

Lecture 5



Genital Herpes & Genital Warts

- Additional Notes
- Important
- Explanation
- Examples

Genital Herpes

- There are two species of herpes virus causing genital herpes which are both structurally very similar:
 - ✓ Herpes simplex virus type 2 “**HSV-2**” 90% of all cases cause
 - ✓ Herpes simplex virus type 1 “**HSV-1**” 10% of all cases cause
- Herpes viruses has the ability to induce latent infection:
 - ✓ HSV-1 & 2 → Nerve Cells
 - ✓ HSV-1 → Trigeminal Ganglia
 - ✓ HSV-2 → Sacral Ganglia
- Pathogenesis of HSV-2:
 - ✓ Primary infection occurs when HSV-2 infects epithelial cells covering mucosa.
 - ✓ The virus then migrates to the nearest ganglion where it replicates and once its reactivated it travels back to the site of primary infection and cause recurrent infection.
 - ✓ Once the virus enters the human body it remains for life.

Routes of transmission:

- Sexual Transmission:
 - ✓ Homosexual men are more susceptible to HSV-2 infection
 - ✓ HSV-1 can cause genital herpes infection after oral sex, also can be seen in cases of child abuse.
- Perinatal Transmission:
 - ✓ 85% of all maternal infections.
 - ✓ To avoid this type of transmission we do [Caesarean Section](#).
- Vertical transmission:
 - ✓ 10% of all maternal infections
 - ✓ Maternal infection of the mother during **first trimester** can lead to spontaneous abortion.
 - ✓ Maternal infection **after 20 weeks of gestations** may induce malformation as; jaundice, hepatosplenomegally.

Clinical Features of HSV-2 infection:

- Primary Genital infection:

- ✓ Vary from asymptomatic to mild or severe painful episode.
- ✓ If symptoms are present they may include:
 - Fever, malaise, dysuria, inguinal lymphadenopathy
 - Herpetic lesion localized to the cervix, vagina, or shaft of the penis.
 - Herpetic proctitis can be seen in homosexuals.

- Recurrent genital infection:

- ✓ Occurs after reactivation by environmental or physiological factors such as stress, menstruation or any condition decreased the immunity
- ✓ This can be as frequent as six or more episode a years.
- ✓ Accompanied with the appearance of herpetic vesicles on the external genitalia.
- ✓ Symptoms may include pain and itching

Neonatal herpes infection:

- Not a common condition but the mortality is high.
- Occurs during labor and delivery and sometimes may occur as vertical transmission during pregnancy
- It may spread to other organs such as lungs, liver or brain.
- It has three forms:
 - ✓ Localized skin infection:
 - Limited to massive skin vesicular lesions
 - Mild infection
 - ✓ Localized brain infection:
 - Limited to CNS invasion causing encephalitis
 - Mortality is high
 - ✓ Generalized neonatal herpes infection:
 - Severe massive infection of the skin
 - Accompanied with internal organs infection
 - Usually it is fatal.

- Lab diagnosis:

- ✓ ELISA

- ✓ Immunofluorescence

- ✓ Polymerase chain reaction “PCR”

- ✓ Tissue culture: used for research not as diagnostic method.

- Management:

- ✓ No vaccine is available to prevent HSV-2 and so the best way to avoid HSV infections:

- Avoid sexual contact with infected individuals

- Abstain from making prohibited relations

- Note that condoms are not 100% protective against HSV.

- Treatment:

- ✓ Acyclovir: the 1st choice therapy for all infected individuals including pregnant women.

Human Papillomavirus “HPV”

- **This type of virus doesn't grow in tissue culture.**
- Resists detergent, and heat and can remain infectious in the environment for long time.
- Types of warts and HPV genotype:
 - ✓ **Cutaneous warts:**
 - virus is transmitted from infected skin by direct contact or by swimming in an infected pool ... etc
 - It is more liable to affect young children.
 - ✓ **Genital, anogenital or mucosal warts:**
 - These warts are acquired by sexual contact. It often occur in association with other sexual diseases as gonorrhea or chlamydial infection.
 - It may transmitted as vertical transmission from mother to infant.
 - It is divided into two types:
 - ✓ **Benign warts “HPV 6,11”**
 - Such as laryngeal warts which occurs during oral sex
 - ✓ **Malignant warts “HPV 16,18”**
 - Cervical carcinoma in women
 - Penile and anal carcinoma in men

- Clinical symptoms of genital warts:

- ✓ Appear after 3-4 months after infection.
- ✓ Size vary from small round to large complex mass.
- ✓ Found in anogenital tract of both males and females.
- ✓ Localized pain
- ✓ Discomfort
- ✓ Abnormal vaginal bleeding and discharge.

- Link between HPV and cervical cancer:

- ✓ HPV "6,11" unusual to become malignant but may occasionally progress to squamous cell carcinoma.
- ✓ HPV "16,18" are commonly associated with great dysplasia and has high chance of progression to metastasize to carcinoma.

- **Diagnosis:**
 - ✓ External genital warts can be easily diagnosed by medical examination.
 - ✓ Internal genital warts can be visualized by colposcopy.
- **Lab diagnosis:**
 - ✓ **PCR:** used to detect HPV DNA
 - ✓ Pap-smear
- **Treatment:**
 - ✓ Cryotherapy: freezing warts which is suitable for small warts
 - ✓ Electro cautery treatment: destroying warts by an electric current
 - ✓ Laser therapy: suitable for small and large warts
 - ✓ Surgical excision: suitable for all warts.
 - ✓ Topical treatment
 - ✓ Injection
- **Prevention:**
 - ✓ Using vaccines which is recommended for young individuals.
 - ✓ Given in 3 doses at 0,2,6 months
 - ✓ Not given to pregnant women.
 - ✓ There are two vaccines available:
 - **Gardasil:** protection **against all HPV genotypes “6,11,16,18”**
 - **Cervarix:** protection **against HPV “16,18” only**

We're finally done with basic science years and will move to our clinical journey, thank you so much batch 433 for believing in us and trusting our work.

It was our pleasure knowing that we actually did Microbiology easier to you.



Best of wishes,
Microbiology Team