

Dermatological conditions

Verrucas (plantar warts) and warts (common warts)

Warts and verrucas are benign growth of the skin caused by **human papilloma virus (HPV)**. Although self-limiting, they are **cosmetically unacceptable** to many patients ⁽¹⁾.

HPV infection is **very contagious**; infection is easily spread from one site to another on an infected person, and from one person to another ⁽⁵⁾.

Untreated, half of warts and verrucas clear in 1 year and two-thirds in 2 years, but they are usually treated to get rid of them faster ⁽⁵⁾.

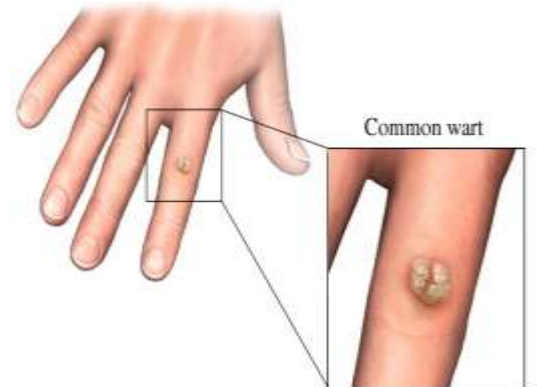


Figure 1 : common wart

Significance of questions and answers

1-Age

Warts can occur in children and adults; they are more common in children and the peak incidence is found between the ages of 12 and 16 years ⁽²⁾.

Patients aged **over 50 years** presenting with a first-time wart-----referral ⁽¹⁾.

Patients aged **below 4 years** presenting with wart---referral ⁽⁴⁾.



Figure 2: planter wart

2-Appearance

Warts appear as raised lesions with a roughened surface. Plantar warts occur on the **weight-bearing areas of the sole and heel (verrucae)**, the pressure from the body's weight pushes the lesion inwards, eventually producing **pain** when weight is applied during walking.

Warts have a network of capillaries and, if pared, thrombosed, blackened capillaries or bleeding points will be seen. The presence of these capillaries provides a useful **distinguishing feature** between **callouses and verrucae** on the feet: if a corn or callous is pared, no such dark points will be seen; instead layers of white keratin will be present ⁽²⁾. . Warts that itch or **bleed without provocation** -----referral ⁽¹⁾.

Note : **Warts are normally painless** while **Verrucas are painful** because of downward pressure on nerve endings in the skin ⁽⁵⁾.

3-Location:

The palms or backs of the hands are common sites for warts, as is the area around the fingernails. Plantar warts (verrucae) are found on the sole of the foot and may be present singly or as several lesions ⁽²⁾.

A-Warts sometimes occur on the **face** ----- referral to the doctor (Since treatment with OTC products can lead to scarring) ⁽²⁾.

B-**Anogenital** warts are caused by a different type of human papilloma virus ----- require medical referral for examination, diagnosis and treatment ⁽²⁾.

4-Multiple warts: Patients with **multiple warts**-----referral ⁽¹⁾.

5-Duration and history: It is known that most warts will disappear spontaneously within a period of 6 months to 2 years. The younger the patient, the more quickly the lesions are likely to remit ⁽²⁾. Any **change in the appearance of a wart** ⁽²⁾ (wart that have **grown and changed color**) ⁽¹⁾ -----referral ^(1,2).

6-Medication: A-**Diabetic patients** -----referral (since impaired circulation can lead to delayed healing, ulceration or even gangrene) ⁽²⁾.

B-Warts can be a major problem if the **immune system is suppressed** by either disease (e.g. lymphoma) or drugs (e.g. ciclosporin (cyclosporin) -----referral ⁽²⁾.
(Immuno-deficient patients, once infected, can develop widespread and highly resistant warts) ⁽⁴⁾.

Treatment timescale

Treatment with OTC preparations should produce a successful outcome **within 3 months**; if not, referral is necessary ⁽²⁾.

Note: it is important to explain to the patient (that treatment need weeks or months of continuous application) if compliance with treatment is to be achieved ⁽²⁾.

Management

A-Salicylic acid

1-Salicylic acid may be considered to be the **treatment of choice for warts**; it acts by softening and destroying the skin, thus mechanically removing infected tissue ⁽²⁾.

2-Preparations are available in a variety of strengths, sometimes in **collodion-type bases** that help to retain the salicylic acid in contact with the wart ⁽²⁾. (**Further reading 1**)

3-**Lactic acid** is included in some preparations with the aim of enhancing availability of the salicylic acid ⁽²⁾ which may enhance the effects of salicylic acid. ⁽³⁾.

However: **it appear that combination therapy has no additional benefit over salicylic acid alone** ⁽¹⁾

4-Ointments, gels and plasters containing salicylic acid provide a selection of methods of application ⁽²⁾.

Practical points: Application of treatments

1-Treatments containing salicylic acid should be applied **daily** ⁽²⁾.

2-The treatment is helped by **prior soaking of the affected hand or foot in warm water for 5–10 min** to soften and hydrate the skin ⁽²⁾.

3-Removal of dead skin from the surface of the wart by gentle rubbing with a pumice stone or emery board ensures that the next application reaches the surface of the lesion ⁽²⁾.

4- Patients especially the **children** should be **warned not to pick, bite or scratch warts**. This process is responsible for multiple lesions becoming established and transferred to other part of the body ⁽¹⁾.

5-Protection of the surrounding healthy skin is important and can be achieved by applying a layer of petroleum jelly ⁽²⁾.

6-Application of the liquid or gel using **an orange stick** will help to confine the substance to the lesion itself ⁽²⁾.

7-Application of salicylic acid is **Ok during pregnancy** ⁽¹⁾.

B-Other treatment options are: Formaldehyde, Glutaraldehyde, Cryotherapy and Silver nitrate (further reading 2, 3, 4 and 5).

3-Corn and Calluses

Corn form due to a combination of **friction and pressure** against one of the bony prominences of the feet.

Inappropriate footwear is the frequent cause. (Continued pressure and friction cause hyperkeratosis).

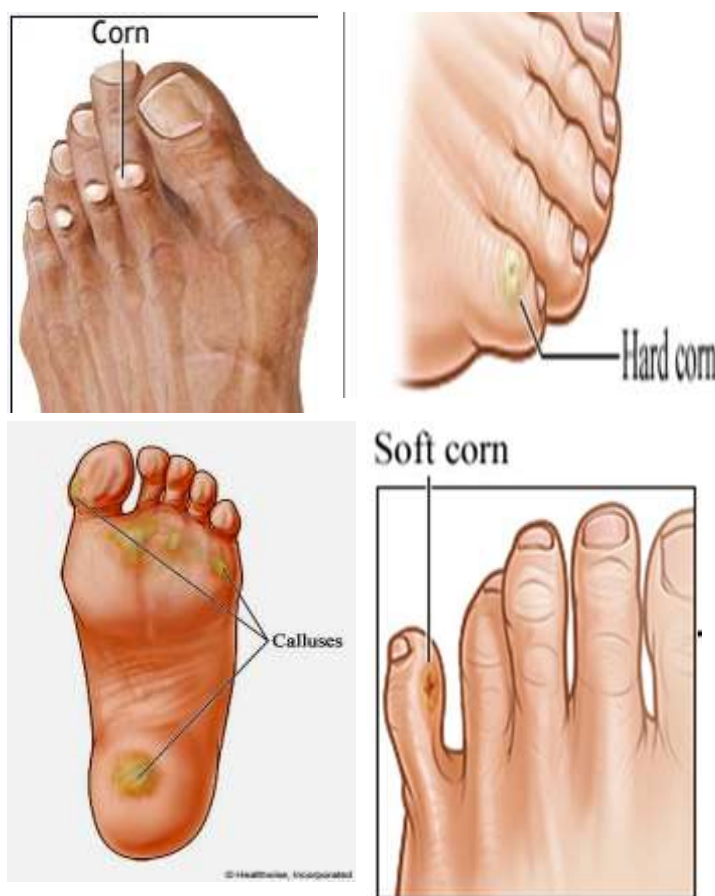
Callus formation is also caused by constant friction and pressure ⁽¹⁾ but callus is a **more diffuse** type of thickening of keratin layer ⁽³⁾. (further reading 6)

1-Clinical features of corns:

Corns have been classified into **soft and hard corn**.

Hard corns are generally **located on the top of the toes**. (Further reading 7)

Soft corns **form between the toes rather on the top of toes** and are due to pressure exerted by one toe against another. Soft corns are most common in the fourth web space ⁽¹⁾. (Further reading 8)



2-Clinical features of calluses:

Calluses appear as flattened, yellow-white, thickened skin. **In women, the balls of the feet** are a common site as a result of prolonged wearing of **ill-fitting high-heeled shoes** ⁽¹⁾. Other sites that can be affected are the heel and lower border of the big toe ⁽¹⁾

3-Pain: Corns may cause a constant dull discomfort or a severe knife-like pain on downward pressure ⁽⁴⁾. Calluses are either asymptomatic or painful on pressure ⁽⁴⁾.

4-Previous history:

Patients will often have a previous history of foot problems. The cause is usually due to poorly fitting shoes, such as high heels⁽¹⁾.

Symptoms and circumstances for referral⁽⁴⁾

- 1- If the lesions bleed or oozing pus or if they extensive or painful and debilitating
- 2-Patient with anatomical defect in the feet.
- 3-Diabetic patients
- 4-Treatment failure.

Treatment timescale: 2 weeks⁽⁴⁾

Treatment

- 1-Selection of the **properly fitted footwear**.

A-Epidermabrasion⁽⁵⁾

1-Epidermabrasion is a physical process that **removes horny skin using a mechanical aid**. Several gently abrasive materials and appliances are available, including foot files, pumice stones and synthetic pumice-like blocks (**further reading 9**).

B-Salicylic acid (The concentration in preparations ranges from about 11 to 50%)

1- Salicylic acid in collodion –like vehicle

Apply product **once or twice daily** until the corn or callus is removed (but not more than 14 days)⁽⁴⁾. Paints and liquids contain 11–17% salicylic acid, often in a collodion-based vehicle. Collodion has the advantage of maintaining the salicylic acid at the site of application and also assists skin maceration by preventing moisture evaporation⁽⁵⁾. (**Further reading 10**).

Note: do not let adjacent area of normal skin come in contact with drug. If they do, wash off the solution immediately with soap and water⁽⁴⁾.

2- Salicylic acid plasters: Corn and callus plasters contain high concentrations (usually 40%). They should be changed every 1–2 days for about a week, after which the callosity should lift away easily. (حسب التعليمات المرفقة)

3-An ointment containing 50% salicylic acid is also available; it should be applied nightly for 4 nights⁽⁵⁾.

Practical points

Soak the affected foot in warm water ----then remove the macerated Soft white skin by gentle rubbing with a pumice stone⁽⁴⁾.

References :

- 1-Community Pharmacy. Symptoms, Diagnosis and Treatment.By Paul Rutter.2004.
- 2-Symptoms in the pharmacy . A guide to the managements of common illness. 6th edition By Alison Blenkinsopp and Paul Paxton .2009.
- 3-Clinical dermatology by john hunter.
- 4-Handbook of Non-prescription drugs.2009.
- 5-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press; 2008.

Head lice (Pediculosis)

Background:

Head lice infestation (or infection) is most commonly found in children, especially around the age of 4-11 years old ⁽¹⁾ with girls showing higher incidence than boys (this may be because girls often huddle together when playing) ⁽²⁾. While the adults are less prone to infestation ⁽¹⁾.

Head to head contact is thought to be the most common mode of transmission ⁽⁷⁾ (fleeting contact will be insufficient for lice to be transferred between heads) ⁽²⁾ because head lice cannot fly, jump or swim. Moreover, they cannot survive away from the host for more than 12 hours and are unlikely to be passed from person to person through shared combs, brushes, towels, clothing or bedding. The main risk factors for infestation with head lice (pediculosis) are being of primary school age or having a young child in the family.

Having unwashed hair or long hair is not a risk factor and neither is low social class ⁽²⁾. [**lice actually prefer clean heads**] ⁽¹⁾.

Head lice infestation rarely causes physical problems and head lice **are not known to be vectors for infectious diseases** ⁽²⁾. The adult louse lives for approximately 1 month during which the female louse lays several eggs at the base of hair shaft each night ⁽³⁾.

Patient Assessment with Head Lice

A-Have live lice been seen?

The presence of head lice infestation should be confirmed by the presence of live lice before the recommendation of any product. Many parents are worried that their children may catch lice and wish the pharmacist to give their **prophylactic** treatment. Insecticides should never be used prophylactically, since this may **accelerate resistance** ⁽¹⁾. However a **louse repellent** is now available to prevent spread of infection from person to person ⁽¹⁾.

Pharmacists can advise patients on how best to check the infection. The easiest method is to **comb damp** wet hair forwards using fine-toothed comb over a white piece of paper ^(1,3). If live lice are present then one or more will be seen on the paper ⁽³⁾. This method is more reliable than scalp inspection ⁽¹⁾.

The hair at the **nape of the neck and behind the ear** should be thoroughly checked. These spots are preferred by the lice because they are warm and relatively sheltered ⁽¹⁾.

B-Presence of empty egg shells (nits):

The presence of nits is not necessary evidence of current infection (**common misconception**) unless live lice are also present ⁽¹⁾. Nits are not removed by insecticides ⁽³⁾. (Because they are firmly glued to the hair) ⁽¹⁾. -----**the presence of nits does not mean treatment failure** ⁽³⁾.

A fine toothed comb can be used to remove such nits after treatment. ⁽¹⁾.

C-Presence of itching:

Contrary to the popular belief, **itching is not experienced by everyone with head lice** (i.e. absence of itching does not mean that infection does not occur) ⁽¹⁾. (Itching is an allergic response to saliva of the lice which injected into the scalp during feeding-----

--sensitization does not occurs immediately but may take weeks to develop (thousands of bites from the lice are required)) ⁽¹⁾. But in case of re-infection, itching may be quickly begins ⁽¹⁾.

D-Previous medications:

Although emergence of resistance is an established fact, it should be remembered that inappropriate usage and incorrect method of application would lead also to treatment failure ⁽³⁾.

treatment failure is unlikely if the recommended insecticide has been used correctly ⁽¹⁾.

Management:

Preventative Measures ⁽⁴⁾:

- 1-Avoid direct contact with infected patients.
- 2-Do not share articles such as combs, brushes, hats and towels
- 3-Use hot water to wash hairbrushes and combs of patient for 10 minutes.
- 4-Use hot water to wash clothes, bedding, and towels of patient.

Note: Shaving the head is not an effective treatment because lice can cling to as little as 1 mm of hair ⁽²⁾.

Treatment:

There are three treatment options:

A-Insecticides B-Dimeticone C-Wet-combing.

Recent trials report cure rates of 70--80 %, 70 %, and 50--60 %, for Insecticides, dimeticone and wet-combing respectively ⁽²⁾.

Note: Itching can persist after infestation has been cleared. For troublesome itching a sedating antihistamine may be recommended ⁽²⁾.

A-Insecticides: Permethrin, Phenothrin, Lindane (Gama benzene hexachloride), Malathion lotion and carbaryl (All except carbaryl can be supplied without a prescription):

1-Which formulation?

Lotions are the preferred treatment for head lice. A lotion is applied to the scalp and the hair left to dry **for 12 h or overnight**. The insecticide is therefore in contact with the hair for a **long period** of time and at a **high concentration**.

By contrast, a cream rinse or shampoo is diluted by water, so that the concentration of insecticide is lower. After shampooing, the hair is rinsed so that the insecticide is in contact with the scalp for only a short time (**further reading 11**).

2-It is generally recommended to **treat all family members at the same time** to prevent reinfection from other family member. Another approach is to treat only those with confirmed infection and to check the hair of other family member on regular basis (but it required a high level of motivation) ⁽¹⁾.

3-Some eggs may survive after the first application -----therefore a **second application 7 days later is now recommended** to kill any lice that emerged from eggs^(1, 2,3). (The incubation period for head lice is 7-10 days⁽¹⁾).

4-Parents are often are **embarrassed that their child has head lice**, but pharmacist should reassure them that this is not a sign of poor hygiene, and that lice is extremely common and likely to occurs in clean or dirty hair equally⁽¹⁾.

5-Children should not be kept off school⁽³⁾

[خلي في بالك انه الاهل مخليين في بالهم انه انت مخلي في بالك انهم عائلة لا تهتم في النظافة]

6-Alcoholic and Aqueous lotions⁽¹⁾ (further reading 12):

7-The amount of lotion necessary to treat each person is about 50 ml as a minimum⁽¹⁾.
(Part sections of the hair → apply a few drops of the treatment → spread it along the surrounding scalp and so on)⁽¹⁾.

8-After using the shampoo or lotion and while the hair is still wet → a fine-toothed comb can be used to remove eggs and empty shells (nits)⁽¹⁾.

9-Insecticides usage guideline (**further reading 13**)

B-Dimeticone Lotion 4%:

Dimeticone coats head lice and interferes with their ability to manage water⁽⁷⁾. it is less active against eggs and treatment should be repeated after 7 days⁽⁵⁾. (**Further reading 14**)

C-Wet-Combing method:

Wet combing, or bug busting, is used to remove lice without using chemical treatments. Effectiveness of this method is very dependent on repeated use over a fortnight. The procedure is described in **further reading 5s**.

Pregnant women:

Pregnant women with head lice should be advised to use dimeticone or to wet-comb⁽²⁾.

(هاتان الطريقتان هما الأمن ولكن مصادر أخرى تصرح بصحة البعض الآخر كما في الجدول اللاحق)

Practical prescribing⁽³⁾

Medicine	Use in children	Likely side effects	Pregnancy
Permethrin, Phenothrin, Malathion	> 6 months	irritation of scalp(rare)	OK

References:

- 1-Symptoms in the pharmacy . A guide to the managements of common illness. 6th edition By Alison Blenkinsopp and Paul Paxton .2009.
- 2 Thad lice treatments and advice . The pharmaceutical journal . (Vol 279) 8 August 2007 Page:185-188.
- 3-Community Pharmacy. Symptoms, Diagnosis and Treatment. By Paul Rutter.2004.
- 4-Handbook of Non-prescription drugs.2002.
- 5-BNF . 61 2011.
- 6-Clinical drug therapy .rationales for nursing practice .6th edition by Anne Collins Abrams . 2001.
- 7- Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press; 2010.

Further Readings للاطلاع

1-

Salicylic Acid 5%–17% in Collodion Vehicle

- Apply product to wart no more than twice daily. Morning and evening are usually the most convenient times.
- Apply solution 1 drop at a time until affected area is covered. Do not overuse the product.
- If the medication touches healthy skin, wash it off immediately with soap and water.
- Allow the solution to harden so that it does not run. Repeat this procedure as needed for up to 12 weeks.
- After use, cap the container tightly to prevent evaporation, which would cause the active ingredient to become more concentrated.
- Store product in an amber or light-resistant container away from direct sunlight or heat.

2-Formaldehyde

Formaldehyde is used for the treatment of **verrucae**; it is considered to be less suitable for warts on the hands because of its irritant effect on the skin.

A gel formulation is available for the treatment of verrucae and is applied twice a day.

Both formaldehyde and glutaraldehyde have an unpredictable action and **are not first-line treatments for warts**, though they may be useful in resistant cases ⁽²⁾.

3-Glutaraldehyde

Glutaraldehyde is used in a 5 or 10% gel or solution to treat warts; it is not used for anogenital warts and is generally used for verrucae. Its effect on viruses is variable.

Patients should be warned that glutaraldehyde **will stain the skin brown**, although this will fade after treatment has stopped ⁽²⁾.

4-Cryotherapy

The most common agent used by dermatologists for this purpose is liquid nitrogen (LN).

In 2002, FDA approved a mixture of **dimethyl ether and propane (DMEP)** that enables patients to treat warts effectively using cryotherapy in the home ⁽⁴⁾

It is used daily **for up to 10 days** and the wart should fall off ⁽⁵⁾.

5-Silver nitrate ⁽⁵⁾.

- Silver nitrate is a **caustic** agent.

- It is used as a stick or pencil (95% toughened with 5% potassium nitrate) to destroy warts, verrucas and other skin growths.

- Unlike other treatments, silver nitrate pencil is used for only a **short period (3–6 days)** applications are claimed to be sufficient).

6-The irritation increases the blood supply, bringing extra nutrition to the basal layers of the epidermis, resulting in increased proliferation of cells and thickened areas of hard, insoluble mass) ⁽⁵⁾.

7-Corn exhibit a central core of hard grey skin surrounded by a painful, raised, yellow ring of inflammatory skin. Any toe can be affected but it is most common on the second toe ⁽¹⁾.

8- They have whitened appearance and remain soft because of the moisture that is present between toes, which cause maceration of the corn ⁽¹⁾.

9-Careful technique is important for the safe and successful removal of corns and calluses, using the following procedure:

- To soften the skin, soak the foot in mild soapy water for a few minutes or apply a moisturising or softening cream.
- Rub soap on to the appliance and gently rub the corn or callus for 5 minutes.
- Repeat the process nightly for 1 week, then review. There is no need to remove the hard skin completely, just enough to relieve pain or irritation.

10-Collodions contain a nitrocellulose derivative, dissolved in a volatile solvent such as ether, acetone or alcohol. On application, the solvent evaporates, leaving on the skin an adherent, flexible, water-repellent film containing the medicament. This has the advantage of maintaining the salicylic acid at the site of application and also assists skin maceration by preventing moisture evaporation. Liquid preparations are usually applied daily for several days until the corn or callus can be easily removed ⁽⁵⁾.

11- Because several applications of shampoo are needed, compliance may not be achieved and treatment failure can result. A cream rinse is left on for 10 min and a foam (mousse) for 30 min before shampooing off, so the contact time is short ⁽¹⁾.

12-If available, aqueous lotion is preferred for small children and for asthmatics .Alcoholic lotions can cause some problems:

A-Alcohol can cause stinging when applied to broken skin (e.g. eczema) and babies ⁽¹⁾.

B-Evaporation of alcohol may irritate the lung and can precipitate an asthmatic's attack (the risk is rare but the caution is still advised).

In addition when an alcoholic lotion is used the hair should be kept away from fire and naked flame ⁽¹⁾.

13-Insecticides Usage Guidelines:

A-Permethrin Cream Rinse (but it is not recommended: see above):

Wash the hair with a mild shampoo, and towelled dry —————> apply sufficient quantity to ensure that the hair and the scalp are thoroughly saturated —————> left on the hair for 10 minutes before rinsing the hair thoroughly with water ⁽⁷⁾.

B-:

Liquid or lotion: rubbed into the scalp until all the hair and scalp are thoroughly moistened and then allowed to dry naturally —————> left on the hair for **12 hours** (e.g. apply at bedtime and leave on overnight) —————> the hair is shampooed in normal way ⁽³⁾.

Mousse (foam application): the mousse is applied to dry hair at several points on the scalp and massaged into the scalp, ensuring that no part of the scalp is leaved uncovered —————> **after 30 minutes** the hair can be washed with normal shampoo ⁽³⁾.

C-Malathion lotion and carbaryl lotion:

Note: carbaryl is POM product ⁽¹⁾.

Rub sufficient quantity into dry hair —————> allow to dry naturally (avoid hair drier because Malathion and carbaryl are inactivated by heat) —————> shampoo after 12 hours ⁽¹⁾.

D-Lindane (Gama benzene hexachloride) ⁽⁶⁾:

Cream or lotion: rub into the affected are —————> leave in place for 12 hours —————> then wash.

Shampoo: rub into the affected area —————> leave in place for 4 minutes —————> then wash.

14-**Dose**: Rub into dry hair and scalp, allow to dry naturally, shampoo after minimum 8 hours (or overnight) ; repeat application after 7 days ⁽⁵⁾.

15-

- 1-Wash the hair as normal.
- 2-Apply conditioner liberally. (This causes the lice to lose their grip on the hair.)
- 3-Comb the hair through with a normal comb first.
- 4-With a fine-toothed nit comb, comb from the roots along the complete length of the hair and after each stroke check the comb for lice and wipe it clean. Work over the whole head for at least 30 min.
- 5-Rinse the hair as normal.
- 6-Repeat every 3 days for at least 2 weeks.