Chlamydia Characteristics

Chlamydia is an obligate intracellular bacterium whose cell wall lacks muramic acid. It classically infects mucosal surfaces. The classic chlamydia infection is of the urethra and conjunctiva but can also be in the lungs. The bacteria cannot make its own ATP, which limits its ability to exist outside the cell. The life cycle typically consists of an intracellular replicating period as reticulate bodies and then an extracellular infective phase as elementary bodies. Chlamydial bacteria do not gram stain and instead can be visualized on Giemsa stain. Treatment includes doxycycline and azithromycin.



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Characteristics

Cannot Make ATP
Empty ATP-battery Pack
Chlamydia lacks the ability to make ATP and, therefore, cannot survive on its own. Consequently, it is an obligate intracellular bacterium.

Elementary Body Infects
Elephants chasing and Infecting others
Elementary bodies are bacterial life cycle components that can exist outside the body and are infective by attaching and entering host cells.

Intraepithelial
Epithelial-cell
Epithelial cells are the classic target of chlamydia infections, and they are able to form reticulate bodies within the cells.

Reticulate Body Replicates
Replicating-rats
Reticulate bodies replicate within the cell by binary fission, resulting in a large inclusion body. The reticulate body is the replicating component of the bacterial life cycle.

Diagnosis

Cell Wall Lacks Muramic Acid
Mirror and Acidic-lemon on a NO sign
The cell wall lacks muramic acid. Therefore, these organisms do not stain with gram stain.

Giemsa Stain
Gems
Giemsa stain can lead to a diagnosis of chlamydia infection with the visualization of cytoplasmic inclusions on the Giemsa stain.

Inclusion Bodies
Ink-blots
Multiple reticulate bodies replicate in the cell by binary fission, which creates a cytoplasmic inclusion within the infected cell. These inclusions can be seen on Giemsa stain.

Treatment

Doxycycline (Preferred)
Dachshund-cycling
Doxycycline is the preferred treatment of choice for Chlamydia due to its superior efficacy. It’s given 100 mg orally 2 times/day for 7 days.

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Azithromycin

Zipper-mice

Azithromycin is also used to treat a chlamydia infection but has lesser efficacy than Doxycycline. However, it only requires a single dosing. Azithromycin is a macrolide antibiotic.

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