

Genito-Urinary System

Herpes, HPV, HIV



Viral Warts

- Caused by Human Papilloma Virus (HPV)
 - Non enveloped DNA viruses
 - Infect human epithelial cells
 - Cutaneous epithelial cells
 - Mucous membrane

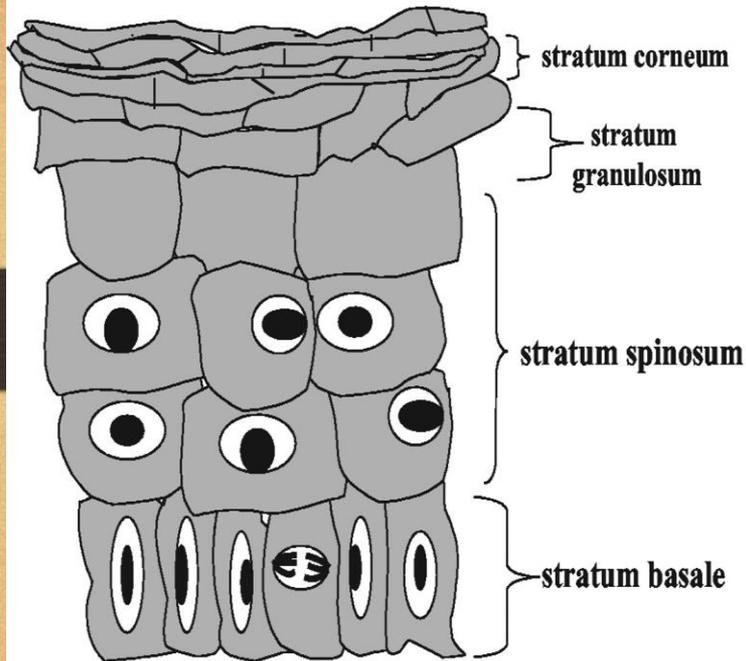


Viral Warts

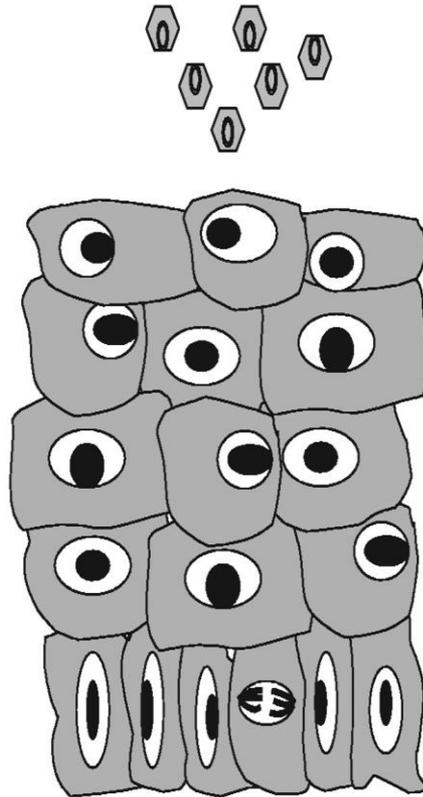
- 150+ subtypes of HPV identified: 6,8,16,18
- Some types can cause benign tumor called papilloma (**Warts**)
 - Benign proliferations of the skin and mucosa
- Several subtypes associated with cancer pathogenesis – Squamous Cell Carcinoma (SCC) of skin, mucosa, cervix, etc



Uninfected Epithelium



HPV Infected Epithelium



Trauma (e.g. abrasion during sexual contact) to the epithelial cells of the penis or vulva

Virus entry

Infects the basal cell layer

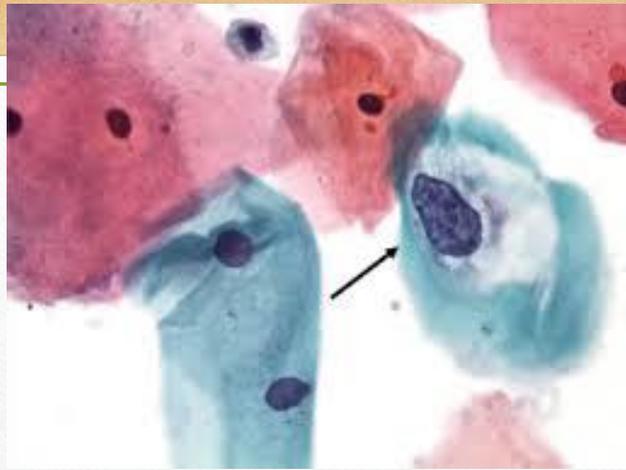
Latent phase
(from several months to year)

Production of the viral DNA in basal cell nuclei (only dividing cells in epidermis)

Expression of viral DNA leading to proliferation of keratinocytes and blood vessels

Formation of 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



- HPV types 6 and 11 low-risk HPVs because they don't tend to progress beyond warts.
- 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.



- Many HPV infections are asymptomatic,
 - Common skin warts of the hands or nails
 - Plantar warts on the soles of the feet
 - Flat warts of the face and extremities
 - Filiform warts of the face



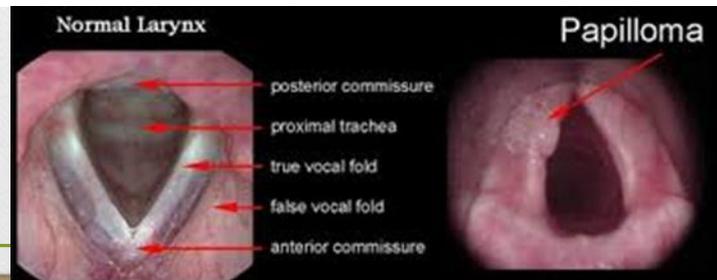
Common wart



Cauliflower wart



Filiform wart



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- 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.



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- 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 HPVs.
- Epidemiologic studies indicate that HPV-16 and HPV-18 are responsible for more than 70% of all cervical cancers.



Genital Warts (Condyloma Acuminata)

- Anal and genital infections
- 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
- 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.

- Sex
- Child birth
- Sharing clothes
- Auto-inoculate



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.



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.



Herpes Simplex Virus (HSV)

- 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



Herpes Simplex Virus (HSV)

- 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!



Herpes Simplex Virus (HSV)

- 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
- Virus contagious skin-to-skin contact or exposure to fluid from active blisters.



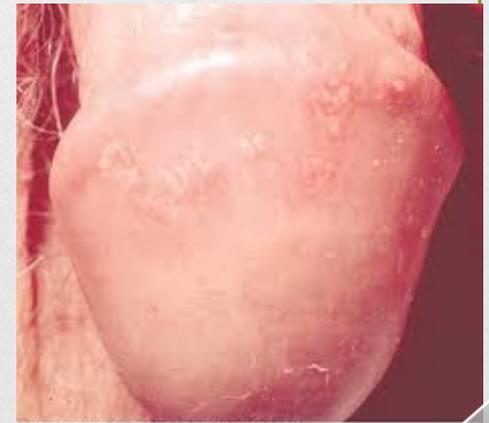


Herpes Simplex Type 2

- 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

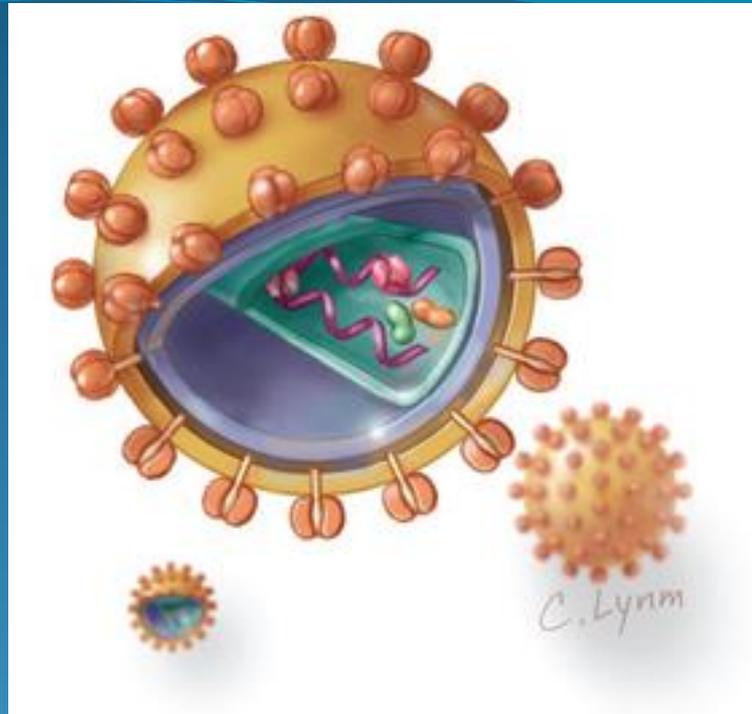
- Often a clinical diagnosis
- Viral Culture for HSV 1/HSV 2
- Tzanck Smear (not used in my community that often)
- Dermatopathology
- Serology (takes 2 to 6 weeks to seroconvert HSV antibodies after primary infection)
- Antigen detection/PCR: Expensive, but has just replaced Viral Cx at our institution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



HSV – Treatment

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





Human Immunodeficiency Virus (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

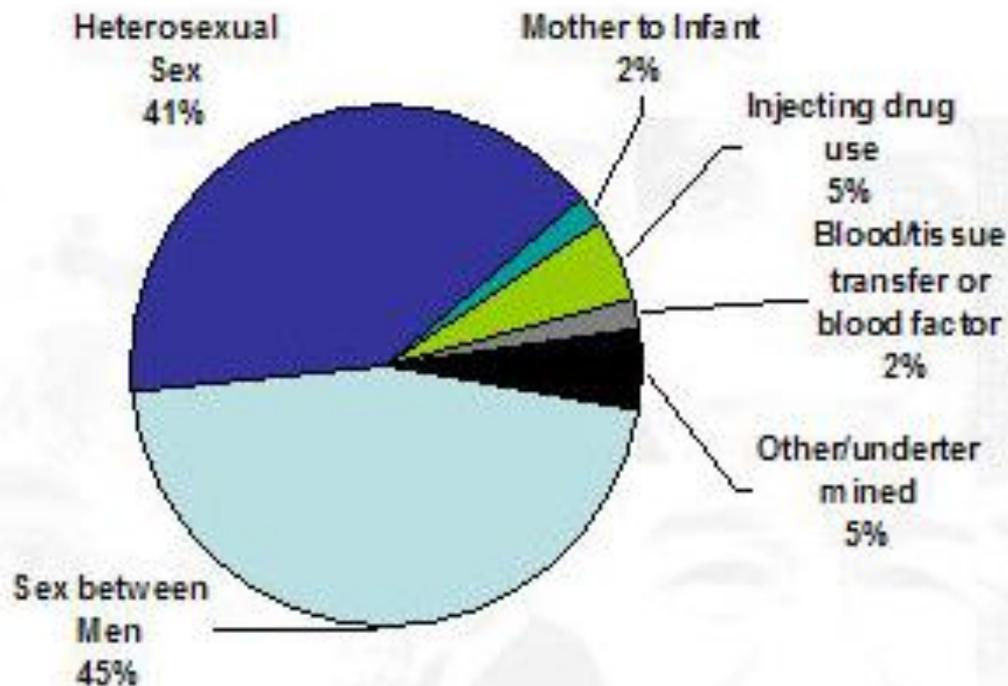


Morphology

- 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



- Thank you

