

Genito-Urinary System
Chlamydia trachomatis,
Ureaplasma and Gardnerella

• co-infect with Gonorrhoea
or tend to occur together
because have
the same risk
factor

Chlamydia most common sexual transmitted infection

- Three of the nine species cause disease in humans.

– Chlamydia trachomatis ← most common sexual transmitted

- is the most important human pathogen as a major cause of genital infection and conjunctivitis.

• trachoma, is the leading preventable cause of blindness in the world.

– Transmission direct contact

ما بهموننا
[Chlamydia pneumoniae
– Chlamydia psittaci

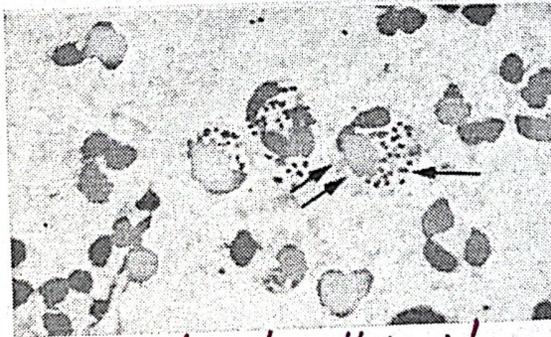


Chlamydia trachomatis

- *C. trachomatis*
 - ⊖ round cells between 0.3 and 1 μm in diameter depending on the replicative stage.
 - ⊖ lack the peptidoglycan layer
 - ⊖ obligate intracellular parasites

inside
WBC له وياتي ما يستوطنها كالحا لينا

clinical manifestation
is related to body
immune response



WBC
تتواجد في أماكن
وتتبع ال
Chlamydia

Bacterial cell inside WBCs

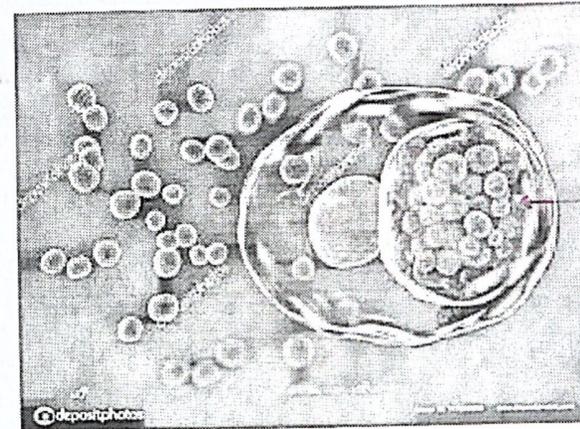
REPLICATIVE CYCLE

- Involves two different forms of the organism:

infective
form
go inside
cells

← Elementary body (EB)

- a small, hardy metabolically inert infectious form



other
form

- a larger fragile intracellular replicative form termed the **Reticulate body** (RB).

REPLICATIVE CYCLE

منش معروفه

- The EB attaches to unknown receptors on the plasma membrane (usually columnar or transitional epithelial cells).
- It then enters the cell in an endocytotic vacuole and begins the process of converting to the replicative RB.

endocytosis

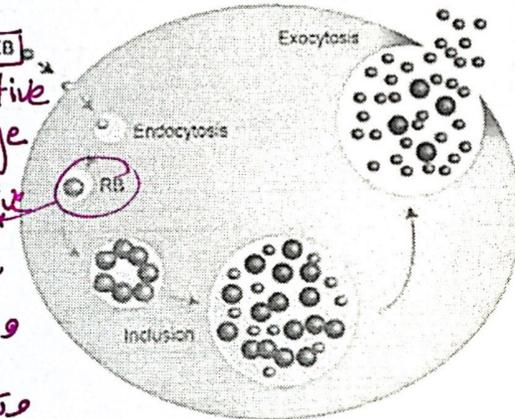
العملية التي يدخل فيها
ال EB الى داخل
الخلية

EB
infective
stage

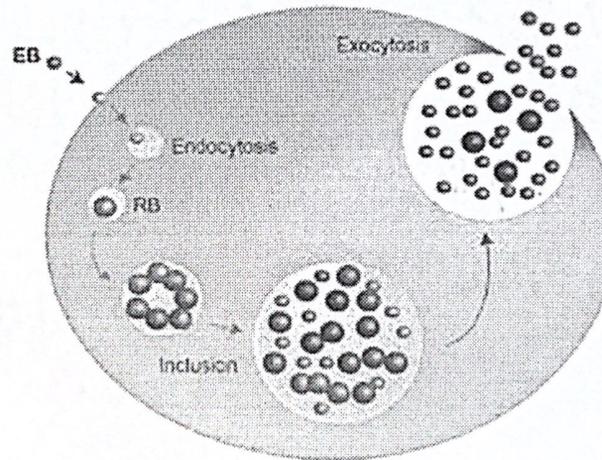
replicative
stage

ويجبره تكاثر
مبتعد مرة ثانية

لـ EB ويطبع
خارج الخلية بجلته
EXOCYTOSIS



- As the RBs increase in number, the endosomal membrane expands by fusing with lipids of the Golgi apparatus eventually forming a large inclusion body. After 24 to 72 hours, the process reverses and the RBs reorganize and condense to yield multiple EBs.



Chlamydia trachomatis Diseases

EPIDEMIOLOGY

- *C. trachomatis* causes disease in several sites, including the conjunctiva and genital tract.
- It is the most common sexually transmitted disease.
- ◻ Humans are the sole reservoir.

there is different role of transition to the baby from infected mother • Neonatal conjunctivitis contracted from maternal genital infection (2 to 6% of newborn infants).

PATHOGENESIS

- Chlamydiae

involve → endocervix and upper genital tract of women,
– the urethra, rectum and conjunct of both sexes.

IMMUNITY

- *C. trachomatis* infections do not reliably result in protection against reinfection

– ما في مناعة للـ *chlamydiae*
– ممكن الشخص يرجع ينصاب فيها مرة ثانية

CLINICAL ASPECTS

Genital Infections

- The clinical spectrum of sexually transmitted infections with *C. trachomatis* is similar to that of *Neisseria gonorrhoeae*. *C. trachomatis*
 - cause urethritis and epididymitis in men
 - cervicitis, salpingitis, and a urethral syndrome in women.

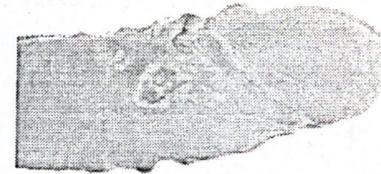
-dysuria , Bleeding

مشابه جدًا لل
Gonorrhea

- *C. trachomatis* urethritis
 - dysuria
 - a thin creamy urethral discharge.
- Infections of the uterine cervix may produce vaginal discharge, usually asymptomatic.
- Ascending infection in the form of salpingitis and pelvic inflammatory disease occurs in an estimated 5 to 30% of infected women.
- The scarring ^{fibrosis} produced by chronic or repeated infection is an important cause of sterility and ectopic pregnancy.

severe type of
infection of
external genitalia
and involving the
Lymph nodes

- three strains of *C. trachomatis* cause
← **Lymphogranuloma venereum LGV**,
 - L1, L2, or L3.
- It is characterized by
 - transient genital lesions
 - followed by multilocular suppurative involvement of the inguinal lymph nodes.
 - The primary genital lesion is usually a small, painless ulcer or papule, which heals in a few days.
 - **Abscesses**, strictures, fistulas if chronic.



- More than 50% of all infants born to mothers excreting *C. trachomatis* during labor show evidence of infection during the first year of life.
- Most develop inclusion conjunctivitis, but 5 -10% develop infant pneumonia syndrome.

complication of chlamydia infection

↓

□ Conjunctivitis (trachoma)

□ Infective arthritis ← Bacteria go and cause damage and infection in joint

□ Reactive arthritis (Ab attack the joint)

– Reiter's syndrome

- You can not see involving conjunctiva
- You can not pee = urethra and dysuria
- You can not climb a tree involving the joint

AB
منش البكتيريا

DIAGNOSIS

Because, it is an intracellular infection

• Epithelial cells from the site of infection are required for detection.

- For genital infections, cervical specimens are preferred in females and urethral scrapings in males. ما بنوجد discharge لأن ما يتحتوي على الدم الكافي للتشخيص
- Isolation of *C. trachomatis* has been the "gold standard" for diagnosis.

– It is achieved in cell culture

X Bacterial cell culture ما بنزل

epithelial cell

- Ligase chain reaction (LCR) or polymerase chain reaction (PCR)
 - the most sensitive, most specific methods of diagnosis.
- Serodiagnostic methods have little use in diagnosis of chlamydial genital infection
 - difficulty of distinguishing current from previous infection.

non-LGV <i>C. trachomatis</i> infection	Azithromycin
pregnant women and infants	Erythromycin
drug of choice for treating LGV	doxycycline

tetracyclines, macrolides and some fluoroquinolones