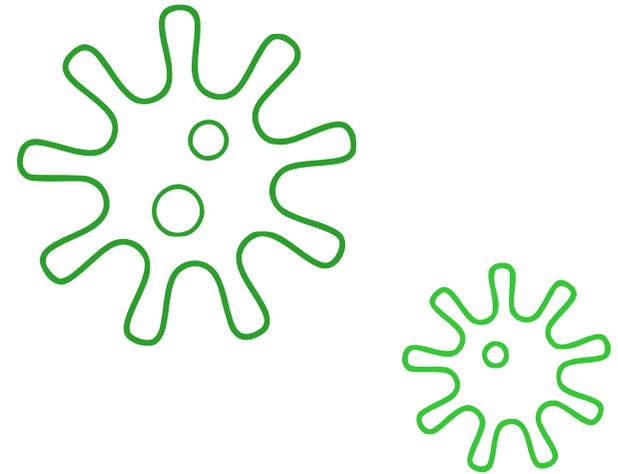


COMMON VIRAL INFECTIONS

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COMMON CUTANEOUS VIRAL DISEASES

1. Herpes simplex
2. Warts
3. Herpes zoster
4. Orf
5. Molluscum contagiosum
6. Hand foot mouth disease



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Herpes simplex

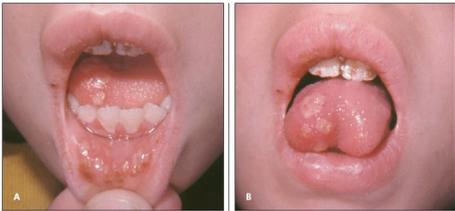
- Herpes simplex is a common viral infection that presents with **localized blistering** (small vesicles)
- Herpes simplex is commonly referred to as **cold sores** or fever blisters, as recurrences are often triggered by a febrile illness, such as a cold.
- Herpes simplex is caused by one of **two types** of herpes simplex virus (HSV)
- members of **double stranded DNA viruses**
- **Type 1 HSV** is mainly associated with **oral and facial infections**
- **Type 2 HSV** is mainly associated with **genital and rectal infections** (anogenital herpes)
- **Primary lesion is small vesicles**



However, either virus can affect almost any area of skin or mucous membrane.



After the primary episode of infection, HSV resides in a latent state in spinal dorsal root nerves that supply sensation to the skin. During a recurrence, the virus follows the nerves onto the skin or mucous membranes, where it multiplies, causing the clinical lesion. After each attack and lifelong, it enters the resting state.

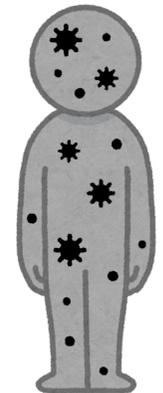


Both type 1+2 have primary and recurrent episode ...after the primary infection the virus become dormant in the latent phase in spinal dorsal root ganglion.... Its reactivated by (cold , stress, certain drug)

During an attack, the virus can be inoculated into new sites of skin, which can then develop blisters as well as the original site of infection (direct inoculation) _____ (herpetic whitlow)

PRIMARY HERPES SIMPLEX

- Primary attacks of **Type 1** HSV infections occur mainly in **infants and young children**.
- In **crowded, underdeveloped areas of the world**, nearly all children have been infected by the age of 5. In less crowded places, the incidence is lower
- **Type 2** HSV infections occur mainly **after puberty** and are often transmitted sexually. One of the **STDs**
- HSV is transmitted by **contact** with someone with active herpes simplex, which is **infectious for 7–12 days**.
- Asymptomatic shedding of the virus in saliva or genital secretions can also lead to transmission of HSV, but this is infrequent, as the amount shed from inactive lesions is 100 to 1000 times less than when it is active.
- **Primary attack** of HSV1 usually asymptomatic but in **secondary attack** its symptomatic preceded by tingling and burning



PRIMARY HERPES SIMPLEX

Primary infection with HSV can be mild or subclinical, but symptomatic infection tends to be more severe than recurrences.

The fever subsides after 3-5 days and recovery is usually complete within 2 weeks.

Primary Type 1 HSV most often presents as gingivostomatitis

in children between 1 and 5 years of age.

Symptoms :

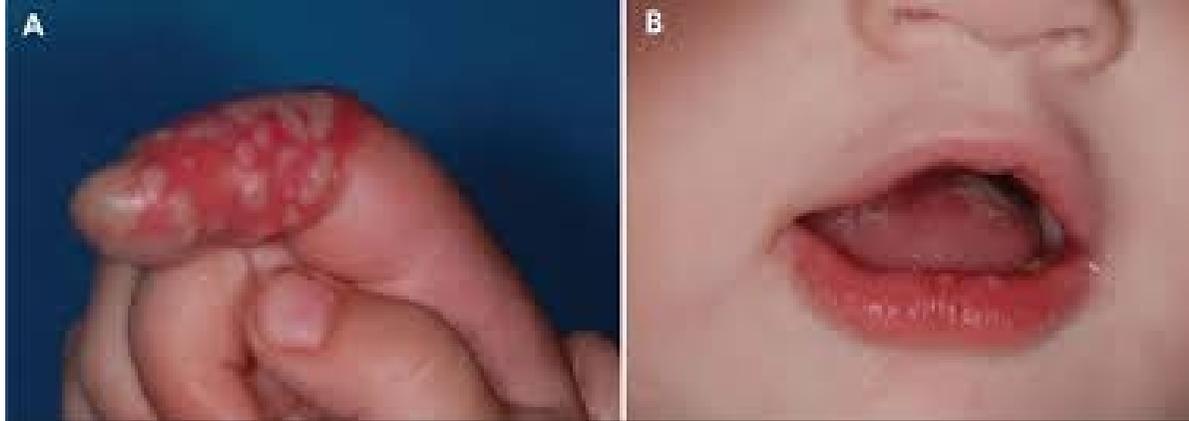


1. include fever, which may be high
2. restlessness and excessive dribbling.
3. Drinking and eating are painful, and the breath is foul.
4. The gums are swollen and red and bleed easily.
5. Whitish vesicles evolve to yellowish ulcers on the tongue, throat, palate and inside the cheeks.
6. Local lymph glands are enlarged and tender.

Minor injury helps inoculate HSV into the skin.

For example:

- A thumbsucker may transmit the virus from their mouth to their thumb.
- A health-care worker may develop herpetic whitlow (paronychia)

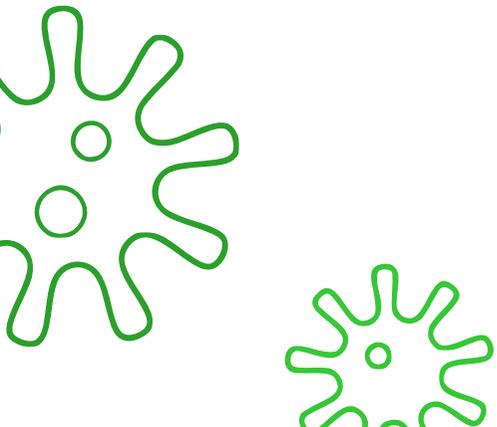


Primary Type 2 HSV usually presents as genital herpes after the onset of sexual activity. Painful vesicles, ulcers, redness and swelling last for 2 to 3 weeks, if untreated, and are often accompanied by fever and tender inguinal lymphadenopathy.

In males, herpes most often affects the glans, foreskin and shaft of the penis.

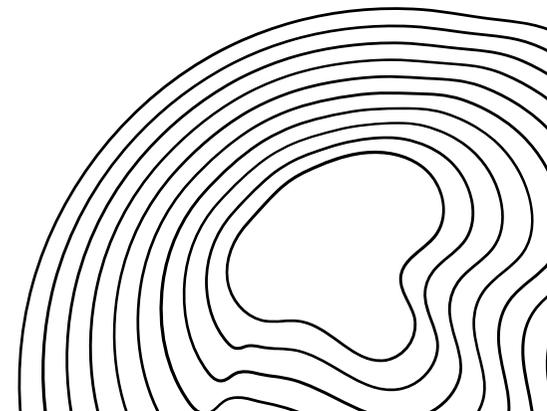
In females, herpes most often arises on the vulva and in the vagina. It is often painful or difficult to pass urine.

Type 2 HSV is more often symptomatic than Type 1 HSV



RECURRENT HERPES SIMPLEX

- After the initial infection, whether symptomatic or not, there may be no further clinical manifestations throughout life
- Where viral immunity is insufficient, recurrent infections are common, **particularly with Type 2 genital herpes**



RECURRENT HERPES SIMPLEX

Recurrences can be triggered by :

- 1- Minor **trauma**, surgery or procedures to the affected area
- 2- **Upper respiratory tract infections**
- 3- **Sun** exposure
- 4- **Hormonal** factors (in women, flares are not uncommon prior to menstruation)
- 5- **Emotional** stress
- 6- In many cases, **no reason** for the eruption is evident.



RECURRENT HERPES SIMPLEX

- The **vesicles** tend to be **smaller** and more closely **grouped** in recurrent herpes, compared to primary herpes. They usually return to roughly the same site as the primary infection

Recurrent Type 1 HSV

- can occur on any site, most frequently the **face**, particularly the **lips** (herpes simplex labialis)
- **Itching or burning** is followed an hour or two later by an irregular cluster of small, closely grouped, often **umbilicated vesicles on a red base**.
- They normally **heal in 7–10 days without scarring**. The affected person may feel well or suffer from fever, pain and have enlarged local lymph nodes.



Recurrent Type 2 HSV

- may also occur on any site, but most often affects the **genitals or buttocks**
- **White patches or scars** may occur at the site of recurrent HSV attacks and are more evident in those with the skin of colour



Herpes simplex



Herpes in a netball player



First episode of herpes



Herpetic whitlow



Herpes simplex paronychia



Scarring and blistering on buttock

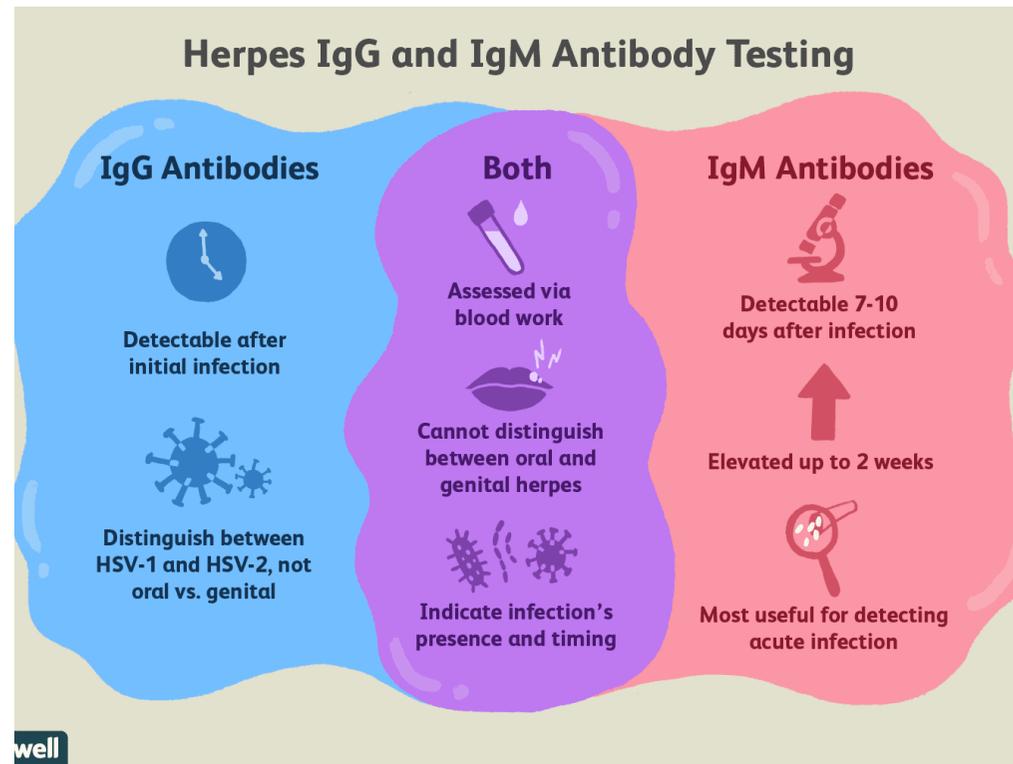


Cluster of vesicles due to HSV2

↑
Secondary bacterial infection (impetiginization)

HOW IS HERPES SIMPLEX DIAGNOSED?

- If there is clinical doubt, HSV can be confirmed by culture or PCR of a viral swab taken from fresh vesicles.
- HSV serology is not very informative, as it's positive in most individuals and thus not specific for the lesion with which they present.



Complications:

- **Eye infection**
- **Throat infection**
- **Eczema herpeticum** (In patients with a **history of atopic dermatitis**, HSV may result in severe and widespread infection, known as eczema herpeticum. Numerous blisters erupt on the face or elsewhere, associated with swollen lymph glands and fever).
- **Erythema multiforme** The rash of erythema multiforme appears as **symmetrical plaques on hands, forearms, feet and lower legs**. It is characterized by **target lesions**, which sometimes have central blisters. Mucosal lesions may be observed).
- **Nervous system** (**Cranial/facial nerves may be infected** by HSV, producing **temporary paralysis** of the affected muscles. Rarely, **neuralgic pain** may precede each recurrence of herpes by 1 or 2 days (Maurice syndrome). Meningitis is rare).
- **Widespread infection** (immune deficient patients)





Complications of herpes simplex infection



Dendritic ulcer



Eczema herpeticum



Erythema multiforme

- **Treatment :**

- **Mild, uncomplicated** eruptions of herpes simplex require **no treatment**.

- **Severe** infection may require treatment with an **antiviral agent**.

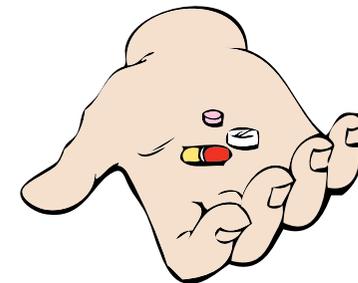
- Antiviral drugs used for herpes simplex and their usual doses are:

1. **Aciclovir** – 200 mg 5 times daily for five days

2. **Valaciclovir** – 1 g 3 times daily for seven days (500mg 3 times/day for seven days)

- **Topical aciclovir** may shorten attacks of recurrent herpes simplex, provided the cream is started early enough.

- Antibiotic coverage is given if the patient is at risk for secondary bacterial infection





- **Prevention :**
- As sun exposure often triggers facial herpes simplex, **sun protection** and other measures are important.
- **Antiviral drugs** will stop HSV multiplying once it reaches the skin or mucous membranes but **cannot eradicate the virus from its resting stage within the nerve cells.**
- They can, therefore, shorten and prevent attacks but a single course cannot prevent future attacks. Repeated courses may be prescribed, or the medication may be taken continuously to prevent frequent attacks.

Human papillomaviruses (HPV) → warts

- DNA viruses
- Many types (> 80 types)
- Located in epidermal cell nucleus
- Induce keratinocyte proliferation

*Koebner phenomenon

HPV

Human papillomavirus

Flat warts



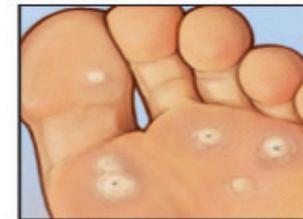
Common warts



Genital warts



Plantar warts



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❖ What is the causative agent of

- **Warts:** HPV 1-4 infection of keratinocytes
- **Condyloma acuminata:** HPV6; HPV11
- **CIN, Cervical Carcinoma and penis SCC:** HPV 16, 18, 31, 33 (high risk HF)

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

HPV subtypes 6 and 11 are responsible for the majority of genital warts and subtypes 16/18 with the development of cervical/ anal/vulval/vaginal/oral carcinomas.

This discovery led to the production of two vaccines against HPV (Cervarix against 16, 18 and Gardasil against 6, 11, 16, 18) which are administered in three Doses.

It is thought, however, that HPV infection alone does not cause malignant transformation and identified cofactors include smoking, UV light, folate deficiency and immunosuppression.

Vaccinated women should still have regular cervical smears (PAP smear).

- **HPV only infects humans and is spread by :**

direct contact, usually through a small break in the skin/mucous membrane.

A range of types of wart have been identified. These include:

- Common wart (verruca vulgaris),

1. roughened surface, most common on hands, but can grow anywhere on the body.



a raised wart with



2. Flatwart (verruca plana), a small, smooth flattened wart,

flesh-coloured, which can occur in large numbers; most common on the face, neck, hands, wrists and knees.

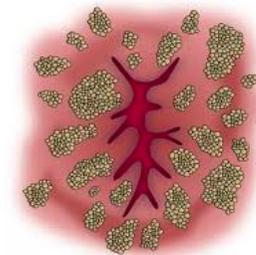
The only type that may resolve spontaneously



3. Filiform or digitate wart, a thread- or finger-like wart, most common on the face, especially near the eyelids and lips.



4. Genital wart (venereal wart, condyloma acuminatum, verruca acuminata), a wart that occurs on the genitalia.



5. Periungual wart, a cauliflower-like cluster of warts that occurs around the nails.



6. Plantar wart (verruca, verruca plantaris), a hard, sometimes painful lump, often with multiple black specks in the center; usually only found on pressure points on the soles of the feet.



7. Mosaic wart, a group of tightly clustered plantar-type warts, commonly on the hands or soles of the feet.



Wart

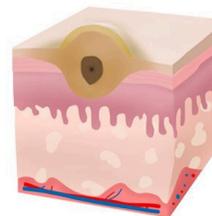
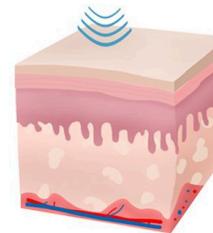
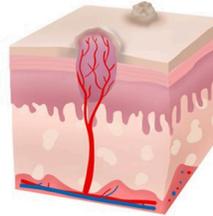
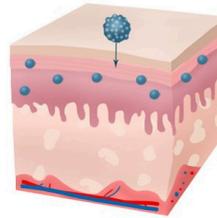


Corn



Warts

- Generally cauliflower in appearance
- Blackened centre
- Interrupted skin lines
- Sore when squeezed from the sides
- Not specific to pressure areas



Corns

- Sore on direct/downward pressure
- Skin lines run straight through the corn
- Common on high pressure areas



HPV can remain viable in the environment at low temperatures for prolonged periods. The basal keratinocytes become infected, causing epidermal hyperplasia seen clinically as an exophytic warty lesion.

Plantar warts (verrucae) form painful plaques (mosaic) containing black 'dots' that represent thrombosed capillaries.

Cutaneous HPV lesions can undergo malignant transformation, particularly in individuals who are immunosuppressed by HIV or medication.

Acitretin is given to some transplant recipients to try to reduce the rate of cutaneous malignant transformation.

Warts commonly occur in childhood and usually resolve spontaneously.

There are however numerous treatment options available (indicating that not all warts respond to a particular treatment).

Warts are generally slow to clear but studies show 70% will resolve following 4 months of salicylic acid applied once daily.

1)Salicylic acids

No antiviral treatment
Treatment depends on peeling
Never ever treat it surgically

2) Liquid nitrogen

applied with cotton wool or discharged from a special spray with a focused nozzle.
Freezing is continued until a rim of frozen tissue forms around the wart, this is then
ineffective but has to be stored in special containers and replaced frequently. It can be
repeated three times with thawing in-between cycles. Cryotherapy is accompanied by a
burning sensation or pain and is not usually tolerated in young children. Subsequent
pigment changes, blistering and even scarring may occur.



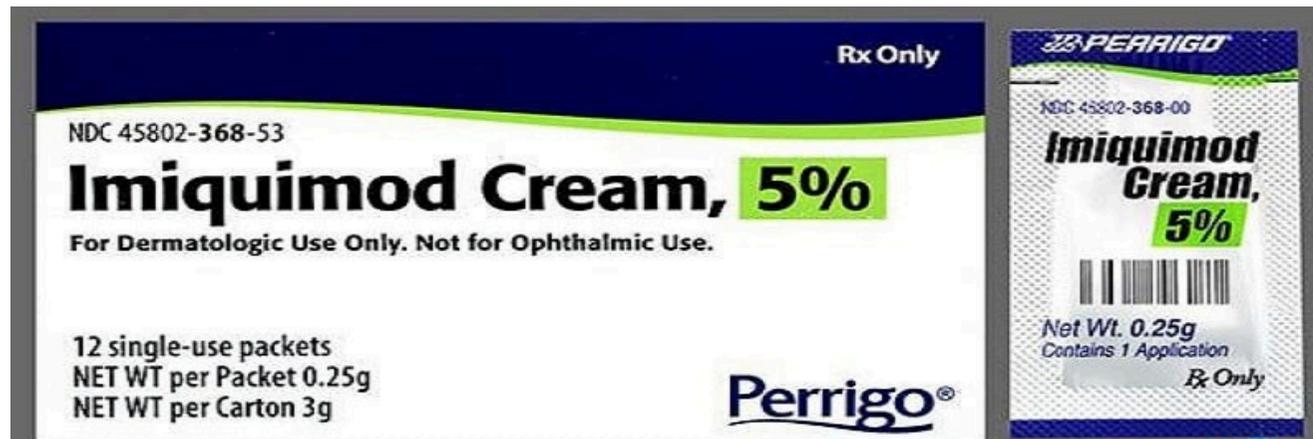
Curettage and cautery

for very large wart under local anaesthetics often used
to debulk the lesions prior to other measures.



Immune response modifier Imiquimod [®]5%

- cream is licensed for the treatment of genital warts.
- It stimulates cytokine production at the site of application, which is carried out three times per week.
- Treatment should continue until the warts resolve or up to a maximum of 16 weeks.
- Local irritation and inflammation can be severe, especially on mucosal surfaces. Imiquimod 5% can also be used to treat cutaneous warts but daily application is usually required under occlusion to aid penetration and efficacy.



VARICELLA ZOSTER VIRUS

(CHICKEN POX IS REACTIVATED AS VARICELLA ZOSTER)

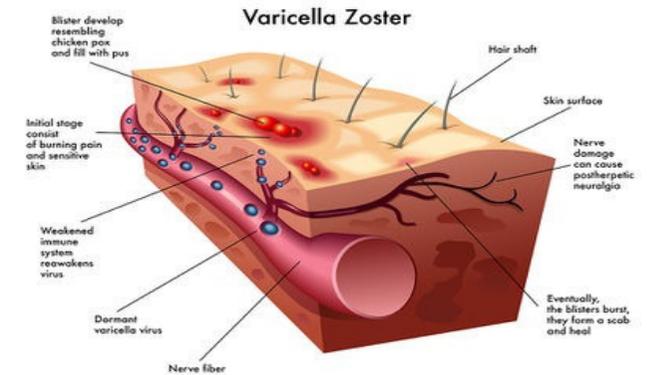
which is characterized by : a prodromal illness for about 2 days followed by crops of papular-vesicular lesions that eventually crust over and heal. Subsequently shingles (reactivation) may occur as the virus remains latent in the sensory nerve ganglia



■ _____

■ **The thoracic nerves are most commonly affected.**





In shingles, pain, fever and malaise may precede the rash which is characterized usually by its dermatomal distribution, however, adjacent dermatomes may be affected.

Erythematous papules usually precede vesicles which develop over several days, crusting as they resolve, often with secondary bacterial colonization.

Occasionally, peripheral motor neuropathy can result and a proportion of patients develop severe chronic postherpetic neuralgia.

Skin lesions of shingles and nasopharyngeal secretions can transmit chicken pox to susceptible individuals.

➤ Trigeminal shingles may affect.

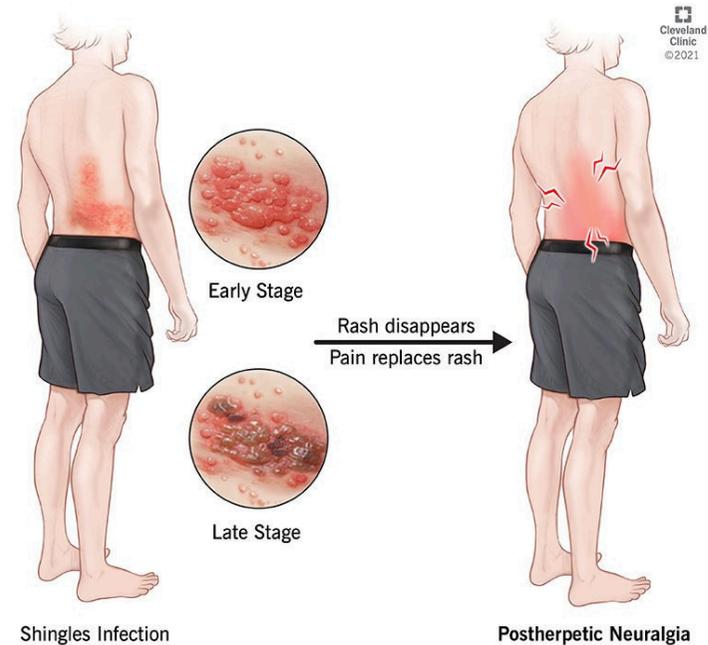
1. The ophthalmic nerve (causing severe conjunctivitis).
 2. The maxillary nerve (causing vesicles on the uvula or tonsils).
 3. The mandibular nerve (causing vesicles on the floor of the mouth and on the tongue).
- Shingles affecting the facial nerve presents with lesions in the external auditory canal (**Ramsay Hunt syndrome**).
- Disseminated shingles may present with widespread cutaneous and visceral lesions.
- In the context of HIV, shingles lesions may be multi-dermatomal, extensive and haemorrhagic.



Treatment :

- Patients ideally should receive **high-dose aciclovir** (800mg five times daily for 7 days) within 72 h of the onset of the eruption.
- **Valaciclovir** : 1g 3 times/day for 5 days
- **If the eye is affected or there is nerve compression:**
 - then intravenous aciclovir (5mg/kg every 8h for 5 days) should be considered and patients may require systemic steroids (prednisolone 40–60mg daily) to prevent nerve paralysis in severe cases.

- Post-herpetic neuralgia may respond to gabapentin or carbamazepine.
- Preliminary studies using a topical 8% capsaicin patch applied for 1 h reduced pain by >30% in 40% of shingles patients for up to 8 weeks.



MOLLUSCUM CONTAGIOSUM



The commonest poxvirus skin infection is usually acquired in childhood.

It is highly contagious and is spread by direct contact often within families or schools.

The incubation period is variable, between 14 days and 6 months.

In adults florid molluscum may be an indication of underlying immunodeficiency such as HIV.

- **Flesh-coloured, umbilicated papules are characteristic.**



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Shiny pearly centrally umbilicated papules if very large called giant molluscus

- **Large solitary lesions (giant molluscum) and infected lesions may look atypical.**
- **Resolving lesions may be surrounded by a small patch of inflammation; this is usually a sign that the lesions may soon resolve because of activation of the immune system.**



Treatment :

- cryotherapy can be used to cause local inflammation and speed up resolution in non-cosmetically vulnerable sites.
- Daily 5% imiquimod cream can be used in immunocompromised patients not responding to destructive methods.



ORF



- **Orf is a zoonotic viral skin infection that is contracted from sheep and goats.**
- **It is caused by the parapox virus, a**
large DNA virus that replicates
in cellular cytoplasm.

- Orf mainly infects young lambs and goats who contract the infection from one another or possibly from persistence of the virus in the pastures or sheds.
- **The disease lasts about six weeks. It is highly contagious,** so several animals in the herd may be infected.

Human lesions are caused by direct inoculation of infected material, often through an existing scratch or cut.

Butchers, meat porters and housewives are sometimes infected from carcasses, especially sheep heads.

It is not usually transmitted from human to human, although this has been rarely reported.

Orf lesions are generally solitary or few in number.

They occur most commonly on the fingers, hands or forearms but can appear on the face.

After an incubation period of 5–6 day:

a small, firm, red or reddish-blue lump enlarges to form a flat-topped, blood-tinged pustule or blister.

The fully developed lesion is usually 2–3 cm in diameter but may be as large as 5 cm. Characteristically, although there appears to be pus under the white skin, incising this will reveal firm, red tissue underneath. The orf lesion is sometimes irritable during the early stages and is often tender.

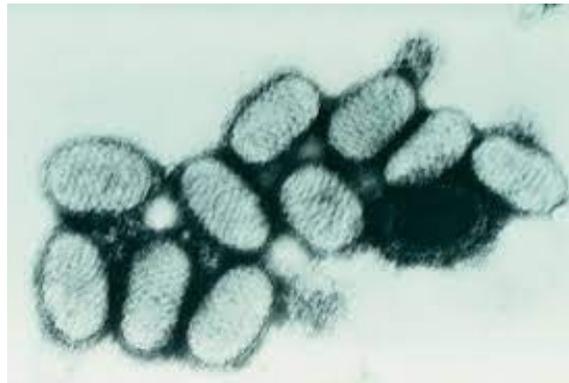


- Secondary bacterial infection can occur.
- Erythema multiforme, a secondary rash to the presence of the orf virus, may develop 10–14 days after the onset of orf.
- lymph glands on the inner side of the elbow and/or under the arm (lymphadenopathy) are not uncommon.
 - Red streaks up the lymph channels (lymphangitis) with enlargement of the
 - There may be a mild fever.



Diagnosis:

- Orf is generally diagnosed clinically, in a person that has been handling sheep or goats.
- The infection can be confirmed on a viral swab, skin biopsy or vesicular fluid by polymerase chain reaction (PCR). It can also be identified by electron microscopy.



Treatment :

- No specific treatment is necessary in most cases, as orf usually clears up by itself in about 6 weeks.
- **Cryotherapy is effective treatment.**

HAND FOOT MOUTH DISEASE

- **Hand foot and mouth disease(HFM)** is a common mild and short-lasting viral infection most often affecting young children.
- **It is characterized by blisters on the hands, feet and in the mouth.**
- The infection may rarely affect adults.
- **Hand foot and mouth disease is also called enteroviral vesicular stomatitis**



Hand, Foot, and Mouth Disease

Hand foot and mouth disease



Vesicles on palm in hand foot and mouth disease



Blisters on foot, in hand foot and mouth disease



Oral hand foot and mouth

- **Hand foot and mouth disease is due to an enterovirus infection, usually Coxsackie virus (CV) A16.**
- **HFM most often infects children under the age of 10**, and most are under 5 years of age (95%). It can uncommonly affect adults and tends to be more severe in the elderly, immunocompromised, and pregnant women.
- Hand foot and mouth disease is very infectious, so several members of the family or a school class may be affected. Epidemics are most common during the late summer or autumn months.

- **Typical HFM causes:**



- Lesions on the dorsal and palmar surfaces of the hands and feet. The progression is from flat pink patches to
- small, elongated greyish blisters, and within a week, these peel off leaving no scars.
- Small vesicles and ulcers in and around the mouth, palate, and pharynx. These are sometimes painful, so the child eats little and frets.
- Red macules and papules on the buttocks and sometimes on the arms. Lesions can also occur on the genitalia.

Atypical hand foot and mouth disease results in more widespread rash.

■ Features may include:

- Red, crusted papules
- Noblisters or very large ones
- Targetoid lesions
- Involvement of unusual sites such as the ear
- In children with atopic dermatitis , lesions may select skin affected by eczema (eczema coxsackium).



Atypical hand foot and mouth disease



Enteroviral hand blisters



Enteroviral foot blisters



Severe enteroviral stomatitis

Diagnosis:

- The diagnosis is typically made clinically, due to the characteristic appearance of blisters in typical sites, ie, hands, feet, and mouth.
- **In ill children, blood tests may show:**
- (Raised white cell count, Atypical lymphocytes, Raised serum C-reactive protein (CRP), Positive serology for the causative virus, which may be isolated from swabs of vesicles, mucosal surfaces, or stool specimens, which confirms the infection but is rarely necessary).

Treatment :

Symptomatic

- - **Specific treatment is not often necessary.**
 - ✓ **The blisters should not be ruptured, to reduce contagion.**
 - ✓ **Maintain adequate fluid intake; if oral intake is poor due to painful erosions, intravenous fluids may be indicated.**
 - ✓ **Antiseptic mouthwashes , topical and oral analgesics help relieve pain due to oral ulcers.**
- **No vaccines or specific antiviral medications are available.**
- **Antibiotic only for secondary bacterial infection**

- **Complications are uncommon.**

Complication :

- **Dehydration due to inadequate fluid intake**
- **Fingernail and toenail changes are often noted about 2 months after CVA6 infection.**
 - **Transverse lines that slowly move outwards**
 - **Nail shedding (onychomadesis) about 2 months after the illness.**
 - **Eventually, the nails return to normal.**

