

GENITAL TRACT INFECTIONS

OUTLINES

- ◉ Introduction
- ◉ Anatomy
- ◉ Resident Microflora
- ◉ Etiology
- ◉ Transmission
- ◉ Clinical presentation
- ◉ Laboratory Diagnosis

FACTS ABOUT STDs

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Sexually transmitted infections (STIs)

Fact sheet
Updated August 2016

Key facts

- More than 1 million sexually transmitted infections (STIs) are acquired every day worldwide.
- Each year, there are an estimated 357 million new infections with 1 of 4 STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis.
- More than 500 million people are estimated to have genital infection with herpes simplex virus (HSV).
- More than 290 million women have a human papillomavirus (HPV) infection¹.
- The majority of STIs have no symptoms or only mild symptoms that may not be recognized as an STI.
- STIs such as HSV type 2 and syphilis can increase the risk of HIV acquisition.
- Over 900 000 pregnant women were infected with syphilis resulting in approximately 350 000 adverse birth outcomes including stillbirth in 2012².
- In some cases, STIs can have serious reproductive health consequences beyond the immediate impact of the infection itself (e.g., infertility or mother-to-child transmission)
- Drug resistance, especially for gonorrhoea, is a major threat to reducing the impact of STIs worldwide.

What are sexually transmitted infections and how are they transmitted?

More than 30 different bacteria, viruses and parasites are known to be transmitted through sexual contact. Eight of these pathogens are linked to the greatest incidence of sexually transmitted disease. Of these 8 infections, 4 are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other 4 are viral infections and are incurable: hepatitis B, herpes simplex virus (HSV or herpes), HIV, and human papillomavirus (HPV). Symptoms or disease due to the incurable viral infections can be reduced or modified through treatment.

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Global strategies

- Sexually transmitted infections
- HIV
- Viral Hepatitis

Related links

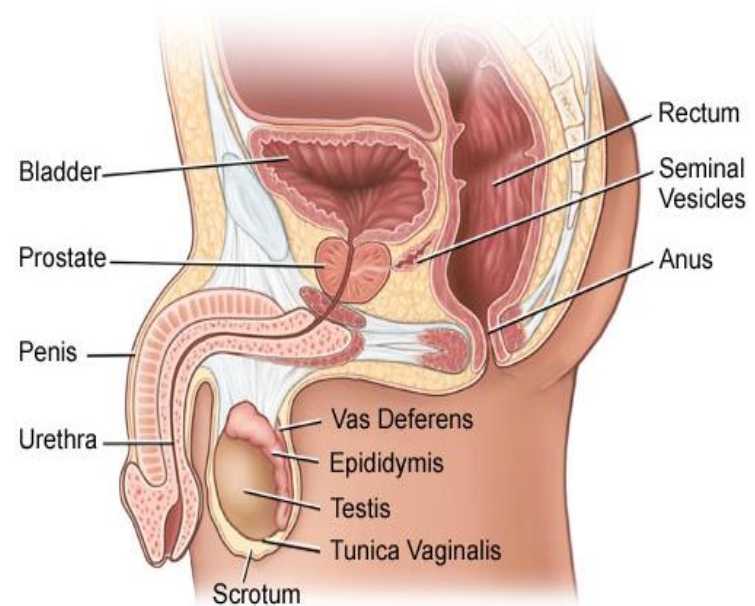
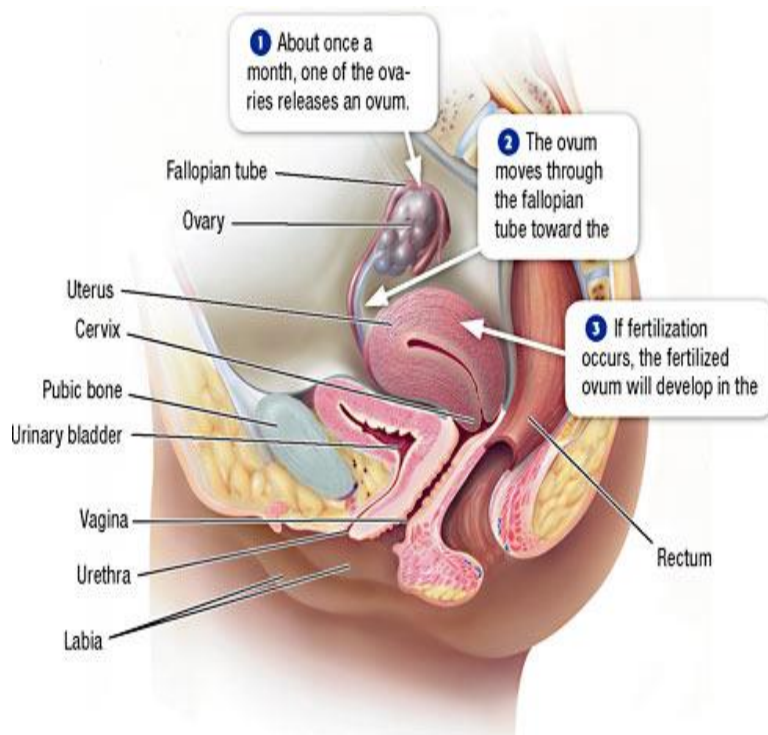
↓ The Global strategy for women's, children's and adolescents' health (2016-2030)
pdf, 6.32Mb

WHO's work on sexually transmitted infections

Global Health Observatory (GHO) data - Sexually Transmitted Infections (STIs)

Global Health Sector Strategies for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Infections (STIs)

ANATOMY



RESIDENT MICROFLORA

◉ Male

- Coagulase -ve staphylococci
- *Corynebacteria*
- Anaerobes
- Uncircumcised male *M. smegmatis*

◉ Female

- Prepubescent and postmenopausal
- Reproductive age
- Uncommon *S. agalactiae*
- Transient colonizer Yeast

ETIOLOGY

Pathogen	Clinical manifestations and other associated diseases
Bacterial infections	
<i>Neisseria gonorrhoeae</i>	<p>GONORRHOEA</p> <p>Men: urethral discharge (urethritis), epididymitis, orchitis, infertility</p> <p>Women: cervicitis, endometritis, salpingitis, pelvic inflammatory disease, infertility, preterm rupture of membranes, perihepatitis; commonly asymptomatic</p>
<i>Chlamydia trachomatis</i>	<p>CHLAMYDIAL INFECTION</p> <p>Men: urethral discharge (urethritis), epididymitis, orchitis, infertility</p> <p>Women: cervicitis, endometritis, salpingitis, pelvic inflammatory disease, infertility, preterm rupture of membranes, perihepatitis; commonly asymptomatic</p> <p>Both sexes: proctitis, pharyngitis, Reiter's syndrome</p> <p>Neonates: conjunctivitis, pneumonia</p>
<i>Chlamydia trachomatis</i> (serovars L1–L3)	<p>LYMPHOGRANULOMA VENEREUM</p> <p>Both sexes: ulcer, inguinal swelling (bubo), proctitis</p>
<i>Treponema pallidum</i>	<p>SYPHILIS</p> <p>Both sexes: primary ulcer (chancre) with local adenopathy, skin rashes, condylomata lata; bone, cardiovascular, and neurological damage</p> <p>Women: pregnancy wastage (abortion, stillbirth), premature delivery</p> <p>Neonates: stillbirth, congenital syphilis</p>
<i>Haemophilus ducreyi</i>	<p>CHANCROID</p> <p>Both sexes: painful genital ulcers; may be accompanied by bubo</p>
<i>Klebsiella</i> (<i>Calymmatobacterium</i>) <i>granulomatis</i>	<p>DONOVANOSIS (GRANULOMA INGUINALE)</p> <p>Both sexes: nodular swellings and ulcerative lesions of the inguinal and anogenital areas</p> <p>Men: urethral discharge (nongonococcal urethritis)</p> <p>Women: cervicitis, endometritis, probably pelvic inflammatory disease</p>
<i>Mycoplasma genitalium</i>	<p>Men: urethral discharge (nongonococcal urethritis)</p> <p>Women: cervicitis, endometritis, probably pelvic inflammatory disease</p>

ETIOLOGY

Viral infections	
Human immunodeficiency virus (HIV)	ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS) Both sexes: HIV-related disease, AIDS
Herpes simplex virus type 2 Herpes simplex virus type 1 (less common)	GENITAL HERPES Both sexes: anogenital vesicular lesions and ulcerations Neonates: neonatal herpes (often fatal)
Human papillomavirus	GENITAL WARTS Men: penile and anal warts; carcinoma of the penis Women: vulval, anal, and cervical warts, cervical carcinoma, vulval carcinoma, anal carcinoma Neonates: laryngeal papilloma
Hepatitis B virus	VIRAL HEPATITIS Both sexes: acute hepatitis, liver cirrhosis, liver cancer
Cytomegalovirus	CYTOMEGALOVIRUS INFECTION Both sexes: subclinical or nonspecific fever, diffuse lymph node swelling, liver disease, etc.
Molluscum contagiosum virus	MOLLUSCUM CONTAGIOSUM Both sexes: genital or generalized umbilicated, firm skin nodules
Kaposi sarcoma associated herpesvirus (human herpesvirus type 8)	KAPOSI SARCOMA Both sexes: aggressive type of cancer in immunosuppressed persons

TRANSMISSION

◉ Types of GTI

- Exogenous
 - STDs
- Endogenous

➤ Female: LGT , UGT

◉ Routes of transmission

- Sexually transmitted
- Other routes:
 - Instrumentation
 - Mother → infants



CLINICAL PRESENTATION

○ Lower Genital tract:

- Asymptomatic
- Dysuria
- Urethral discharge
- Lesion of the skin and mucous membranes
- Vaginitis
- Cervicitis
- Anorectal lesion
- Bartholinitis

BACTERIAL VAGINITIS

- Most common cause of vaginitis in premenopausal women
- It is caused by alteration of the normal flora, with over-growth of anaerobic bacteria
- It is triggered by \uparrow PH of the vagina
- Recurrences are common
- 50% are asymptomatic
- Itching and inflammation are uncommon
- It is not a STD

VIRAL VAGINITIS

Herpes Simplex Virus

- The “silent epidemic”
- > 45 million in the US, > 1 million newly diagnosed annually
- The most common STD in US

Primary Herpes - Classic Symptoms

- Systemic - fever, myalgia, malaise
Can have meningitis, encephalitis, or hepatitis
- Local - clusters of small, painful blisters that ulcerate and crust outside of mucous membranes
Itching, dysuria, vaginal discharge, inguinal adenopathy, bleeding from cervicitis
- New lesions form for about 10 days after initial infection, but can last up to 3 weeks
- Shedding of virus lasts 2 - 10 days

Recurrent Herpes

- Reactivation of virus
- Mild, self-limited
- Localized, lasting 6-7 days
- Shedding: 4-5 days

CLINICAL PRESENTATION

○ Upper Genital tract:

■ Female:

- PID
- Post-gynecologic surgery
- With pregnancy

■ Male

- Epididymitis
- Prostatitis
- Orchitis

➤ Gonorrhea

LABORATORY DIAGNOSIS

- ◉ Lower genital tract infections
 - Urethritis, cervicitis and vaginitis
 - ◉ Specimen collection
 - ◉ Direct microscopic examination
 - ◉ Culture
 - ◉ Nonculture methods
 - Genital skin and mucous membrane lesions
 - Bubo
- ◉ Infections of the reproductive organs

LABORATORY DIAGNOSIS

◉ Lower genital tract infections

■ Urethritis, cervicitis and vaginitis

○ Specimen collection

● Urethral

T. vaginalis, *N. gonorrhoeae*, *U. urealyticum*, *C. trachomatis*
and HSV

● Cervical/vaginal

○ Transport

LABORATORY DIAGNOSIS

◉ Lower genital tract infections

- Urethritis, cervicitis and vaginitis
 - Specimen collection
 - **Direct microscopic examination**
 - Culture
 - Non-culture methods
- Genital skin and mucous membrane lesions
- Bubo

LABORATORY DIAGNOSIS

◉ Lower genital tract infections

◉ Direct microscopic examination

- *N. Gonorrhoeae*
- *C. trachomatis*
- *T. vaginalis*
- *Candida*

BACTERIAL VAGINITIS, BV

Diagnosis:

- Fishy odor
- Gray secretions
- Presence of clue cells
- Absence of inflammatory cells
- PH >4.5
- +ve whiff test (adding 10% KOH give a fishy odor)

LABORATORY DIAGNOSIS

◉ Lower genital tract infections

- Urethritis, cervicitis and vaginitis
 - Specimen collection
 - Direct microscopic examination
 - Culture
 - Non-culture methods
- Genital skin and mucous membrane lesions
- Bubo

LABORATORY DIAGNOSIS

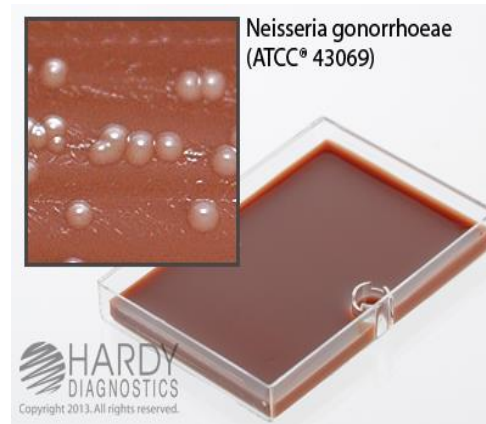
◉ Lower genital tract infections

◉ Culture

- JEMBEC plate
- Columbia agar + 5% sheep blood and CNA

◉ Non-culture methods

- Amsel criteria, (PH, amine test and wet mount microscopy)
- Affirm VP III microbial identification test



LABORATORY DIAGNOSIS

◉ Lower genital tract infections

- Urethritis, cervicitis and vaginitis
- Genital skin and mucous membrane lesions
 - HSV
 - Typical multinucleated giant cells
 - IFA
 - Other
 - Gram stain
 - *Klebsiella granulomatis*
- Bubo

LABORATORY DIAGNOSIS

- Infections of the reproductive organs
 - Pelvic inflammatory disease
 - Miscellaneous infections
 - Infections of neonates and human products conception

LABORATORY DIAGNOSIS

◉ Infections of the reproductive organs

■ Pelvic inflammatory disease

- ◉ Specimen
- ◉ Direct examination with fluorescent monoclonal Ab stain
- ◉ Chocolate agar

LABORATORY DIAGNOSIS

◉ Infections of the reproductive organs

- Miscellaneous infections
 - Male prostate, epididymis and testes
- Infections of neonates and human products conception
 - Congenital infections:
 - HSV, VZV, CMV, Rubella, GBSC, E. coli, gonococci
 - Culture
 - Serology

CASE STUDY

- Case study 74-1, Page 944,