

Chlamydia

- Gram-negative-like coccobacilli , Obligate intracellular pathogen: Cannot produce its own ATP → "Energy parasite" (steals host ATP) so, not cultured .
- Cell wall: Lacks peptidoglycan → Resistant to β -lactam antibiotics (e.g., penicillin).
- Staining:
 - Poorly stains with Gram stain.
 - Visible as cytoplasmic inclusion bodies (Giemsa/fluorescent antibody stain).

Life Cycle

1. Elementary Bodies (EBs):
 - Infectious, metabolically inactive, survive extracellularly.
 - *EEE*: Survive in Environment, Enter host via Endocytosis.
2. Reticulate Bodies (RBs):
 - Replicative form, metabolically active, obligate intracellular.
 - *RRR*: Replicate by binary fission, Reorganize into EBs.
3. Cycle Steps:
 - EB attaches → Endocytosed → Converts to RB in phagosome → RBs replicate → RBs convert to EBs → Cell lysis → EBs released.

Classification & Human Pathogens

Species	Serovars	Diseases	Transmission
<i>C. trachomatis</i>	A,B,C	Trachoma (chronic eye infection)	Eye/nose discharge contact
	D to K	Genitourinary infections, neonatal conjunctivitis/pneumonia\\ non-lymphogranuloma venereum	Sexual, perinatal
	L1,L2,L3	Lymphogranuloma venereum (LGV)	Sexual

Genitourinary Infections (Serovars D–K)

- Transmission: Genital-to-genital contact.
- Clinical Presentation:
 - *Women*: Often asymptomatic. Cervicitis, urethritis, PID, salpingitis. Symptoms: mucopurulent discharge, dysuria, dyspareunia, postictal bleeding
 - *Men*: Urethritis, epididymitis, proctitis.

Diagnosis

- Gold Standard Test: NAAT (detects DNA/RNA via PCR).
 - *Specimens:*
 - ♀: Vaginal swab (best), cervical swab, first-void urine.
 - ♂: First-void urine (best), urethral swab
- Complications:
 - Pelvic inflammatory disease (PID) → Infertility, ectopic pregnancy.
 - Reactive arthritis triad (RAT): Arthritis, urethritis, uveitis (more common in men).

Lymphogranuloma Venereum (LGV; Serovars L1–L3)

- Rectal infection most common (50% asymptomatic).
- Stages:
 1. *Primary:* -after 1 week- small Painless genital ulcers + mucopurulent discharge (heals spontaneously in few days).
 2. *Secondary:* -2-6 weeks after primary- Painful inguinal lymphadenopathy.
- Diagnosis: NAAT (PCR) + genotyping.
- Treatment: Start antibiotics *immediately* if suspected no waiting results.

Gardnerella vaginalis (Bacterial Vaginosis) not STD apleomorphic , gram-variable rod

Pathophysiology

- Disruption of normal flora (↓ *Lactobacillus*) → ↑ vaginal pH → Overgrowth of *G. vaginalis* + anaerobes.
- No inflammation (due to absent immune response).like sexual intercourse

B. Clinical Features

- #1 cause of vaginal infection (22–50% of cases).
- Symptoms:
 - **Gray/milky discharge with fishy odor** (↑ after intercourse).
 - Asymptomatic in 50%. Pruritus/pain *rare*.
- Risk Factors: Sex MC, IUDs, douching, pregnancy.

C. Diagnosis: Amsel Criteria (≥3 required)

1. Clue cells (epithelial cells stippled-fuzzy border- coated with bacteria).
2. Vaginal pH > 4.5.
3. Positive amine test (fishy odor with KOH).add 1-2 drops of potassium hydroxide to saple = amine odor
4. Thin, homogeneous gray-white discharge.