

# Viral Skin Infections

Jasmine Jeyarajah

Department of Dermatology

Sheba

# Overview

- Varicella
- Herpes
- HPV
- Pox virus

# VARICELLA - zoster virus aka Chickenpox

- This contagious infection is **spread by mucosal droplets**. Patients are infectious from 2 days before until 5 days after the onset of the rash.
- VZV remains dormant in sensory ganglia after the primary infection.
- Primary VZV is a more severe infection in adults than children.
- Complications include pneumonitis and secondary bacterial infection. The live attenuated vaccine prevents severe infection in children.

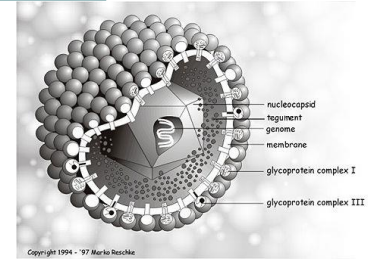
# Look for..

- Malaise, cough, coryza, sore throat.
- A rash that affects the trunk more than the limbs or face.
- Crops of itchy erythematous macules and papules that evolve into vesicles (may also be oral). After 2 days, pustules that become crusted.
- Cropping that continues for 4–7 days.
- Healing, often with scarring, within 16 days.
- Haemorrhagic lesions in immunosuppressed patients (may be fatal).
- Respiratory symptoms in severe disease.

# Treatment

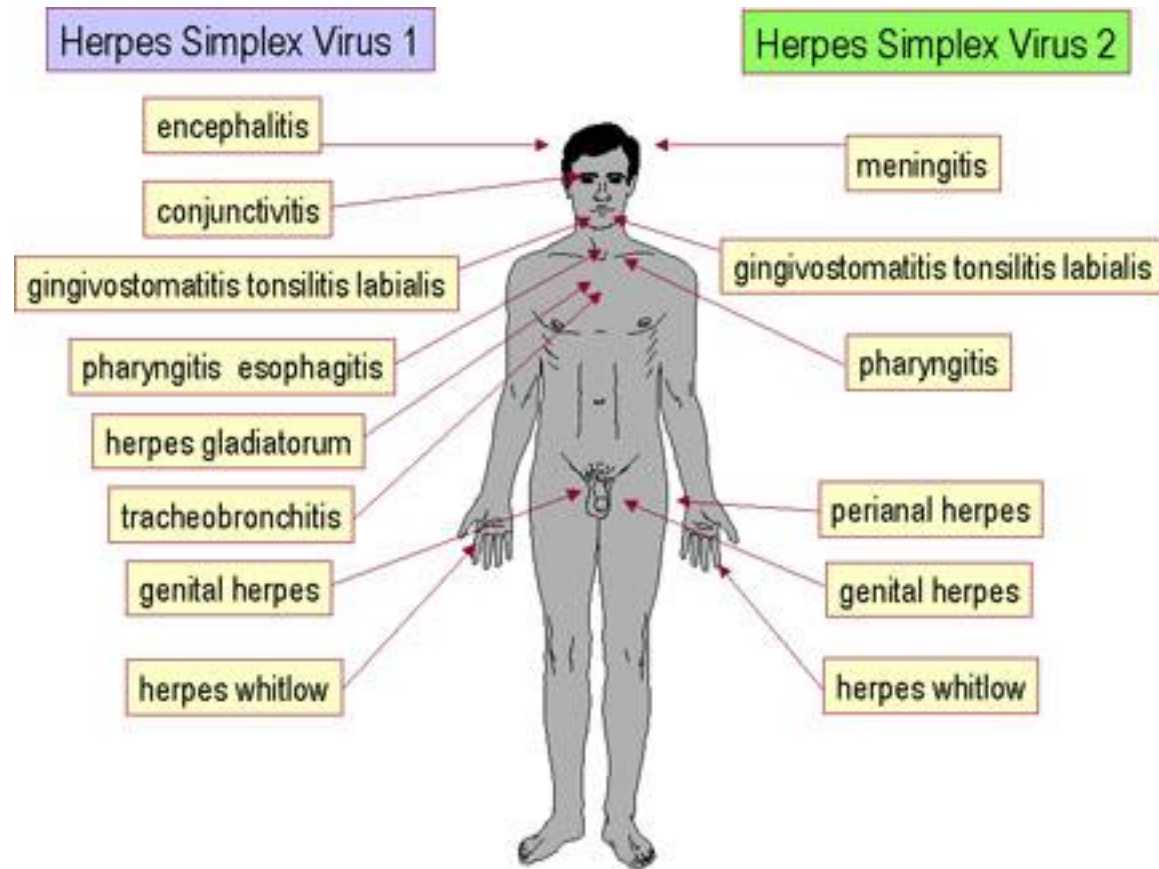
- **Children with varicella (chickenpox)**
  - Symptomatic treatment with antipyretics, calamine lotion and tepid baths, provided immune system is normal.
- **Adults with varicella (chickenpox) and herpes zoster (shingles)**
  - Consider antivirals in patients presenting within 24–48h of new vesicles to speed up healing.
  - Treating patients >50 years with antivirals within 7 days onset of symptoms of shingles can ↓ duration of post-herpetic neuralgia.
  - Treatment options:
    - Aciclovir 800mg × 5/day, valaciclovir 1g × 3/day, or famciclovir 500mg × 3/day for 7 days.
  - Prescribe analgesia.
- **Immunocompromised or those at risk of severe disease**
  - Administer varicella zoster Ig within 96h of exposure.
  - Treat for 10–14 days starting with IV aciclovir 10mg/kg every 8h for 7 days. Seek advice about treatment in pregnancy.

# Herpes



- The family of herpes viruses include:
  - HSV-1, herpes simplex virus type 2 (HSV-2), cytomegalovirus, Epstein Barr virus & human herpes viruses 6, 7 and 8.
    - HSV-1 causes skin infections & less often genital infection.
    - HSV-2 is the primary cause of genital herpes – an STD
- HSV is a common cause of contagious infections.
- Virus causes intraepidermal vesiculation & persists in sensory ganglia of individuals who have been infected.
- Lesions recur in the same site.

- Hallmark of herpes infection is the ability to infect epithelial mucosal cells or lymphocytes.
  - Virus then travels up peripheral nerves to a nucleated neurone where it may stay for years followed by reactivation.
  - A reddened area gives rise to a macula which crusts to form a papula.
  - The fluid in this blister is full of virus. As long as the virus is kept moist it can remain infectious
- Clinical presentation
  - It is often noted that HSV-1 causes infections above the waist and HSV-2 below the waist but this reflects the mode of transmission rather than any intrinsic property of the virus.





# Clinical features

- Primary infections of HSV may be asymptomatic, but can cause a painful ulcerative gingivostomatitis (most often in children) that resolves in 10–14 days.
- Recurrent herpes labialis is caused by reactivation of the latent virus. A tingling, burning, or itching prodrome is common
  - **Primary Infections e.g. Gingivostomatitis:**
    - Malaise, headache, and fever; cervical lymphadenopathy.
    - Well-defined vesicles, 2mm in diameter, on dorsum of the tongue and the hard palate, but vesicles may be scattered over the entire oral mucosa.
    - Vesicles rupture rapidly to form very painful shallow ulcers with a yellowish-grey floor and erythematous margins.
    - Inflamed gingival margins.

# Clinical features of genital HSV infections

- Genital infections are usually caused by HSV-2 and only occasionally by HSV-1. Primary attacks are more severe and long-lasting than subsequent attacks.
- Prevalence is highest in individuals adopting high-risk sexual behaviour, but viral carriage is often asymptomatic.
- Genital HSV increases the risk of acquiring and/or transmitting HIV.
- Look for:
  - Genital pain, itching, and/or burning.
  - Erythematous vesicles, but these rapidly rupture forming painful ulcers.
  - Dysuria leading to urinary retention.

# Management of Cutaneous HSV infections

- Localized recurrent disease only requires symptomatic treatment.
- Prescribe oral antivirals in patients at risk of developing widespread infection, e.g. immunosuppressed, atopic eczema, Darier's disease—aciclovir, valaciclovir or famciclovir.

# HPV

- Human papillomas virus (HPV) infects epithelial cells of skin and mucous membranes
  - >100 types of HPV have been identified & cause infections at different sites.
- HPV infections are **transmitted by direct contact**, which may be sexual, but incubation time ranges from weeks - >year.
- HPV DNA is widely distributed on the skin in the general population. Infection may be subclinical.
- **HPV-16 and -18 are linked to - development of anogenital and cervical SCCs.**
- **Certain HPV types may also play a part in development of some cutaneous SCCs.**
- Clinical types of HPV:
  - Anogenital or mucosal
  - Nongenital cutaneous

# Look for..

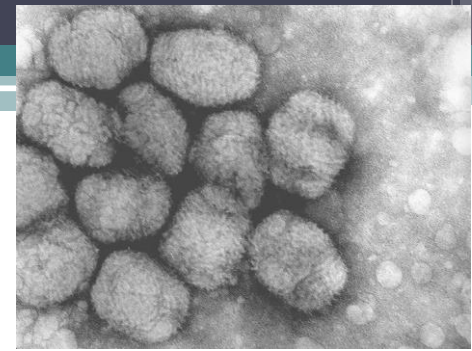


- **Common warts:**
  - Papules or nodules with a hyperkeratotic surface, often at sites of trauma e.g. fingers, elbows or knees.
  - Warts may coalesce into a plaque (mosaic warts).
  - Warts may be filiform (tiny frond-like projections) often around mouth. Subungual warts lift the nail plate from nail bed.
- **Plane (flat) warts:**
  - Flat-topped skin-coloured papules that are more apparent to the patient than the observer. (Side-lighting accentuates signs).
  - Plane warts are common on the face or other light exposed sites.
    - Common and plane warts may appear in lines where the skin has been scratched.
- **Deep plantar warts:**
  - These are most frequent on weight-bearing skin and may simulate corns
- **Anogenital warts:**
  - Perianal warts may be transmitted sexually or by autoinnoculation of cutaneous warts.
  - Genital infection manifests as a warty lesion on the genital or anal area, although these warts are often not initially recognized.
  - Cervical infection generally goes unnoticed and is discovered during cervical examination or Pap testing.

# Treatment

- Most viral warts eventually disappear without treatment, but resolution may take time particularly in immunosuppressed or atopic patients.
- Immunostimulatory drugs such as oral retinoids or cimetidine have been advocated for widespread warts in adults (results varied).
- Anogenital warts: refer adults to a GU physician for screening for other STDs.
  - **Prevention:**
    - Women should have regular cervical smears.
    - **Immunisation with HPV vaccines:** Gardasil or Cervarix (FDA approved)
      - Routine vaccination of females aged 11-12 years of age with 3 doses of either HPV2 or HPV4
      - Routine vaccination with HPV4 for boys aged 11-12 years of age, as well as males aged 13-21 years of age who have not been vaccinated previously
      - Vaccination with HPV4 in males aged 9-26 years of age for prevention of genital warts; routine use not recommended

# Pox Virus



- Is a dsDNA virus that can infect both humans and animals
- Virus replicates in cytoplasm
- 4 types of pox viruses may infect humans:
  - Orthopox, parapox, yatapox, molluscipox.
  - **Orthopox:** smallpox virus (variola), vaccinia virus, cowpox virus, monkeypox virus
  - **Parapox:** orf virus, pseudocowpox, bovine papular stomatitis virus
  - **Yatapox:** tanapox virus, yaba monkey tumor virus
  - **Molluscipox:** molluscum contagiosum virus (MCV)
- Pox viruses are usually spread by direct contact
  - In small pox - virus is found in lesions in URTI & can be transmitted to others in droplet secretions, and in skin lesions. Although the virus is considered to be highly contagious, this route of transmission makes its spread relatively slow

# Look for..

- Poxvirus infections cause either a localized or a generalized vesicular exanthem.
- Lesions of smallpox, vaccinia, monkeypox & cowpox evolve from a papule to a vesicle.
- The vesicles then form pustules, followed by scabbing and healing.
- The remaining viruses cause localized nodules at the site of inoculation.
- Individual viruses cause characteristic clinical syndromes.
  - With the exception of smallpox, regional lymphadenopathy is common.



# Treatment

- Smallpox infections have been eradicated worldwide.
  - Concern exists about reintroduction of smallpox through bioterrorism (!)
- Vaccinia vaccination only gives up to 10 yrs protection from small pox
  - Practice of vaccination with vaccinia virus began in the early 20th century.
  - Origins of vaccinia virus remain unknown, but this virus is distinct from both variola and cowpox (Jenner realised cowpox inferred immunity to smallpox hence vaccination).
- Curettage can be used to treat molluscum contagiosum but is usually ineffective in immunocompromised patients.
- Early recognition of poxvirus infection is essential to prevent inadvertent secondary spread.



THE END