

Warts

Warts are benign skin growths caused by the human papillomavirus (HPV), which leads to the accelerated growth of skin cells. The technical term for the most common type of wart is *verruca vulgaris*. These growths are typically rough and skin-colored, and they may appear on various parts of the body, including the hands, feet, and face.

Etiology and Pathophysiology

Warts are caused by infection with HPV, a virus that targets the skin and mucous membranes. HPV infection induces the rapid multiplication of keratinocytes in the skin, leading to the formation of wart-like lesions. More than 100 different HPV subtypes exist, with specific strains responsible for different wart types. HPV types 1, 2, and 4 are most commonly associated with common warts, while types 3 and 10 are more frequently found in flat warts. The virus is transmitted through direct contact with infected skin or contaminated surfaces, making individuals with compromised immune systems or those who frequently come into contact with infected surfaces more susceptible.

Clinical Types of Warts

There are several clinical types of warts, each with distinct characteristics and common sites of occurrence.

- **Common Warts (*Verruca Vulgaris*):** These are the most prevalent type of wart and typically appear on the hands, fingers, and occasionally the face. Common warts are usually rough, raised, and skin-colored, though they can vary in size and shape. They may also present with black dots (thrombosed capillaries) at the surface, which is a characteristic feature.
- **Flat Warts (*Verruca Plana*):** These warts are smaller, smoother, and less elevated than common warts. They are typically found in clusters, with 20 to 100 warts appearing at once. Flat warts are most common on the face in children and on the legs of women and the beard area of men, likely due to skin irritation caused by shaving.
- **Plantar Warts (*Verruca Plantaris*):** These warts develop on the soles of the feet and grow inward due to the pressure from walking, often causing discomfort. They can be mistaken for calluses but are typically more painful and may have tiny black dots at their center.

Natural Course and Immunity

The body typically mounts an immune response against HPV, which gradually eliminates the virus. In many cases, warts may resolve on their own within months or years, although the timeline for spontaneous resolution varies among individuals. Once the immune system clears a specific strain of HPV, the individual may develop immunity, reducing the likelihood of future warts caused by the same virus. However, new strains of HPV may still cause warts.

Treatment Options

Although warts often resolve spontaneously, many individuals seek treatment due to cosmetic concerns or discomfort, particularly when warts are persistent. Several treatments are available, ranging from topical therapies to surgical interventions.

➤ **Topical Treatments:**

- **Salicylic Acid:** Salicylic acid is the most common over-the-counter treatment for warts. It works by softening the hardened skin of the wart and promoting its gradual removal. The treatment requires consistency, as it may take up to 12 weeks for complete resolution. Patients apply salicylic acid preparations, such as *Occlusal-HP* or *Compound W*, followed by covering the wart with surgical tape.
- **Cryotherapy (Liquid Nitrogen):** Dermatologists often use liquid nitrogen to freeze warts. Cryotherapy can cause pain, soreness, and blistering, but it is effective for approximately 50% of warts after a single treatment. For more persistent warts, multiple sessions may be required.

- **Duct Tape Occlusion Therapy:** A non-invasive treatment for warts, particularly effective for warts around the fingers and nails, involves applying duct tape over the wart. The tape is kept in place for six and a half days each week, with a half-day off. The occlusion increases the local temperature and decreases oxygen, potentially weakening the virus and promoting wart resolution. This method has shown positive results, especially in children, although the mechanism remains unclear.

➤ **Other Medical Treatments:**

- **Immunotherapy:** In cases of stubborn warts, treatments that stimulate the immune system may be used. For example, contact hypersensitization using diphencyprone (DPCP) or injections of *Bleomycin* may be employed. These treatments have been shown to be effective in clearing warts, although side effects such as skin irritation or scarring can occur.
- **Oral Medications:** Some oral medications, such as *Cimetidine* (Tagamet), have been suggested to enhance the immune response against warts. However, the evidence supporting their efficacy is mixed, and they are primarily used in pediatric cases.

➤ **Surgical and Laser Treatments:**

- **Laser Therapy:** The *Pulsed Dye Laser* (PDL) has become a treatment of choice for difficult-to-treat warts, showing efficacy in clearing lesions with minimal scarring. This laser targets the blood vessels feeding the wart, leading to its regression. PDL

- treatment typically requires 1 to 3 sessions, spaced two weeks apart, and has a success rate of 60-75%.
- **Electrosurgery and CO2 Laser:** Other surgical options, such as electrosurgery and the CO2 laser, are effective for treating warts, especially those in difficult-to-treat locations. However, these methods carry a higher risk of scarring, making them less desirable for cosmetic reasons.

Prevention

Since warts are caused by HPV, preventing exposure to the virus is the most effective way to reduce the risk of infection. Protective measures include avoiding direct contact with warts on others, especially in communal settings like swimming pools. Use of barrier methods, such as footwear in public showers or pools, can also reduce the likelihood of acquiring plantar warts. Additionally, maintaining good hygiene practices and using sunscreen can minimize the risk of HPV infection.

Conclusion

Warts are a common dermatological condition caused by HPV infection, characterized by rapid skin cell growth. While many warts resolve spontaneously as the immune system clears the infection, treatment options are available for those seeking quicker resolution or experiencing discomfort. These treatments range from topical salicylic acid and cryotherapy to more invasive methods, such as immunotherapy, laser therapy, and surgical excision. Preventive measures, including hygiene practices, can help reduce the risk of developing warts.

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