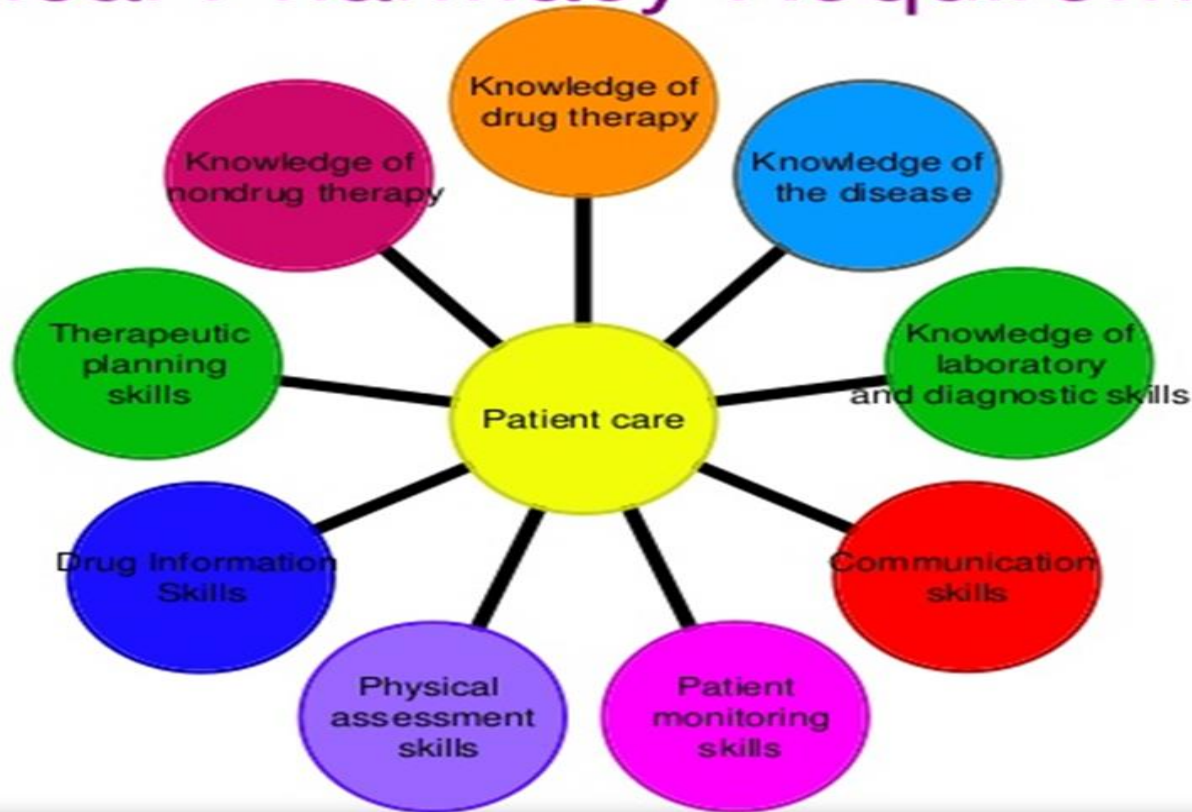


Lecture 2: Dermatology

Clinical Pharmacy Requirements



7-Leprosy

- It is bacterial infection caused by **mycobacterium leprae**.
- It is a disease of **peripheral nerves**, but it also affects the skin, and sometimes other tissues as the **eyes, the mucosa of the respiratory tract, the bones and the testes**.
- The incubation period is **lengthy (several years)** and it likely that most patients acquire the infection in **childhood**.

Leprosy (Hansen disease)

- The disease is acquired as a result of close prolonged contact with an infected person or **by coughing, sneezing.**
- The lesions are anesthetic, The peripheral nerves are thickened with loss of sensation.
- lack of ability to feel pain >>>>>> **loss of parts of extremities** due to repeated injuries or infection due to unnoticed wounds

Leprosy (hansen disease)

- **Sensory loss at the skin lesion** is important because this feature can help differentiate from other causes of skin lesions such as tinea
- **Early detection** of the disease is important, since physical and neurological damage may be irreversible even if cured
- Leprosy has been associated with **social stigma** for much of history, which is a barrier to self-reporting and early treatment

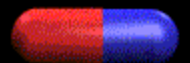
Leprosy (hansen disease)

- Types: determined by the host's cell-mediated immune response to the organism.
- **tuberculoid leprosy (paucibacillary)**
- **lepromatous leprosy (multibacillary)**

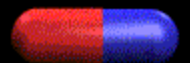
Tuberculoid Leprosy

- *When it's well-developed (high cell-mediated immunity)
- *one or more hypo pigmented skin macules (patch), with well defines raised border, the skin and peripheral nerves are affected.
- *Skin lesions are single or few in number (1-5).
- *Lepromin test is strongly positive.
- *Histology shows well-defined tuberculoid granulomas and bacilli are not seen on staining

Tubercloid leprosy



Tubercloid leprosy



lepromatous Leprosy

When the cell-mediated immune response to the bacilli is poor

*It involves not only the skin but also, **the eyes, the mucosa of the respiratory tract, the bones and the testes.**

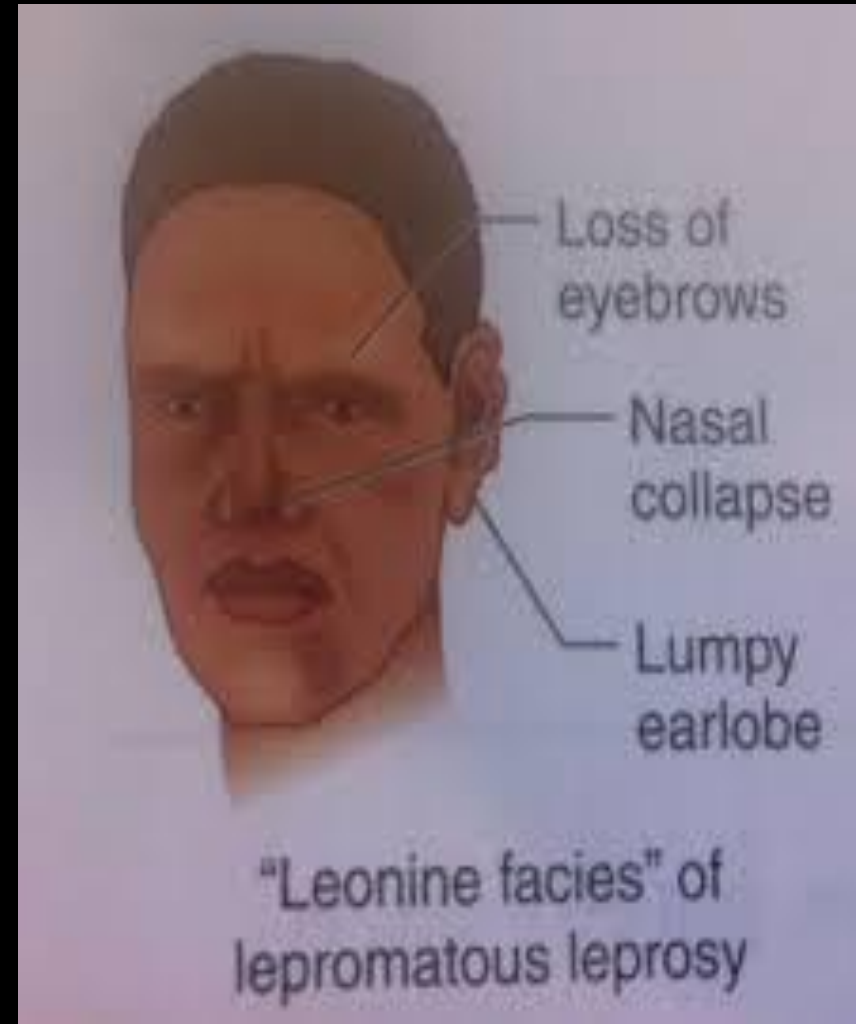
*The skin lesions are multiple and **nodular, plaques, thickened dermis symmetrically distributed.**

*If it is on the face, it give leonine face (characteristic features)

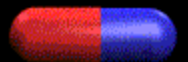
*Lepromin (inactivated bacillus injection) test is negative.

*Histology shows diffuse granulomas (collection of immune cell) and bacilli are present in large numbers.

leprosy



leprosy



Treatment (not OTC)

Multidrug therapy for 6-12 months:

- **- Dapsone 100 mg/day**

Dapsone is administered orally as a 100 mg tablet or alternatively as 25 mg tablets four times daily.

Side effects include: hepatitis and cholestatic jaundice

- **-Rifampicin 300 mg/day**

Side effects: hepatitis and enzyme inducer (metabolic interactions)
Taking rifampicin usually causes certain bodily fluids, such as **urine**, sweat, and tears, to become orange-red in color

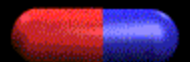
Relapse rates remain low, and no resistance to the combined drugs is seen

Prevention

The Bacillus Calmette–Guerin (BCG) vaccine offers a variable amount of protection against leprosy in addition to tuberculosis (main use)

No drug treatment for contacting persons due to resistance and side effects

leprosy





Viral skin infection

Herpes simplex infection

- There are two antigenic types:

Type 1 is mainly responsible for the common cold sore on the lips and face (discussed before).

Type 2 is associated with genital herpes but also may be HSV-1.

Genital herpes

-Herpes genitalis (or genital herpes) is a genital infection caused by the herpes simplex virus (HSV) mainly type 2.

Diagnosis depend on location and presentation confirmed by laboratory test (if no classical symptoms)

Site: Male: penis shaft.

Female: outer surface of vagina, Anus, vulva, cervix

-spread by sexual contact (common STD in western societies) not by objects such as toilet seats, and towels

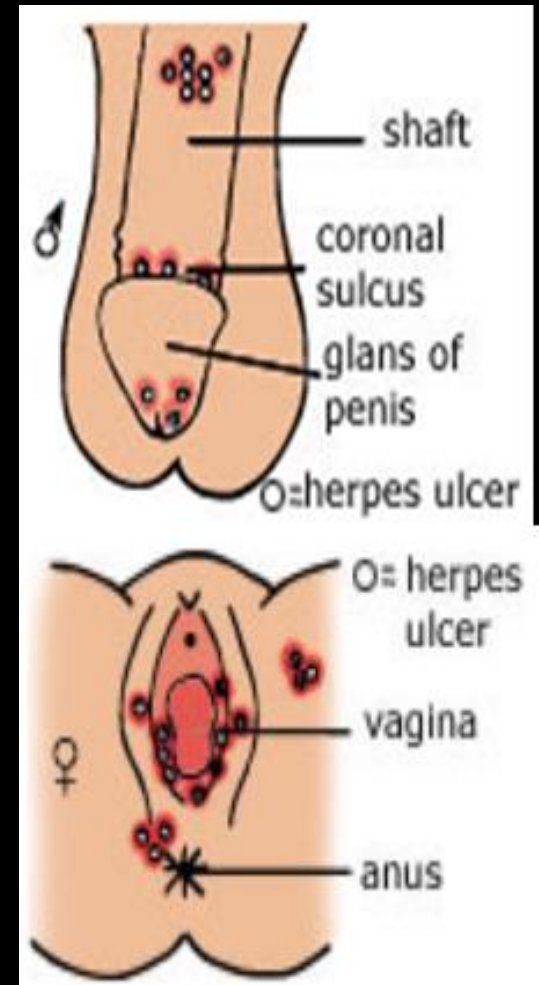
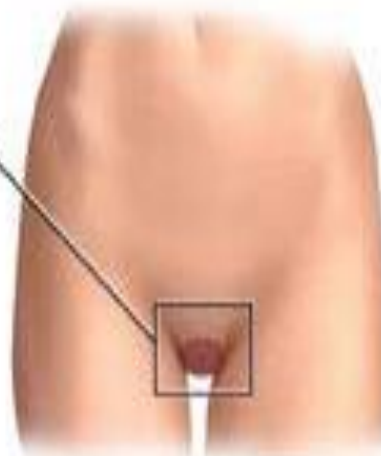
Diagnosis:

difficult to diagnose than oral herpes, since most HSV-2-infected persons have **no classical symptoms**. several other conditions resemble genital herpes.

Herpes genitals



Herpes lesion:
Found on shaft of penis (male),
vagina, vulva, cervix (female),
and around anus



Genital herpes

Symptoms: May be asymptomatic

When symptomatic, **Clusters of genital sores** consisting of inflamed **papules and blister** on the outer surface of the genitals, with **pain, itching, and burning**.

These usually appear **4–7 days after sexual exposure to HSV for the first time**.

The **glands in the groin** can become swollen and tender

Laboratory tests : **direct fluorescent antibody (DFA) studies** to detect virus, **polymerase chain reaction** to test for viral DNA.

Treatment (not OTC):

While there is no cure for herpes, over time symptoms are increasingly mild **disappear in 1-2 weeks**

some drugs that can shorten outbreaks. Among these drugs are **acyclovir (topical and systemic), valacyclovir and famciclovir (systemic).**

Acyclovir 400 mg PO three times daily for 7–10 days

or Acyclovir 200 mg PO five times daily for 7–10 days

Famciclovir 250 mg PO three times daily for 7–10 days

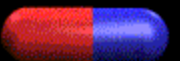
Valacyclovir 1 g PO twice daily for 7–10 days.

- Icepacks or hot compresses, warm baths can be soothing can help.
- Pain-killers such as aspirin or paracetamol give some relief.

Prevention & Recommendation

- Recurrences can be precipitated by **menstruation, skin irritation or emotional stress, masturbation.**
- **Avoid intercourse during an attack, because you are likely to transmit the infection to your partner**
- Rest and relax as much as possible
- Keep the sores dry, avoid rupture of blister
- **Wear loose clothes and cotton underwear. Avoid tight jeans.**
- Avoid emotional stress to prevent recurrence.

Famciclovir



2-Warts

- It is viral infection by HPV (human papilloma virus)
- This virus invades the epidermis layer of the skin stimulating cell division causing epidermal hyperplasia. This growth may be inwards (planter warts) or outwards (common warts)
- Warts cannot invade the intact skin, a break in epidermis should occur to allow viral entry
- Initial entry causes no symptoms. Warts have an incubation period of 1-10 months

2-Warts

- Warts may show **regression** spontaneously if left without treatment in 2 months (but risk of infection spread is larger)
- Warts can be transmitted from animal to man (**butchers warts**)
- Warts involve many types but the two most common types are plantar warts (*verrucae plantaris*) and common warts (*verrucae vulgaris*)

Do not treat warts on your face and genitals with wart paint without physician contact, because the skin on these areas is very sensitive.

1- plantar warts (inward growth)

25 % of wart cases

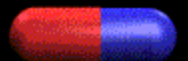
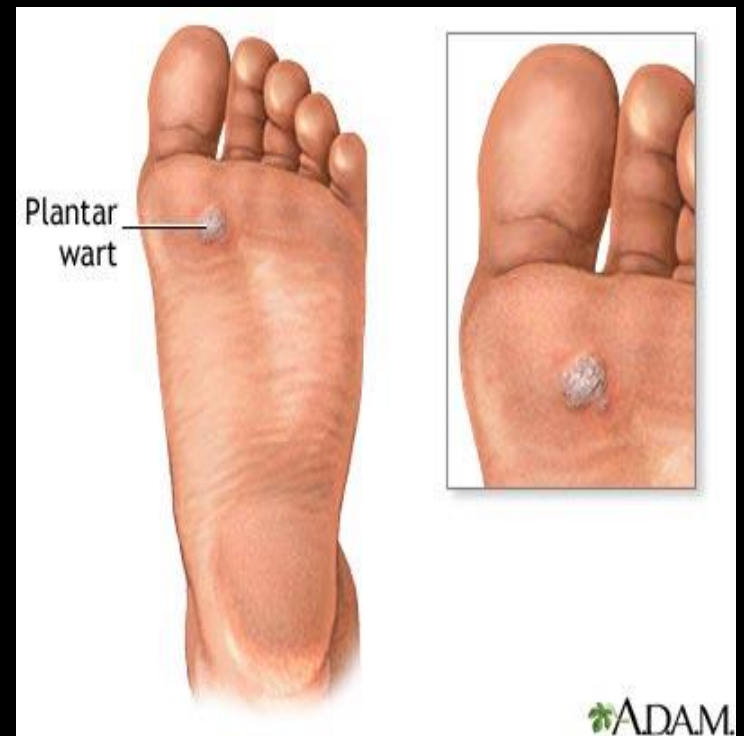
-Diagnosis depend on (location and presentation):

Presentation appear as **whitened oval or round lesion** on foot sole with **black dot in the center**(thrombosed capillaries). The lesion is surrounded by **thickened skin**

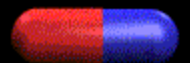
-it causes sever pain on walking (the main painful type of warts)

- When it is pared, **small bleeding points** are exposed

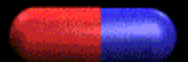
Plantar warts



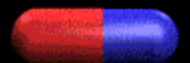
Plantar warts



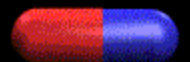
Plantar warts after starting treatment



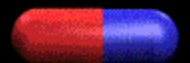
Plantar warts



Plantar warts



Plantar warts



Treatment (OTC)

Salicylic acid(SA)in concentration of (6%-30%) for about 3 . months (12 weeks). SA is a potent keratolytic remove epidermal cell infected with virus (even health skin can be removed)

Marketed as:

- plaster: replaced every two days for 12 weeks
- collodion formulation which contain ether that evaporates leaving SA

Other treatment option are Podophyllin 20-30% in collodion, surgical removal by cautery, cryotherapy and laser.

Cryosurgery: freezes the bumps with liquid nitrogen.

Curettage: use a curette to scrape the bumps from the skin.

Laser surgery: uses a laser to target and destroy the bumps.

Salicylic acid remarks

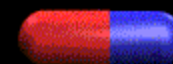
- Before starting SA, soak infected area in warm water for 5 min to hydrate skin then dry and apply SA. This will increase the SA activity
- Rub back the surface of the top of the wart **with a pumice stone** may be recommended before SA application.
- cover surrounded healthy skin with Vaseline to protect healthy skin
- do not use SA if the skin is irritated or inflamed , treat inflammation first then use SA.
- avoid use SA in diabetic patient without physician supervision as diabetes delays awareness of skin breakdown & sepsis.

Preventive measures

- never share foot wear with infected people
- never scratch or cut warts to avoid infection spread
- keep warts dry (cover lesion on taking shower) as moist environment soften epidermis and help virus spread
- treatment course is 12 weeks unless refer to physician



Warts treatment



2- Callus and corn

-callus are **toughened area** of skin which has become relatively **thick and hard**.

they are excessive growth of the upper keratinized layer from **pressure and frictions against foot bone** on walking specially the fifth toe

A corn (or clavus, plural clavi) is a round-shaped callus of dead skin that usually occurs over the toes

-Not caused by infection but mainly from **uncomfortable shoes causing constant pressure**.

Treatment (OTC)

Corns and calluses are easier to prevent than to treat.

-Also treated by salicylic acid

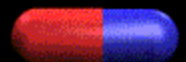
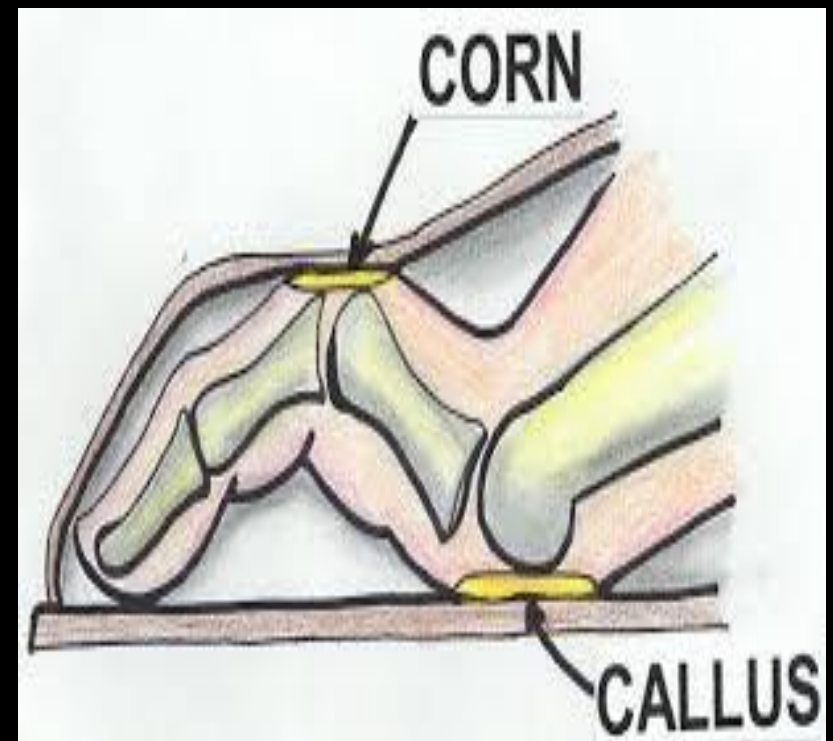
Prevention:

*Patients should never attempt to lower callus with blades or files as can cause infection & hemorrhage.

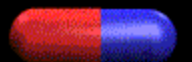
*wearing comfortable shoes (Footwear should be properly fitted)

***sanded down with a pumice stone**

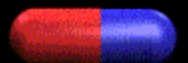
Corns and callus presentation



Callus and corn



Callus and corn



(cracked foot) Dry Foot

Skin condition due to loss of moisture from foot usually in the **back of foot sole**.

Diagnosis depend on location and presentation

Symptoms: **Itchiness, Redness, Cracks in the feet (fissures), Rough skin, Flaky skin, Peeling skin**

Precipitating factors:

- Excessively hot showers
- Soaps that are non-moisturizing
- Cold weather
- Low humidity levels in home (dry areas)

Mild Dry Foot



Severe Dry Foot



Treatment (OTC) & prevention

Use moisturizing medical soap

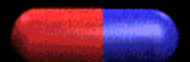
use moisturizing cream or lotion on your legs and feet every day (ex panthanol, carbamide, vaseline)

Soak your feet in **lemon juice** for approximately 10 min.
Lemon juice dissolve dead and dry skin for easy removal.

avoiding scratching the skin to avoid bleeding

Avoid hot bathing, dry cold climate

Dry Foot



1- common warts (outward growth)

70% of cases

Diagnosis depend on location and presentation:

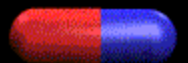
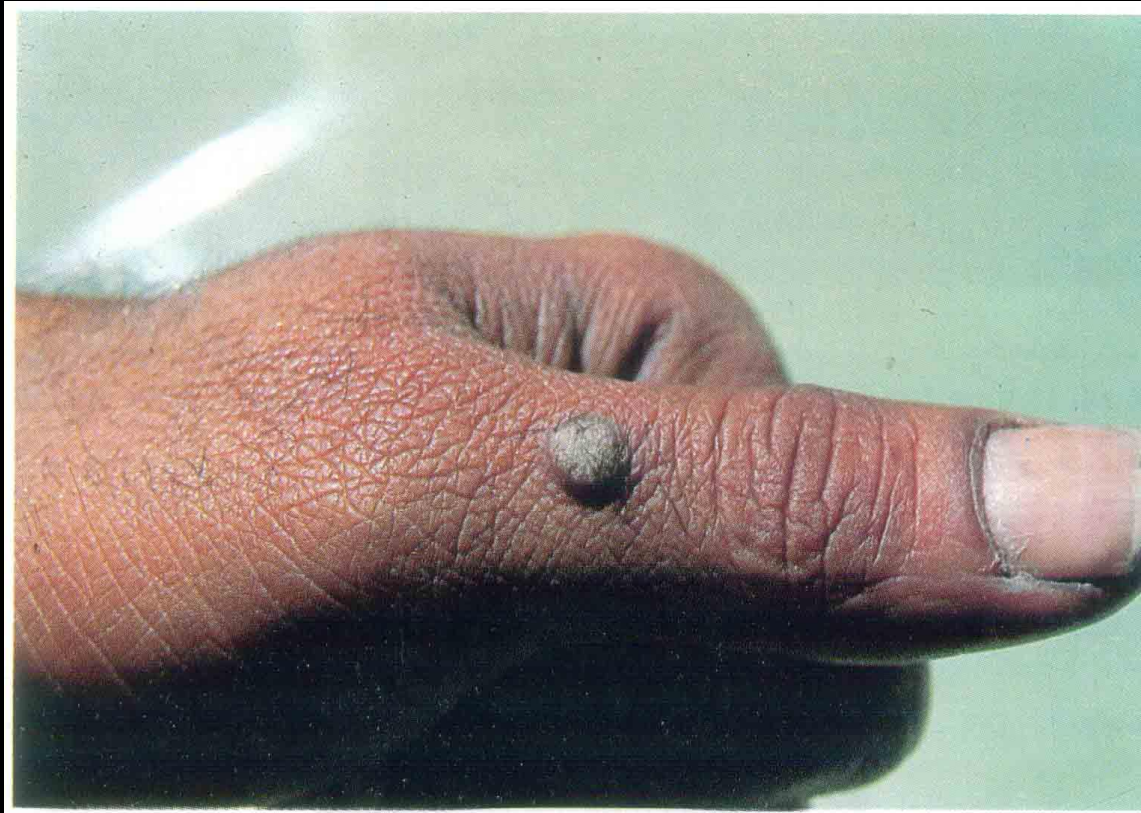
Lesion appear in the dorsen (back) of the hand, fingers, neck and face.

The lesion appear as **flesh colored lump with rough surface (cauliflower like surface)**

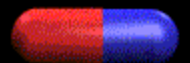
The lesion is not painful

Treatment (OTC) and prevention like planter warts

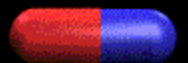
common warts



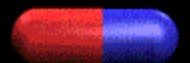
common warts



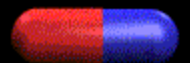
common warts



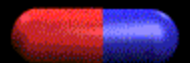
common warts shape



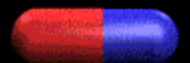
common warts



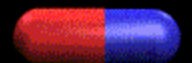
Sever common warts



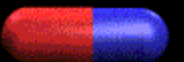
Warts



Warts

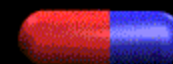


Warts





Warts treatment

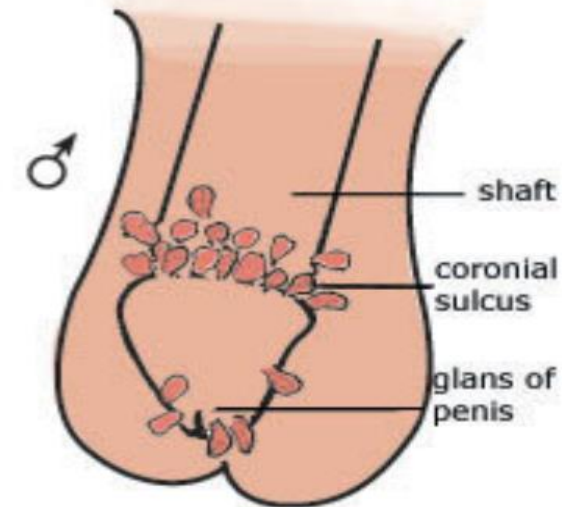
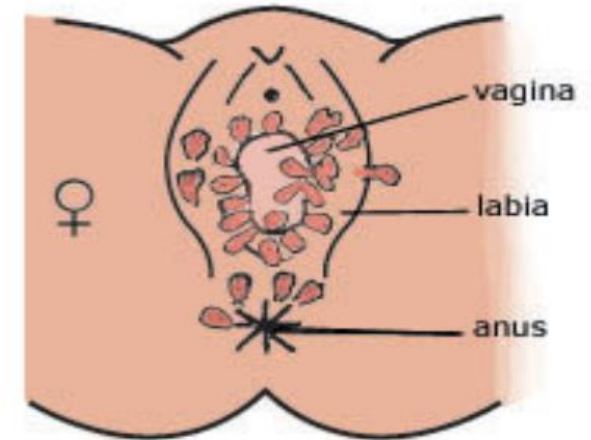


genital warts

Soft clusters of thin frond-like warts that grow on and around the external genitals of both sexes of mainly adolescents and adults (outward growth)

It is usually spread through sexual activity and is one of the sexually transmitted diseases.

found on the tip of the penis in men, on the vaginal opening in women and on the anus in both sexes.



Genital warts (not OTC)

Genital warts It take longer time to heal than other wart disorder.

They do not usually cause irritating symptoms such as pain or itching (differentiate from genital herpes).

The risk of infection increases with poor hygiene, crowded living conditions and poor nutrition

Treatment may be drug, cautery, cryotherapy and laser is recommended as other warts

Prevention

-Sexual activity should be avoided until all the warts heal completely.

- use **condoms** should be used during sexual intercourse.

It is important not to scratch the warts

Sexual partners should be checked by their physicians.

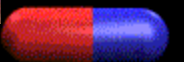
The warts usually eventually disappear but the main risk is that the papilloma virus can be associated with **cancer of the cervix in women**

Flat warts

Flat warts are **smaller (1/10 of common warts) with rough surface, grow inward and spread in linear pattern**

Treatment (not OTC) by salicylic acid but require physician contact due to large number and inward growth and face

Flat or planer warts

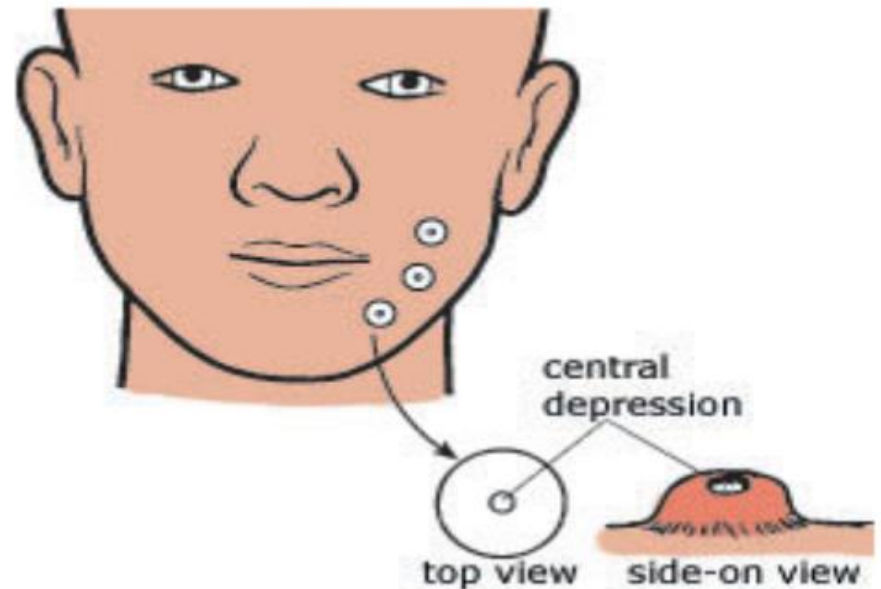


Molluscum contagiosum

- Molluscum contagiosum is a common and contagious viral infection by a **poxvirus**
- usually occurs in **school-age children**.
- It spreads by direct contact from **person to person specially swimming pool and Spa and sharing towels and clothing**. Or in people taking **cortisone therapy, depressed immune system, such as those with HIV infection**.
- The virus can be spread in different area by **scratching**
- The incubation period can vary from **2 weeks to 26 weeks**.
- Diagnosis depend on **presentation, age**

Molluscum contagiosum

- The mollusca are small, firm, white or pearly lumps shaped like domes. Each lump has a central depression. They are filled with a cheese-like fluid. The lumps are **more commonly multiple (about 10 to 20 bumps on their skin)**. The lumps do not hurt or itch.
- found anywhere on the body but are more common on **the face, the trunk and the flexures such as the armpits and the backs of the knees.**



Molluscum contagiosum

- For confirmation: Dermatologist scrape off a bit of infected skin, so it can be examined under a microscope.
- not dangerous, if untreated, all lumps will eventually disappear by themselves when the body's immune system is able to respond and destroy them. This rejection usually takes **from 6 to 24 months**.

Preventing:

- Avoid scratching the lumps
- keep out of common swimming pools or spa baths.

Treatment (similar to warts)

Cryosurgery, Curettage, Laser surgery.

Topical (applied to the skin) therapy:

Trichloroacetic acid,

Tretinoin or benzyl peroxide 2.5% **applied to the skin** after gently lifting open the tip of the lump with a sterile needle inserted from the side (parallel to the skin). The lump can then be covered with tape replaced every day.

Immunostimulant: Imiquimod (Aldara®). While treating molluscum, it is normal for new bumps to appear as others fade. So immunostimulant may be The best therapy now



Molluscum contagiosum



Chicken pox (Varicella)

It is viral infection of the skin caused by varicella-zoster virus, transmitted by **droplet infection** spreads easily through the **coughs and sneezes** of an infected person.

Varicella zoster virus (VZV) causes chickenpox; after primary infection, VZV remains dormant in sensory nerve roots for life, reactivation results in herpes zoster (**shingles**).

Usually mild, self-limited illness in children; more severe in adults

Chicken pox (Varicella)

Rare complications include pneumonia, inflammation of the brain, and fetus

It usually starts on the **face, chest, and back and then spreads to the rest of the body**

Diagnosis depends on presentation confirmed by **PCR** if needed

Clinical picture

Often pruritic ***fever and malaise** may precede the skin eruption.

*The eruption occurs on mucous membrane, and skin in **centripetal distribution, with itching.**

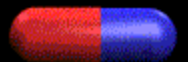
*The eruption characterized by **sudden rash** (crops of hundreds) of **vesicle with clear fluid**, then it become mixed with **turbid fluid (pustules)**, **crust** is formed in 2-4 days and fall within 7-10 days leaving normal skin.

Pustules are of varying sizes

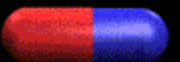
Vesicles (before rupture) resemble “**dew drops on rose petals.**”

Incubation: 10—21 day. Infectious from 4 day prior to onset of lesions to crusting of final lesion (5 d after onset).

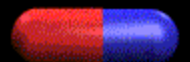
Chicken pox



Chicken pox in adult



Chicken pox



Chickenpox

Chickenpox
The same spot over 15 days.



Treatment (not OTC)

- Locally soothing agent as: gentian violet 1% or calamine lotion to help with itching
- Supportive/symptomatic treatment in children (paracetamol for fever or vitamins for malaise.
- Systemic antibiotics to guard against secondary infection from body scratch.
- Acyclovir (systemic) in risky patient of complication (adults)
- vaccine (VZIg) if immunocompromised or exposed neonate **within 4 days of exposure.**

Prevention and pregnancy

1-Vaccine now available. Routine immunization of chickenpox is included in immunization schedule in Egypt.

2-isolating affected individuals specially children in schools is recommended.

For pregnant women, antibodies produced as a result of immunization or previous infection are transferred via the placenta to the fetus. Women who are immune to chickenpox cannot become infected

Varicella infection in pregnant women (not immunized) could lead to spread via the placenta and infection of the fetus. If infection occurs during the **first 28 weeks**, this can lead to **fetal varicella syndrome (brain, eye, and neuronal damage)**

Differential Diagnosis

Unlike smallpox, chickenpox does not usually affect the palms and soles, Not centripetal, Additionally, chickenpox pustules are of varying size. Smallpox is now a history disease.

