

GONORRHEA



What Is Gonorrhea

- Gonorrhea is a sexually transmitted infection (STI). It's caused by infection with the bacterium *Neisseria gonorrhoeae*.
- It tends to infect warm, moist areas of the body, including the:
 - Urethra
 - Eyes
 - Throat
 - Vagina
 - Anus
 - Female reproductive tract (the fallopian tubes, cervix, and uterus)



Gonorrhea

- 2nd most common STIs
- Chlamydial is the most common STIs
 - Similar risk factors
 - Multiple sexual partent
 - Unprotected sex
- Highest rate in Female 15-19 and male 20-24
- 50% of infected women are asymptomatic
- 95% of infected men have symptoms

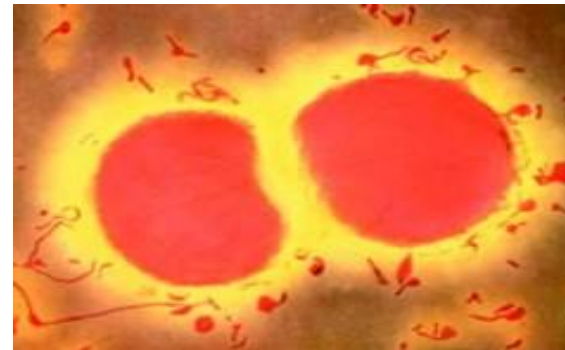


- Gonorrhea is spread through contact with the penis, vagina, mouth, or anus.
- Ejaculation does not have to occur for infection to occur.
- An infected mother may transmit gonorrhea to her newborn during childbirth, a condition known as ophthalmia neonatorum
- This may cause blindness, joint infection, or a life-threatening blood infection in the baby.

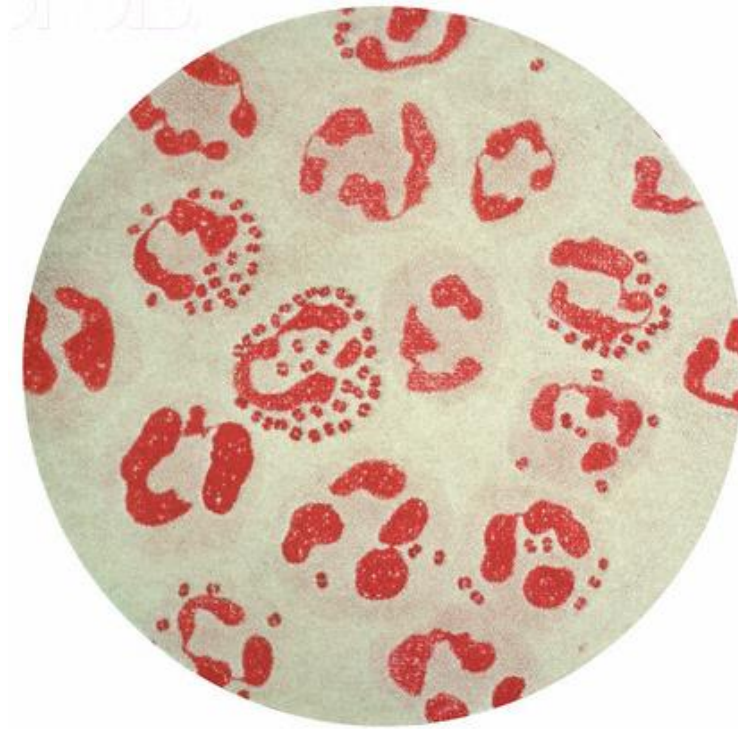
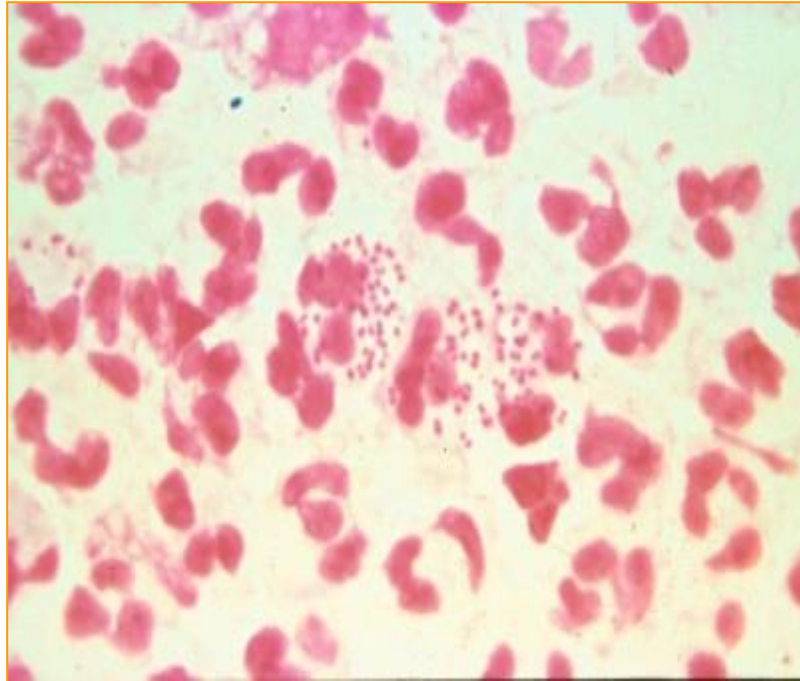


Properties

- Neisseriae are gram-negative diplococci (Bean or kidney shaped).
- Non motile, non spor forming
- Incubation period 1-14 days
- Humans are only reservoir, not part of normal flora
- It attaches via pili and penetrates within 1-2 days
- There is a neutrophilic response which creates a purulent discharge



Gonorrhoea: Gram Stain of Urethral Discharge



On Gram stained slides, in gonococcal infection, the following are seen:

Polymorphs.

Gram-negative kidney-shaped extracellular and intracellular diplococci (ICDC).





Gram stain of urethral discharge showing gram negative, intracellular diplococci.



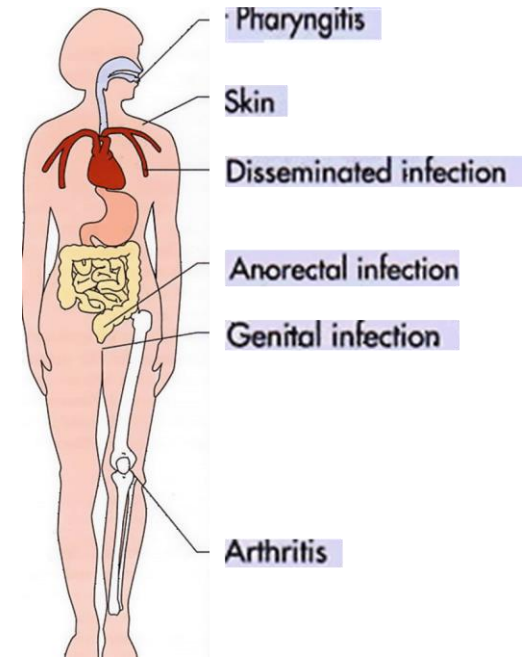
- Gonococci are very sensitive to heating or drying. Cultures must be plated rapidly.
- Causes disease only in humans.
- Killed by drying that's why transmitted sexually.
- Non-sexual transmission is extremely rare



Clinical Findings:

N. gonorrhoea causes following infections.

1. Genitourinary tract infections (Gonorrhoea) stream.
2. Rectal infections.
3. Pharyngitis
4. Ophthalmia neonatorum
5. Disseminated infection via spread through blood



Genitourinary tract infections :

- Gonorrhoea in men has features of urethritis accompanied by dysuria and a purulent discharge. Epididymitis can occur.
- In women, infection is initially in the endocervix (cervicitis), causing a purulent vaginal discharge and intermenstrual bleeding.



Symptoms in men

- The first noticeable symptom in men is often a burning or painful sensation during urination. Other symptoms may include:
 - Frequency or urgency of urination
 - a pus-like discharge (or drip) from the penis (white, yellow, beige, or greenish)
 - swelling or redness at the opening of the penis
 - swelling or pain in the testicles
- Symptom begins 2-7 day
- Many men experience acute symptoms (95%)



Complications of gonococcal infection in males

Chronic complications:

1. Urethral stricture.
2. Infertility (scarring and block sperm passage).

Acute complications:

1. Infection of the glands .
2. Ascending infection (prostatitis, cystitis, epididymitis).
3. Infection of adjoining structures (periurethral abscess and infection of median raphe).



Symptoms in Women

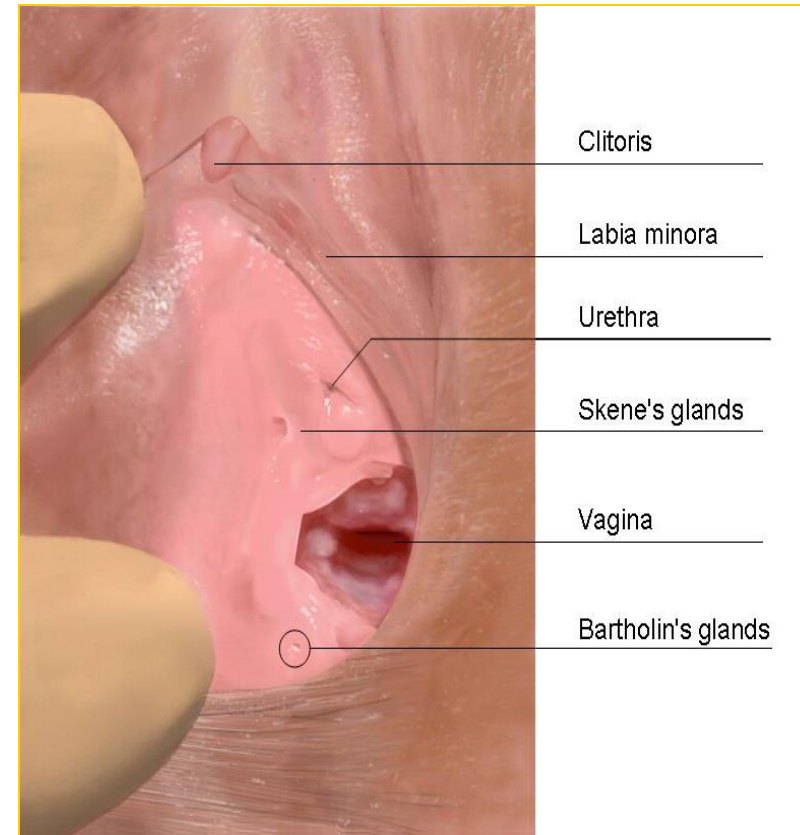
- Discharge from the vagina
- Pain or burning sensation while urinating
- The need to urinate more frequently
- Pain upon engaging in sexual intercourse
- Sharp pain in the lower abdomen
- Fever
- Symptoms are often mild, but some women (50%) have no symptoms at all
- Even when symptoms do occur, they are often mistaken for a bladder or vaginal infection
- The most frequent complication is ascending infection to the uterine tubes (**salpingitis**) which can lead to **sterility** or ectopic pregnancy





Complications in Women

- **Accessory gland infection**
 - Bartholin's glands
 - Skene's glands
- **Pelvic Inflammatory Disease (PID)**
- **Fitz-Hugh-Curtis Syndrome**
 - Perihepatitis



PELVIC INFLAMMATORY DISEASE

- Present in 10%-20% of gonococcal infections in women
- May be asymptomatic
- Symptoms range from:
 - Minimal (lower abdominal tenderness) to
 - Severe abdominal pain, fever
 - irregular menstrual bleeding
 - Adenxal tendenrenss
 - Leukocytosis
 - Pelvic peritonitis and abscess
 - Complication:
 - Infertility and ectopic pregnancy



Gonococcal Complications in Pregnancy

- Gestational bleeding
- Preterm labor and delivery
- Premature rupture of membranes
- Postpartum endometritis



2.Rectal infections:

- Rectal intercourse or in women with contamination with infected vaginal secretion
- Prevalent in male homosexuals
- Symptoms include:
 - Generally asymptomatic
 - Anal pain and pruritus
 - Tenesmus and constipation
 - Purulent discharge
 - Rectal bleeding



3. Pharyngitis

- Contracted by oral-genital contact.
- The condition may mimic a mild viral or a streptococcal sore throat.
- Typically asymptomatic
- May resolve spontaneously



4.Ophthalmia neonatorum

- An infection of the conjunctiva acquired by a newborn during passage through the birth canal of an infected mother .
- If untreated, acute conjunctivitis may lead to blindness.



Gonococcal Ophthalmia Neonatorum



- Lid edema, erythema and marked purulent discharge
- Preventable with ophthalmic ointment (erythromycin)





6. Disseminated gonococcal infection(DGI):

- Bacteremia
- Fever, polyarthralgia
- Commonly manifest as arthritis, synovitis, or skin pustules (dermatitis) or petechial rash.
- Complication: endocarditis, meningitis, septic arthritis.
- Disseminated infection is the most common cause of septic arthritis in sexually active adults.



LABORATORY DIAGNOSIS

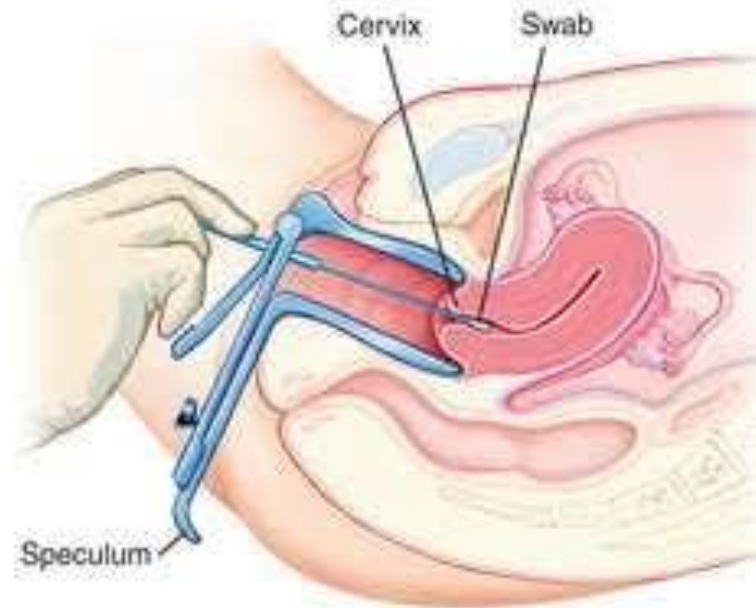
Specimens collected:

A) In men:

- Urethral exudate
- Urethral scraping(loop r special swab)

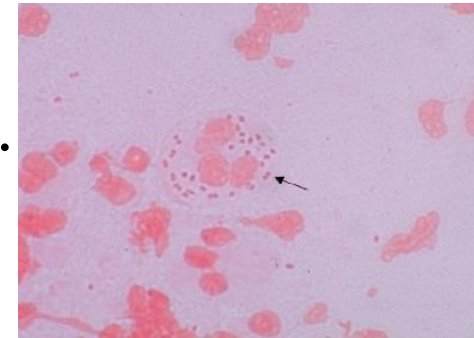
B) In women:

- Cervical swabs



Lab diagnosis:

- In the male, the finding of numerous neutrophils containing gram negative diplococci in a smear of urethral exudate provides a diagnosis of gonococcal infection.
- Diagnostic if gram negative diplococci are seen within polymorphonuclear leukocytes (95% sensitivity)
- In the female a positive culture is also needed.



3.Culture:

- *N. gonorrhoeae* grows best under aerobic conditions, and most strains require CO₂ also.



Media used:

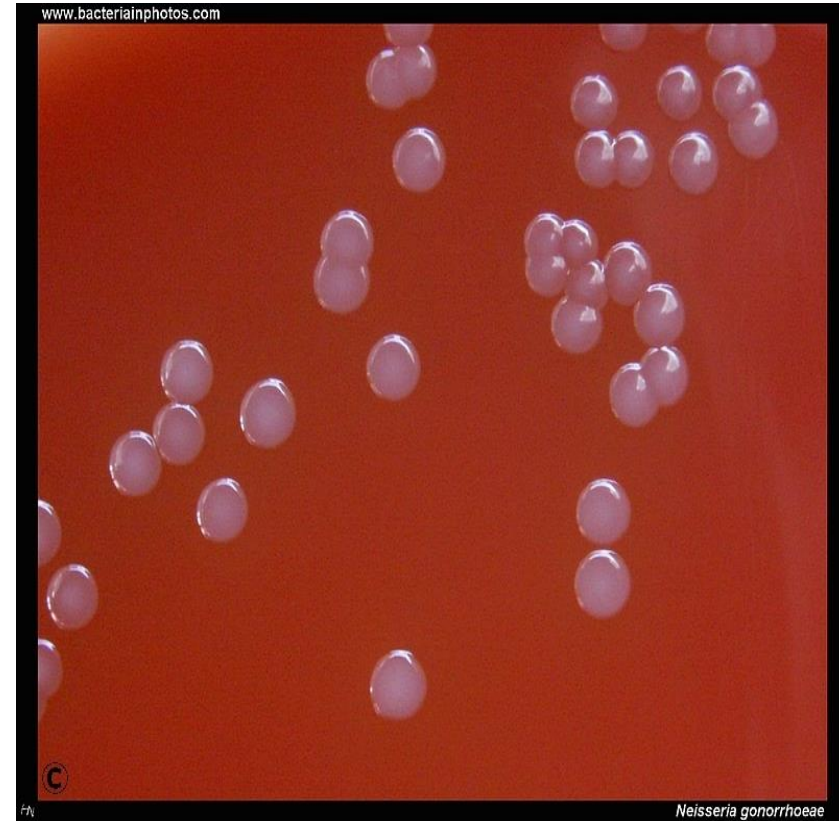
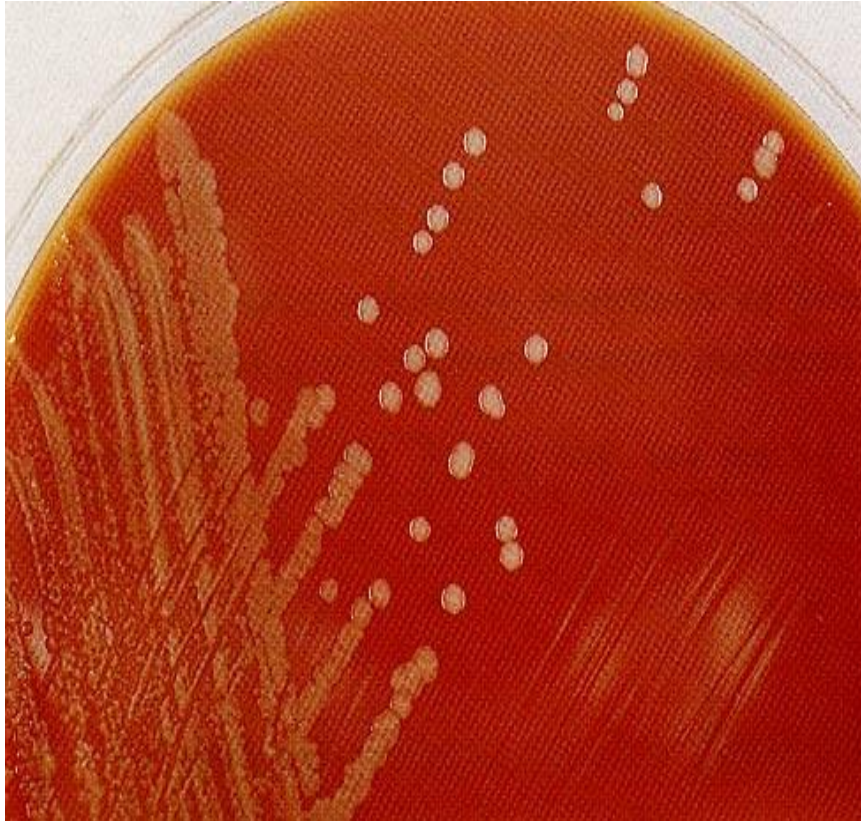
- a) Non selective media: Chocolate agar,
Mueller-Hinton agar.

- b) Selective media: Thayer Martin medium (e.g. Martin
Lewis agar) with antibiotics (Vancomycin, Colistin &
Nystatin).

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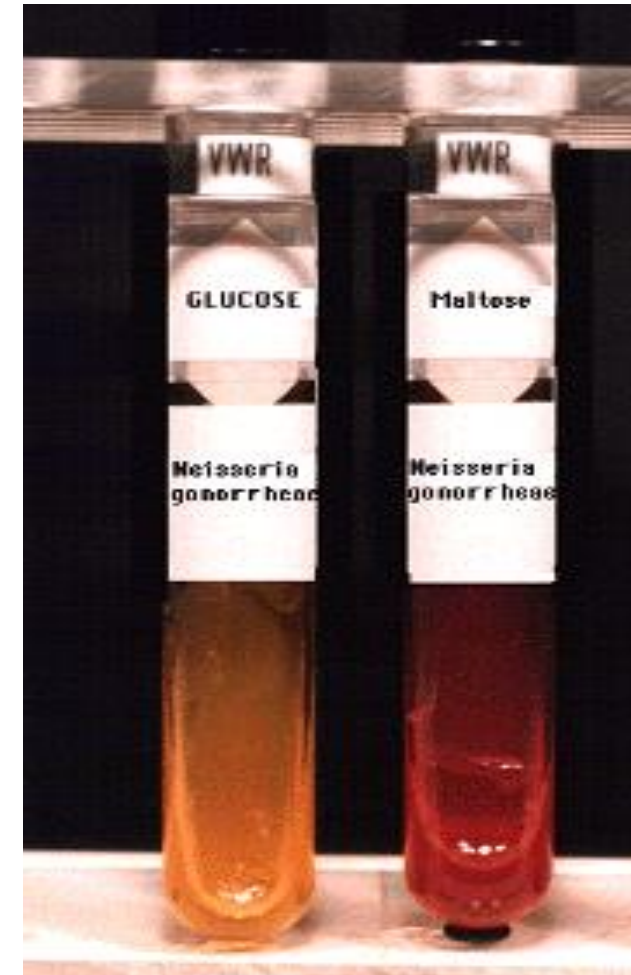


Colony morphology: Colonies are small, round, translucent, convex or slightly umbonate with finely granular surface & lobate margins.



Biochemical reactions:

- 1) Oxidase test: Positive
- 2) Ferments only glucose but not maltose.



DIAGNOSIS

- **DNA probes**
 - High sensitivity and specificity
 - Concurrently test for *N. gonorrhoea* and *C. trachomatis* with a single specimen
 - More widely used than cultures... and cost is similar



TREATMENT

- All recommended therapies are given as a single dose
- Should be given to symptomatic patients at the time of testing



Recommended treatment regimens for gonococcal infections: cervicitis, urethritis, proctitis

- **Single dose + chlamydia coverages (Azithromycin or Doxycycline)**
 - Cefixime (suprax)400mg or ofloxacin 400mg or Cipro 500mg
 - Single large dose IM ceftriaxone 125mg
- Chlamydia coverage: Azithromycin (Zithromax), 1 g PO in a single dose or Doxycycline, 100 mg PO bid x 7 days



Prevention

- The prevention of gonorrhoea involves the use of safety measures and the immediate treatment of symptomatic patients and their contacts.
 - Condom provide high degree of protection
 - Spermicide, vaginal foam: not reliable protection

