



SEXUALLY
TRANSMITTED
INFECTIONS

Dr. Tanmay Mehta



SEXUALLY TRANSMITTED INFECTIONS

- Agents causing local manifestations such as:
 - Genital ulcers
 - Urethral discharge
 - Vaginal discharge
 - Genital warts
 - Pelvic inflammatory diseases.
- Agents transmitted by sexual route, producing only systemic manifestations and do not cause local manifestations (e.g. HIV)



Causative agents of STIs

Agents causing local manifestations

Genital ulcers

Syphilis

Treponema pallidum

Herpes genitalis

Herpes simplex viruses

Chancroid

Haemophilus ducreyi

Lymphogranuloma venereum

Chlamydia trachomatis

Donovanosis

Klebsiella granulomatis

Causative agents of STIs

Agents causing local manifestations

Urethral discharge

Gonorrhoea

Neisseria gonorrhoeae

Non-gonococcal urethritis (NGU)

Chlamydia trachomatis (D-K) *Ureaplasma urealyticum* *Mycoplasma genitalium*

Mycoplasma hominis

Herpes simplex virus

Candida albicans *Trichomonas vaginalis*

Causative agents of STIs

Agents causing local manifestations	
Vaginal discharge	
Vulvovaginal candidiasis	<i>Candida albicans</i> Non-albicans <i>Candida</i> species
Bacterial vaginosis	<i>Gardnerella vaginalis</i> <i>Mobiluncus</i> species
Trichomonal vaginitis	<i>Trichomonas vaginalis</i>
Genital warts	
Condyloma acuminata	Human papilloma viruses



Causative agents of STIs

Agents causing systemic manifestations

Pelvic inflammatory diseases
(PID)

Neisseria gonorrhoeae
Chlamydia trachomatis

No genital lesions but only
systemic manifestations

HIV
Hepatitis B virus (HBV)
Hepatitis C virus (HCV)

STIs with genital ulcer

Feature	Incubation period	Genital ulcer	Lymphadenopathy
Syphilis	9 – 90 days	Painless, indurated single	Painless, moderate swelling (no bubo)
Herpes	2-7 days	Multiple painful	Absence or moderate swelling (no bubo)
Chancroid	1-14 days	Painful, soft Single or multiple	Painful, soft, marked swelling leads to bubo
LGV	3 days – 6 wks	Painless	Painful and soft
Donovanosis	1-6 wks	Painless beefy red ulcer	Absent (pseudobubo may be present)



Laboratory Diagnosis of STIs

- **Specimen Collection**
- Discharge from the infected area - vaginal or urethral discharge in a sterile container
- **Sterile swabs may be used to collect the discharge:**
Charcoal impregnated swabs are used for suspected gonococcal infection
- Fluid from the vesicles (genital herpes)

A background image showing a close-up of a microscope slide being held by a hand, with a blurred view of the slide's surface. The slide appears to have some faint markings or text on it. The overall color scheme is warm, with reds and oranges.

Microscopy

- **Wet mount examination:** vaginal discharge
 - Trichomoniasis: Pus cells along with motile trophozoites
 - Candidiasis: Yeast cells along with pseudohyphae
- **Gram-stained smear**
 - Bacterial vaginosis—clue cells (vaginal epithelial cells studded with gram variable pleomorphic coccobacilli) → *Gardnerella vaginalis*
 - Gonorrhea—intracellular kidney-shaped diplococci
 - Candidiasis—gram-positive budding yeast cells along with pseudohyphae

A background image showing a close-up of a microscope slide being held by a person's hand. The slide is white and has some faint purple markings. The background is a warm, orange-red gradient.

Microscopy

- **Giemsa stain**
 - *Klebsiella granulomatis* - Donovan's bodies
 - *Chlamydia trachomatis* - inclusion bodies
- **Dark field microscopy and silver impregnation** - in syphilis - spirally coiled bacilli



Culture

- Specimens are inoculated onto the appropriate culture media/cell line:
- Thayer-Martin medium—for *N. gonorrhoeae*
- Chocolate agar added with isovitalex and vancomycin—for *H. ducreyi*
- McCoy cell line—for *Chlamydia trachomatis*
- Sabouraud's dextrose agar (SDA)—for *Candida* species
- Vero cells, monkey kidney cell line - herpes simplex virus.



Serology

- VDRL or RPR test -syphilis
- **Molecular Test**
- Multiplex PCR and real-time PCR
 - *C. trachomatis* (opacity protein gene or 16s or 23s rRNA)
 - *Gonorrhoeae* (16s or 23s rRNA gene)
 - *T. pallidum* (47 kDa *tpp* gene or *polA* gene)
 - *H. ducreyi* (16s rRNA) and HSV (*TSK3 gene*)



Treatment - Urethritis

- Ceftriaxone + Azithromycin - ensure cure and prevent further development of resistance
- Ceftriaxone - act against gonococcus
- Azithromycin - *C. trachomatis*
- Treatment to both the sexual partners



CONGENITAL INFECTIONS



Congenital infections

- Infection that crosses placenta to infect the fetus
- Often lead to defects in fetal development or even death
- **TORCH**
 - Toxoplasmosis
 - Other infections (congenital syphilis, hepatitis B, Coxsackie virus, Epstein-Barr virus, varicella-zoster virus, *Plasmodium falciparum* and human parvovirus)
 - Rubella
 - Cytomegalovirus (CMV)
 - Herpes simplex virus



Perinatal Infections (During Delivery)

- Occur while the baby moves through an infected birth canal
- Usually caused by the agents of STIs or fecal contamination
 - Cytomegalovirus
 - *Neisseria gonorrhoeae*
 - *Chlamydia species*
 - Herpes simplex virus
 - Human papilloma virus (genital warts)
 - Group B streptococci



Postnatal Infections (After Delivery)

- Spread from mother to baby following delivery, usually during breastfeeding
 - CMV
 - HIV
 - Group B streptococci