in cellular communication and also in infection and survival of pathogens.
- Antigenic variation is also an important factor, with 15 known serotypes.
- A disadvantage to humans is that as many as 75% of the infections may be asymptomatic but infectious nonetheless.

- ***Chlamydia trachomatis*** and ***Chlamydia pneumoniae*** are the two pathogenic species which infects humans and multiply in the cytoplasm of their host cells.
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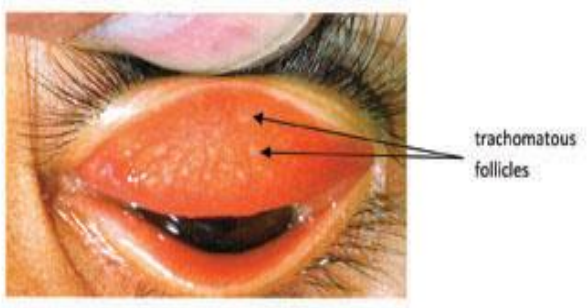
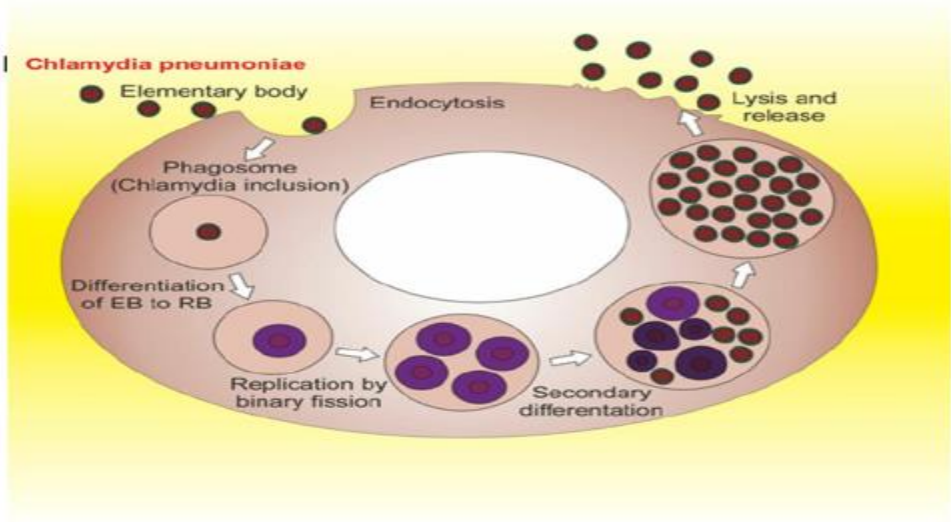
- ***Chlamydia trachomatis*** is an important neonatal pathogen can lead to trachoma (eye infection) associated with blindness. Also called granular conjunctivitis, Egyptian ophthalmia and blinding trachoma which characterized by the pebbles or follicles appearance of the eye can lead to blindness.



- This bacterium can be spread by direct and indirect contact with eyes (shared eye cosmetics), nose, male and female organs and swimming pools. Children spread the disease more often than adults.
- The clinical manifestations are results from direct destruction of the cell during replication and the host inflammatory response.
- Approximately 600 million worldwide suffering from trachoma and 20 million are blinded as a result of the infection.

- *Chlamydia trachomatis* can cause numerous diseases for both men and women (human genital infections), common among young people such as urethritis, proctitis (rectal disease and bleeding), prostatitis, cervicitis, pelvic inflammatory disease, epididymitis and ectopic pregnancy.

- ❑ The life cycle of *Chlamydia trachomatis* is initiated by attachment of the EB to microvilli of susceptible cells such as conjunctivae, endocervix, urethra, rectum, endometrium fallopian tubes.
- ❑ The EB actively penetrates the host cell and remain within phagosomes. After that recognizes into the RB which divided by binary fission, the phagosome is termed inclusion. After that the RB recognizes into the smaller EB. The cell ruptures and infective EB are released. .



Chlamydia pneumoniae is a common cause of atypical pneumonia which different from historically recognized pneumonia *by Streptococcus pneumoniae.* In addition to pneumonia, cause pharyngitis, bronchitis, asthma, meningocephalitis, arthritis, myocarditis and a possible connection to lung cancer.

Laboratory diagnosis

1-PCR which find to chlamydial DNA.

2-Hybridization test (DNA probe test) which finds chlamydial DNA.

3-Enzyme-linked immunosorbent assay (ELISA) which finds of chlamydial antigens which trigger the immune system to fight chlamydia infection.

4-Direct fluorescent antibody test which finds chlamydial antigens.

5-Chlamydial culture. A test in which the suspected chlamydia sample is grown in a vial of cells in a laboratory. Cell culture is more expensive and takes longer (two days) than the other tests.

Treatment

Chlamydia may be treated with any of several antibiotics such as clarithromycin, erythromycin, metronidazole, ofloxacin, clindamycin and chloramphenicol.

Recent controlled clinical trials have suggested that combination antibiotic therapy (doxycycline and rifampin or azithromycin and rifampin).

Prevention of chlamydial infections can be achieved by early treatment, prevention of subsequent re exposure, use of safe sexual practices (condoms) and the prompt treatment of symptomatic patients and their contacts.