Viral infections

Dermatology

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- Varicella zoster
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- Molluscum contagiosum
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- Wart virus
- Measles
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- Hand ,foot &mouth disease
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Introduction

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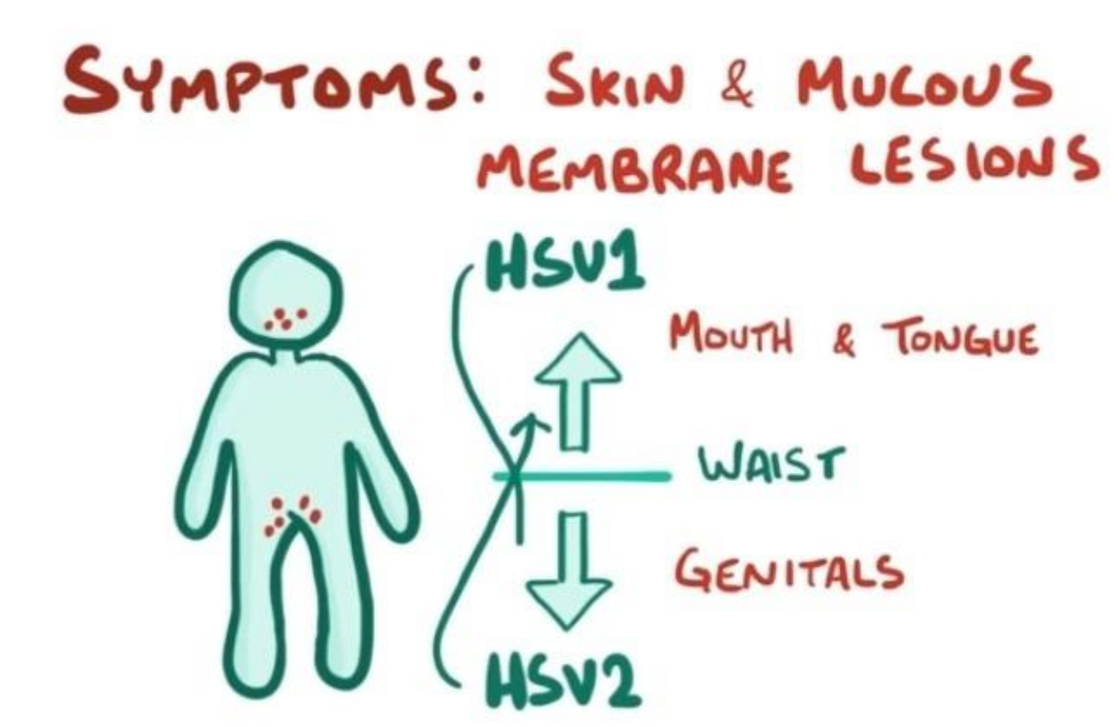
- Viruses are continuously ever-changing, either gradually acquiring minor mutations (Drift) or suddenly following major recombination of their genome (Shift).
- ◦ They are generally divided into:
- 1. RNA viruses: Unstable undergoing immense drift and shift usually causing
- systemic disease
- 2. DNA viruses: More stable, undergoing inoculation directly into the skin and replicate in epidermal cells

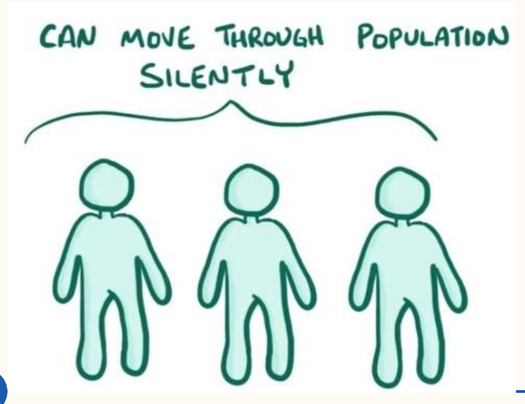
Herpes virus

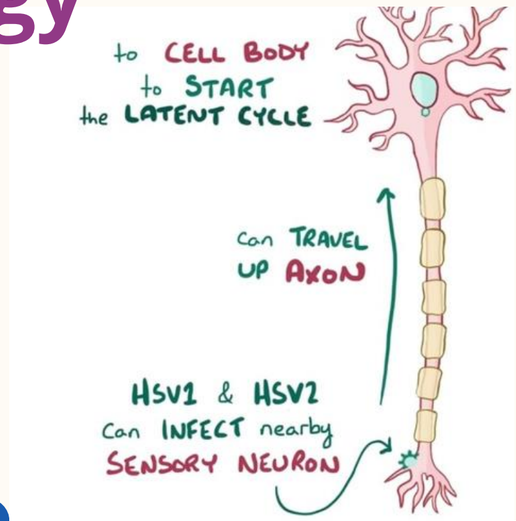


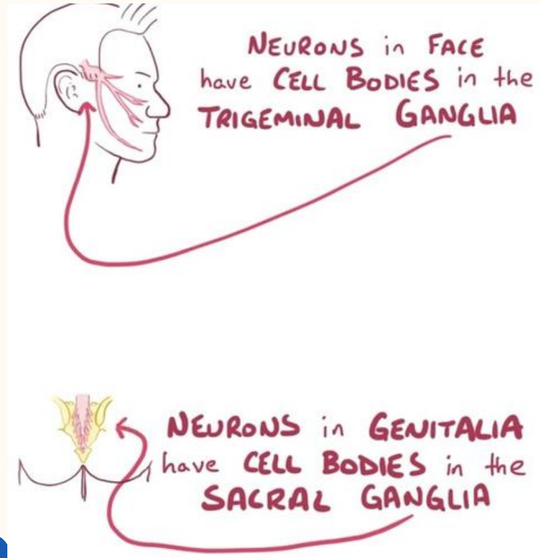
Herpes simplex virus

- HSV is spread by direct contact – ‘shedding’ from one host to another.
- ***Two viral subtypes exist*** :
- type I is associated mainly with facial lesions, although the fingers and genitals may be affected.
- Type II is associated almost entirely with genital infections. .

Pathophysiology







Inoculation

The virus enters the body through mucosal surfaces or small dermal lesions.

Neurovirulence

The virus invades, spreads, and replicates in nerve cells.

Latency

After primary infection, the virus remains dormant in the ganglion neurons
.Trigeminal ganglion: HSV-1
Sacral ganglion: HSV-2

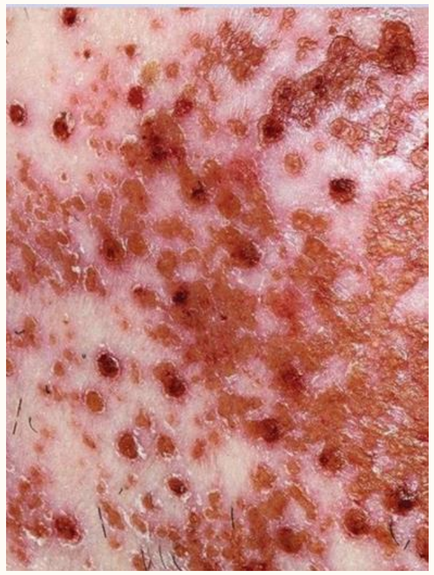
Reactivation

triggered by various factors (e.g., immunodeficiency, stress, trauma)

Clinical feature

Perioral lesion cold sore"

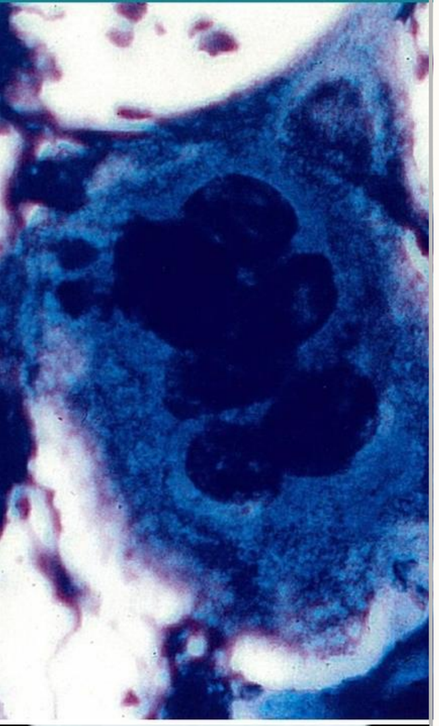
Herpetic whitlow



‘Eczema herpeticum’

Genital herpes

Herpes in pregnancy



Diagnosis

- **clinical diagnosis**
- **Light microscopic on Tzanck smear**
- **Viral culture**
- **PCR**

Management

- Topical aciclovir/penciclovir/idoxuridine cream can be used to treat mild labial herpes.
- Severe infections should be treated with oral acyclovir
- Secondary prophylaxis (suppressive therapy) for frequent reactivation can be given

Varicella Zoster

Pathophysiology

01 Primary infection (chickenpox):

respiratory transmission → VZV inoculates the lymphoid tissue of the nasopharynx and, subsequently, regional lymphoid tissue → viremia and chickenpox → recovery from chickenpox, but virus remains dormant in dorsal root ganglia

02 Reactivation (shingles)

VZV reactivated, often many years after the primary infection (e.g., especially in immunocompromised individuals) → virus replicates in the dorsal root ganglia → travels through peripheral sensory nerves to the skin → shingles

clinical feature

MAIN SYMPTOMS

dermatomal distribution, typically affecting 1–3 dermatomes on one side of the body.

PAIN

The most frequent symptom and may precede the rashUsually described as “burning”, “throbbing”, or “stabbing”.

VESICULAR LESIONS

Erythematous maculopapular rash that quickly evolves into vesicular lesions

- Vesicles are initially clear.
- Crusting and involution typically occurs between day 7 & 10.

Trigeminal shingles

➢the ophthalmic nerve (causing severe conjunctivitis)

➢the maxillary nerve (causing vesicles on the uvula or tonsils).
➢the mandibular nerve (causing vesicles on the floor of the mouth and on the tongue).

• Shingles affecting the facial nerve presents with lesions in the external auditory canal (Ramsay Hunt syndrome).

management

Patients ideally should receive **high-dose aciclovir** for 7 days within 72 hrs of the onset of the eruption.

◦ If the **eye** is affected or there is nerve compression, then **intravenous aciclovir** should be considered and patients may require systemic steroids to prevent nerve paralysis in severe cases.

◦ **Greasy emollient** should be applied to the affected skin regularly to prevent cracking and reduce pain as lesions heal.

◦ Occasionally, peripheral motor neuropathy can result and a proportion of patients develop severe chronic **post-herpetic neuralgia**. Rx by **gabapentin** or **carbamazepine**.

Pityriasis Rosea

• Pityriasis rosea (PR) triggered by an upper respiratory tract infection with **human herpes virus type 6 or 7**.

• PR classically presents with an initial single annular erythematous patch with a collarette of scale – the "**herald patch."**

◦ The rest of the rash consists of multiple smaller scaly patches on the trunk, upper arms and thighs (**old-fashioned bathing suit distribution).**

◦ On the back, the lesions may follow the angle of the ribs in a '**Christmas tree pattern**'.

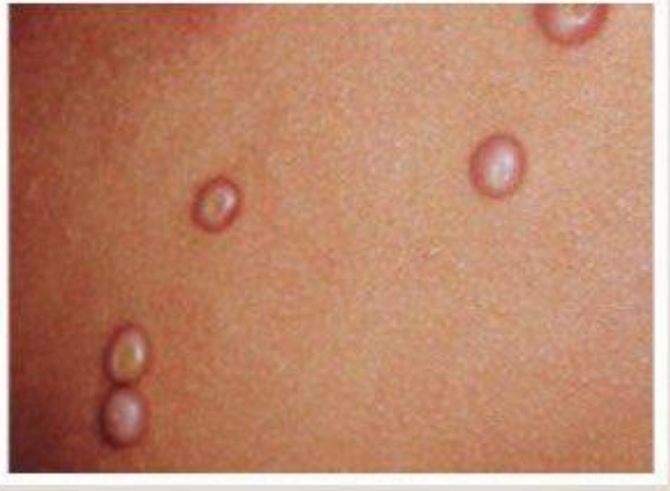
◦ The rash **settles spontaneously** over about 4–6 weeks, but a mild *topical steroid* and *emollient* can be given if the rash is pruritic or inflammatory.

Poxviruses

- Pox viruses are large DNA viruses, with a predilection for the epidermis.
- Variola (smallpox), once a disease with high mortality, has been eliminated (last reported case of smallpox occurred in Somalia in 1977).
- Molluscum Contagiosum and Orf are also pox viruses.

Molluscum Contagiosum

- Caused by Molluscum Contagiosum virus.
- The incubation period is variable between 14 days and 6 months.
- Resolving lesions may be surrounded by a small patch of inflammation.



Orf

- Orf is usually recognized in rural areas. It is seen mainly in early spring as a result of **contact with infected lambs**.

- The incubation period is a few days and the lesions last 2–3 weeks.

Management

➢Molluscum Contagiosum:

- Most lesions will **resolve spontaneously**, leaving no marks on the skin. Therefore, painful and scarring treatments should be avoided if possible.
- Topical hydrogen peroxide (Crystacide) and **cryotherapy** can be used to cause local inflammation and speed up resolution in non-cosmetically vulnerable sites.

➢Orf:

- Reports describe successful treatment with **cryotherapy**, electrocautery and curettage.

Wart Viruses

- More than 100 different subtypes of HPV have currently been identified.

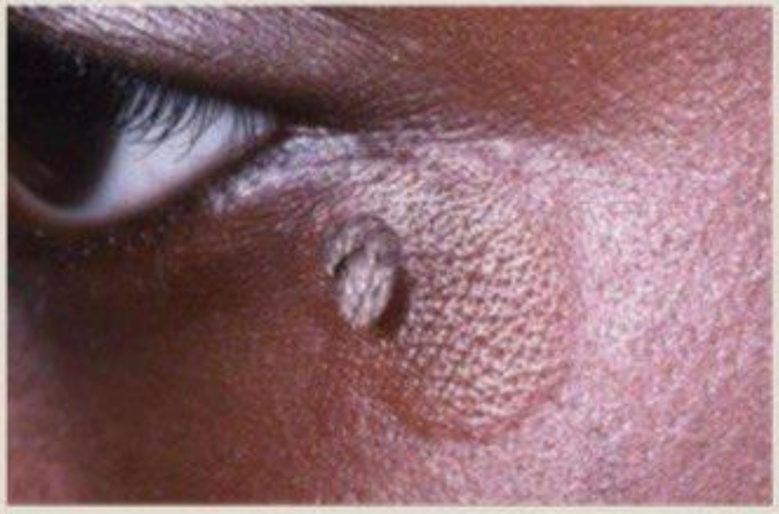
- Warts are classified as:
  1. ano-genital/mucosal
  2. non-genital cutaneous
  3. Epidermodysplasia verruciformis (EV)

Epidermodysplasia verruciformis (EV)
a.k.a Tree man syndrome

Mucosal warts

Wart Viruses

- HPV only infects humans and is spread by direct contact, usually through a small break in the skin/mucous membrane. Viral warts can have a varied clinical appearance from filiform to hyperkeratotic periungual.
- The basal keratinocytes become infected, causing epidermal hyperplasia seen clinically as an exophytic warty lesion. Plantar warts (verruca) form painful plaques (mosaic) containing black 'dots' that represent thrombosed capillaries.



Filiform HPV wart.

Periungual hyperkeratotic HPV warts.

Plantar warts
(verrucas).

Wart Viruses

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Viral Diseases with Rashes

- Measles
- Rubella
- Infectious mononucleosis
- Erythema infectiosum
- Roseola infantum
- Gianotti–Crosti syndrome
- Hand, foot, and mouth disease (Coxsackievirus A16 and Enterovirus 71)
- Primary HIV infection

Measles

- Measles usually affects children under the age of five years and is highly contagious. The incubation period is 7–14 days. Initially, Koplik's spots. appear on the oral mucosa and then within two days a macular rash appears, Papules form and combine and may be haemorrhagic or vesicular, which fade to leave brown patches. No specific treatment.

Koplick's spots in measles.

Rubella

- The incubation period is 14–21 days. First signs of the disease include erythema of the soft palate and lymphadenopathy. Later, pink macules appear on the face, spreading to trunk and limbs over one to two days. The rash clears over one to two days (occasionally no rash develops).

Erythema infectiosum

- Erythema infectiosum (fifth disease) is caused by parvovirus B19, which mainly affects children aged 2–10 years. The incubation period is 5–20 days. The disease manifests as a prodrome of mild fever before the onset of a hot erythematous eruption on the cheeks – hence the 'slapped cheek syndrome'. Over two to four days a maculopapular eruption develops on the limbs and trunk, which can extend to the hands, feet and mucous membranes, and then fades over one to two weeks.

Hand, foot, and mouth disease

- Hand, foot, and mouth disease (HFMD), as the name suggests, is an infection causing lesions on the hands/feet and in the mouth. It is most commonly associated with Coxsackievirus A16 and Enterovirus 71 and affects mainly children. The virus is highly contagious with a short incubation period of three to six days. The characteristic rash consists of intense erythema surrounding yellow-grey vesicles 1–1.5 mm in diameter on palms/soles and lips. Treatment is supportive care. The rash and symptoms usually settle rapidly over four to six days

Q&A Session

Thank you for listening!