

Hope academic team

genitourinary system



**Microbiology**

**Lecture : 10**

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# Viral skin infection

## Viral Warts

- Caused by Human Papilloma Virus (HPV)
- Non enveloped DNA viruses
- Infect human epithelial cells there are different type of HPV which categorize according to which epithelial cell they prefer effect
  - Cutaneous epithelial cells like face, hand, feet
  - Mucous membrane like respiratory track( pharynx, nasal, oral cavity), genital region
- 150+ subtypes of HPV identified: 6,8,16,18
- Some types can cause benign tumor called papilloma (Warts)
  - Benign proliferations of the skin and mucosa
- Several subtypes associated with cancer

بعض ال HPV بسبب benign tumor الي هي warts or papilloma الي هي low risk بتكون من نوع 6,11

pathogenesis – Squamous Cell Carcinoma (SCC) of skin, mucosa, cervix, etc

ولكن بعض الانواع ممكن تسبب cancer الي بتكون high risk ووهي من نوع 16,18

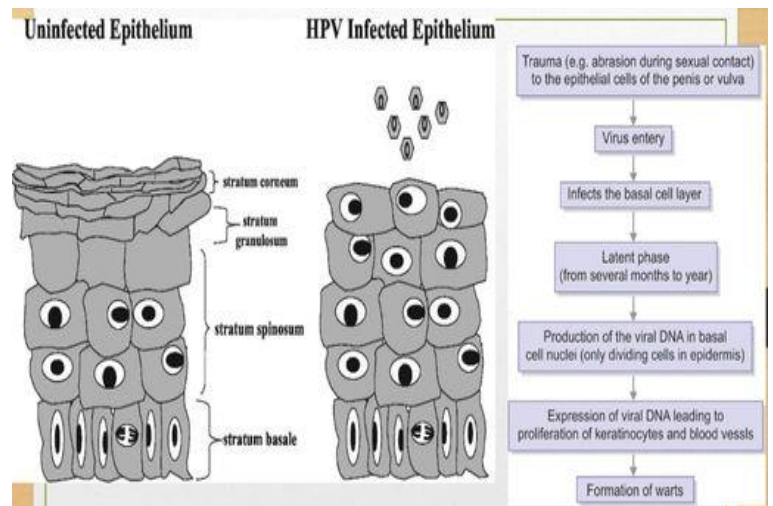
-epithelial line outer surface of organ and blood vessel

-and spread the interior of the body from external world

-they primarily serve as protective to invade the bacteria, virus, fungal and parasite

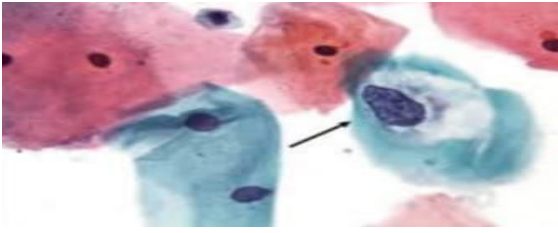
-stratum basale will be protected under all layers because these are deep layers but if there is a cut in the epithelium so HPV can access to infect basal cells

-HPV can replicate within basal cells which produce viral DNA in basal nuclei and expression of viral DNA leads to dysregulation of the replication of epithelial cells and blood vessels and these cause warts



-In some types of HPV infections

- koilocyte, or a cells with an irregular shape, enlarged and dark staining nucleus, and a clear area around the nucleus that's called a perinuclear halo.



- precancerous lesions that can transform into carcinomas

فبصير epithelial cell بالchange فتؤدي الى uncontrol regulation ممكن تعمل HPV بعض انواع irregular shape و enlarge and dark stain of nucleus في clear area around nucleus called perinuclear halo وهي عبارة عن koilocyte وهاي اسمها cancer الي ممكن تتحول ل precancerous lesion

- HPV types 6 and 11 low-risk HPVs because they don't tend to progress beyond warts. This responsible to laryngeal papillomatosis which is warts in respiratory track and these consider low risk because they do not tend to progress beyond warts these mean this make warts lesion but not transfer to cancer

- High-risk HPV types like types 16 and 18 have a high risk of transforming into cancers of the cervix, vagina, vulva, penis, anus, or upper respiratory tract over one or two decades. These high risk HPV which can transfer to cancer from 10-20 year especially genital area

بس هون بكون في cofactor زي smoking, low immunity and radiation

-Many HPV infections are asymptomatic, but when symptom present depend on type of HPV so symptom of nongenital cutaneous infection can involve some benign warts if these low risk type

هسا حسب المكان بنسمي ال warts :

- **Common skin warts** of the hands or nails is mainly painless and dome shape projection that give skin rough appearance



Common wart



Cauliflower wart



- **Plantar warts** on the soles of the feet many painful and scaly



- **Flat warts** of the face and extremities mainly in pediatric population, is painless, smooth, small, flat and numerous

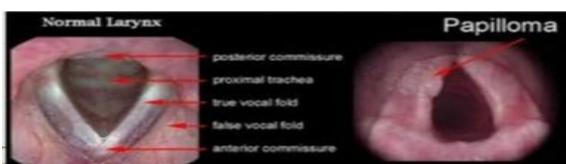


- **Filiform warts** of the face it is finger projection around eyelids and lips



Filiform wart

In mucous membrane of respiratory track called respiratory papillomatosis and can lead to voice changes and high pitched brith sound like in vocal cord and give hoarseness voice



- HPV genital infections are **sexually transmitted and** represent the most common sexually transmitted disease in the U.S.
- HPV types 16 and 18 are considered to be high cancer risk. Many HPV types are considered benign.
- Cervical cancer develops slowly, sometimes taking years to decades. **Multiple factors are involved in progression to malignancy**

### Epidemiology & Clinical Findings

- Over 99% of **cervical cancer cases are linked to genital infections with HPV**s.
- Epidemiologic studies indicate that **HPV-16 and HPV-18 are responsible for more than 70% of all cervical cancers**

Human papillomavirus is a DNA virus spread through contact that infects human epithelial cells of the skin and mucous membranes.

Symptoms can range from warts, to precancerous lesions and carcinomas.

Definitive diagnosis can be made molecularly and treatment can range from allowing the immune system to clear the infection, to mechanical or chemical removal of infected cells

## Genital Warts (Condyloma Acuminata)

- Anal and genital infections like in female vulva, cervix, vagina, male penis and scrotum
- painless, they can cause itching, burning, local pain, or bleeding.
- Generally an STD, but not always
- When seen in children, may or may not indicate sexual abuse

هو غالبا بكون sexual transmitted بس مش دائما يعني مثلا ممكن نلاقي اطفال مصابين و هذول اكيد مش sexual

- When seen around orifices (anus;vagina) important to investigate further as infection in rectum/vagina more likely to lead to squamous dysplasia and SCC



### Transmission

- The cause of an HPV infection is contact with infected epithelial cells

لازم يكون في contact مع ال epithelial cell الي فيها الwarts فينتقل من شخص لآخر عن طريق الcontact

Some can increase risk of exposure:

- Sex: having multiple or new infected sexual partners
- Child birth: delivery a baby through an infected birth canal
- Sharing clothes
- Auto-inoculate if individual have papule and they scratch them they can spread the virus around other area

Prevention

- **Vaccines** (noninfectious recombinant vaccine produced in yeast) against HPV are expected to be a cost-effective way to reduce anogenital HPV infections, the incidence of cervical cancer, and the HPV-associated health care burden

## Herpes Simplex Virus (HSV)

هسا هاض الدكتور ما شرحو بس عالاغلب داخل

- Two Strains of HSV: HSV 1 and HSV 2
- **linear, double-stranded DNA**, 160 kbp.
- differences in glycoprotein gB enable them to be distinguished
- HSV-1 has gB1
- HSV-2 has gB2.
- **HSV 1 generally face/lips** and **HSV 2 generally genitals/anal area.**
- Virus doesn't follow any rules: HSV 1 can appear on genital and HSV 2 can appear on face
- On **lips**, also known as **herpes labialis, cold sore or "fever blister"**
- On **fingers**, called **herpetic whitlow**
- Inside **mouth**, called **herpes gingivostomatitis**
- Ocular HSV/Herpes facial paralysis
- Remember, can occur anywhere!
- HSV is a recurrent disease, which after initial exposure and infection, ascends peripheral sensory nerves to the nerve ganglion, where it then resides in a latent fashion **in facial area ascend to trigeminal ganglia and in genital area ascend into sacral ganglia**
- Virus **contagious skin-to-skin contact or exposure to fluid from active blisters.**

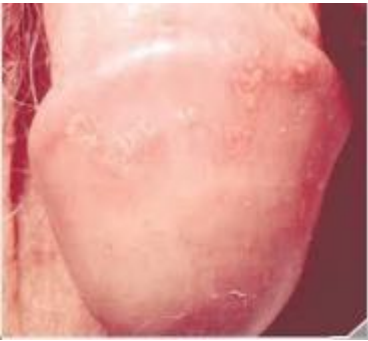


## Herpes Simplex Type 2

- Genital herpes is an important sexually transmitted disease. Both HSV-1 and HSV-2 can cause genital disease.

### Primary Genital Herpes Infection

- Multiple painful vesicopustular lesions after few days from sexual contact.



### HSV - Diagnosis

- Often a clinical diagnosis
- Viral Culture for HSV 1/HSV 2
- Tzanck Smear (not used in my community that often)
- Dermatopathology
- Serology (takes 2 to 6 weeks to seroconvert HSV antibodies after primary infection)
- Antigen detection/PCR: Expensive, but has just replaced Viral Cx at our institution as gold-standard diagnostic test.

### HSV – Treatment

often is self limited

- Topicals: Acyclovir 5% ointment, Penciclovir 1% cream
- Oral meds: Acyclovir, valacyclovir (valtrex), famciclovir (famvir)
- For severe, disseminated infections: IV acyclovir, foscarnet

## HIV

### Introduction

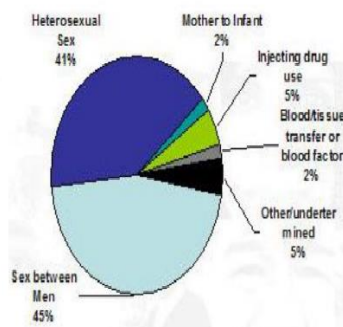
- HIV is a viral infection that destroy helper T cells of the immune system

- Produce multi-organ diseases
- Characterized by long incubation periods and persistent infection
- Infect a wide range of prime hosts, as well as some non-primate mammals

### Morphology

- Retroviruses transcribe RNA to DNA
- Two viral strands of RNA found in core surrounded by protein outer coat.
- Enveloped virus
- These knob-like structures responsible for binding to target cell.

### Route of Transmission of HIV Infection, infections before 2006



الي بدو اياه الدكتور من الموضوع:

HIV is sexual transmitted disease and is absolute contraindication in breastfeeding and transition mainly by heterosexual and sex between male

نهاية التلخيص سامحونا على اي اخطاء