

Anogenital Warts

Of anogenital warts, 90% are caused by nononcogenic HPV types 6 or 11; these types can be commonly identified before or at the same time anogenital warts are detected (767). HPV types 16, 18, 31, 33, and 35 are also occasionally found in anogenital warts (usually as co-infections with HPV 6 or 11) and can be associated with foci of high-grade squamous intraepithelial lesions (HSIL), particularly in persons who have HIV infection. In addition to anogenital warts, HPV types 6 and 11 have been associated with conjunctival, nasal, oral, and laryngeal warts.

Anogenital warts are usually asymptomatic, but depending on the size and anatomic location, they can be painful or pruritic. They are usually flat, papular, or pedunculated growths on the genital mucosa. Anogenital warts occur commonly at certain anatomic sites, including around the vaginal introitus, under the foreskin of the uncircumcised penis, and on the shaft of the circumcised penis. Warts can also occur at multiple sites in the anogenital epithelium or within the anogenital tract (e.g., cervix, vagina, urethra, perineum, perianal skin, anus, and scrotum). Intra-anal warts are observed predominantly in persons who have had receptive anal intercourse, but they also can occur in men and women who have not had a history of anal sexual contact.

Diagnostic Considerations

Diagnosis of anogenital warts is usually made by visual inspection. The diagnosis of anogenital warts can be confirmed by biopsy, which is indicated if lesions are atypical (e.g., pigmented, indurated, affixed to underlying tissue, bleeding, or ulcerated lesions). Biopsy might also be indicated in the following circumstances, particularly if the patient is immunocompromised (including those infected with HIV): 1) the diagnosis is uncertain; 2) the lesions do not respond to standard therapy; or 3) the disease worsens during therapy. HPV testing is not recommended for anogenital wart diagnosis, because test results are not confirmatory and do not guide genital wart management.

Treatment

The aim of treatment is removal of the wart and amelioration of symptoms, if present. The appearance of warts also can result in significant psychosocial distress, and removal can relieve cosmetic concerns. In most patients, treatment results in resolution of the wart(s). If left untreated, anogenital warts can resolve spontaneously, remain unchanged, or increase in size or number. Because warts might spontaneously resolve within 1 year, an acceptable alternative for some persons is to forego treatment and wait for spontaneous resolution. Available therapies for anogenital warts might reduce, but probably do not eradicate, HPV infectivity. Whether the reduction in HPV viral DNA resulting from treatment reduces future transmission remains unknown.

Recommended Regimens

Treatment of anogenital warts should be guided by wart size, number, and anatomic site; patient preference; cost of treatment; convenience; adverse effects; and provider experience. No definitive evidence suggests that any one recommended treatment is superior to another, and no single treatment is ideal for all patients or all warts. The use of locally developed and monitored treatment algorithms has been associated with improved clinical outcomes and should be encouraged. Because all available treatments have shortcomings, some clinicians employ combination therapy (e.g., provider-administered cryotherapy with patient-applied topical therapy between visits to the provider). However, limited data exist regarding the efficacy or risk for complications associated with combination therapy. Treatment regimens are classified as either patient-applied or provider-administered modalities. Patient-applied modalities are preferred by some persons because they can be administered in the privacy of their home. To ensure that patient-applied modalities are effective, instructions should be provided to patients while in the clinic, and all anogenital warts should be accessible and identified during the clinic visit. Follow-up visits after several weeks of therapy enable providers to answer any questions about the use of the medication and address any side effects experienced; follow-up visits also facilitate the assessment of the response to treatment.

Recommended Regimens for External Anogenital Warts (i.e., penis, groin, scrotum, vulva, perineum, external anus, and perianus)*

Patient-Applied:

Imiquimod 3.75% or 5% cream[†]

OR

Podofilox 0.5% solution or gel

OR

Sinecatechins 15% ointment[†]

Provider-Administered:

Cryotherapy with liquid nitrogen or cryoprobe

OR

Surgical removal either by tangential scissor excision, tangential shave excision, curettage, laser, or electrocautery

OR

Trichloroacetic acid (TCA) or bichloroacetic acid (BCA) 80%–90% solution

*Many persons with external anal warts also have intra-anal warts. Thus, persons with external anal warts might benefit from an inspection of the anal canal by digital examination, standard anoscopy, or high-resolution anoscopy.

†Might weaken condoms and vaginal diaphragms.

Imiquimod is a patient-applied, topically active immune enhancer that stimulates production of interferon and other cytokines. Imiquimod 5% cream should be applied once at bedtime, three times a week for up to 16 weeks (768). Similarly, imiquimod 3.75% cream should be applied once at bedtime, but is applied every night (769). With either formulation, the treatment area should be washed with soap and water 6–10 hours after the application. Local inflammatory reactions, including redness, irritation, induration, ulceration/erosions, and vesicles might occur with the use of imiquimod, and hypopigmentation has also been described (770). A small number of case reports demonstrate an association between treatment with imiquimod cream and worsened inflammatory or autoimmune skin diseases (e.g., psoriasis, vitiligo, and lichenoid dermatoses) (771–773). Data from studies of human subjects are limited regarding use of imiquimod in pregnancy, but animal data suggest that this therapy poses low risk (317).

Podoflox (podophyllotoxin) is a patient-applied antimitotic drug that causes wart necrosis. Podoflox solution (using a cotton swab) or podoflox gel (using a finger) should be applied to anogenital warts twice a day for 3 days, followed by 4 days of no therapy. This cycle can be repeated, as necessary, for up to four cycles. The total wart area treated should not exceed 10 cm², and the total volume of podoflox should be limited to 0.5 mL per day. If possible, the health-care provider should apply the initial treatment to demonstrate proper application technique and identify which warts should be treated. Mild to moderate pain or local irritation might develop after treatment. Podoflox is contraindicated in pregnancy (317).

Sinecatechins is a patient-applied, green-tea extract with an active product (catechins). Sinecatechins 15% ointment should be applied three times daily (0.5 cm strand of ointment to each wart) using a finger to ensure coverage with a thin layer of ointment until complete clearance of warts is achieved. This product should not be continued for longer than 16 weeks (774–776). The medication should not be washed off after use. Genital, anal, and oral sexual contact should be avoided while the ointment is on the skin. The most common side effects of sinecatechins are erythema, pruritus/burning, pain, ulceration, edema, induration, and vesicular rash. The medication is not recommended for persons with HIV infection, other immunocompromised conditions, or with genital herpes because the safety and efficacy of therapy has not been evaluated. The safety of sinecatechins during pregnancy is unknown.

Cryotherapy is a provider-applied therapy that destroys warts by thermal-induced cytolysis. Health-care providers must be trained on the proper use of this therapy because over- and under-treatment can result in complications or low efficacy. Pain during and after application of the liquid nitrogen, followed by necrosis and sometimes blistering, is common. Local anesthesia (topical or injected) might facilitate therapy if warts are present in many areas or if the area of warts is large.

Surgical therapy has the advantage of eliminating most warts at a single visit, although recurrence can occur. Surgical removal requires substantial clinical training, additional equipment, and sometimes a longer office visit. After local anesthesia is applied, anogenital warts can be physically destroyed by electrocautery, in which case no additional hemostasis is required. Care must be taken to control the depth of electrocautery to prevent scarring. Alternatively, the warts can be removed either by tangential excision with a pair of fine scissors or a scalpel, by carbon dioxide (CO₂) laser, or by curettage. Because most warts are exophytic, this procedure can be accomplished with a resulting wound that only extends into the upper dermis. Hemostasis can be achieved with an electrocautery unit or, in cases of very minor bleeding, a chemical styptic (e.g., an aluminum chloride solution). Suturing is neither required nor indicated in most cases. In patients with large or extensive warts, surgical therapy, including CO₂ laser, might be most beneficial; such therapy might also be useful for intraurethral warts, particularly for those persons who have not responded to other treatments. Treatment of anogenital and oral warts should be performed in an appropriately ventilated room using standard precautions (<https://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf#page=2> (<https://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf#page=2>)) and local exhaust ventilation (e.g., a smoke evacuator) (777) (<https://www.cdc.gov/niosh/docs/hazardcontrol/hc11.html> (<https://www.cdc.gov/niosh/docs/hazardcontrol/hc11.html>)).

Trichloroacetic acid (TCA) and bichloroacetic acid (BCA) are provider-applied caustic agents that destroy warts by chemical coagulation of proteins. Although these preparations are widely used, they have not been investigated thoroughly. TCA solution has a low viscosity comparable with that of water and can spread rapidly and damage adjacent tissues if applied excessively. A small amount should be applied only to the warts and allowed to dry (i.e., develop white frost on tissue) before the patient sits or stands. If pain is intense or an excess amount of acid is applied, the area can be covered with sodium bicarbonate (i.e., baking soda), washed with liquid soap preparations, or be powdered with talc to neutralize the acid or remove unreacted acid. TCA/BCA treatment can be repeated weekly if necessary.

Alternative Regimens for External Genital Warts

Less data are available regarding the efficacy of alternative regimens for treating anogenital warts, which include podophyllin resin, intralesional interferon, photodynamic therapy, and topical cidofovir. Further, alternative regimens might be associated with more side effects. Podophyllin resin is no longer a recommended regimen because of the number of safer regimens available, and severe systemic toxicity has been reported when podophyllin resin was applied to large areas of friable tissue and was not washed off within 4 hours (778–780). Podophyllin resin 10%–25% in a compound tincture of benzoin might be considered for provider-administered treatment under conditions of strict adherence to recommendations. Podophyllin should be applied to each wart and then allowed to air-dry before the treated area comes into contact with clothing. Over-application or failure to air-dry can result in local irritation caused by spread of the compound to adjacent areas and possible systemic toxicity. The treatment can be repeated weekly, if necessary. To avoid the possibility of complications associated with systemic absorption and toxicity, 1) application should be limited to <0.5 mL of podophyllin or an area of <10 cm² of warts per session; 2) the area to which treatment is administered should not contain any open lesions, wounds, or friable tissue; and 3) the preparation should be thoroughly washed off 1–4 hours after application. Podophyllin resin preparations differ in the concentration of active components and contaminants. Shelf-life and stability of podophyllin preparations are unknown. The safety of podophyllin during pregnancy has not been established.

Recommended Regimens for Urethral Meatus Warts

Cryotherapy with liquid nitrogen

OR

Surgical removal

Recommended Regimens for Vaginal Warts

Cryotherapy with liquid nitrogen. The use of a cryoprobe in the vagina is not recommended because of the risk for vaginal perforation and fistula formation.

OR

Surgical removal

OR

TCA or BCA 80%–90% solution

Recommended Regimens for Cervical Warts

Cryotherapy with liquid nitrogen

OR

Surgical removal

OR

TCA or BCA 80%–90% solution

Management of cervical warts should include consultation with a specialist.

For women who have exophytic cervical warts, a biopsy evaluation to exclude high-grade SIL must be performed before treatment is initiated.

Recommended Regimens for Intra-anal Warts

Cryotherapy with liquid nitrogen

OR

Surgical removal

OR

TCA or BCA 80%–90% solution

Management of intra-anal warts should include consultation with a specialist.

Follow-Up

Most anogenital warts respond within 3 months of therapy. Factors that might affect response to therapy include immunosuppression and treatment compliance. In general, warts located on moist surfaces or in intertriginous areas respond best to topical treatment. A new treatment modality should be selected when no substantial improvement is observed after a complete course of treatment or in the event of severe side effects; treatment response and therapy-associated side effects should be evaluated throughout the course of therapy. Complications occur rarely when treatment is administered properly. Persistent hypopigmentation or hyperpigmentation can occur with ablative modalities (e.g., cryotherapy and electrocautery) and have been described with immune modulating therapies (e.g., imiquimod cream). Depressed or hypertrophic scars are uncommon but can occur, especially if patients have insufficient time to heal between treatments. Rarely, treatment can result in chronic pain syndromes (e.g., vulvodynia and hyperesthesia of the treatment site) or, in the case of anal warts, painful defecation or fistulas.

Counseling

Key Messages for Persons with Anogenital Warts

- If left untreated, genital warts may go away, stay the same, or increase in size or number. The types of HPV that cause genital warts are different from the types that can cause cancer.
- Women with genital warts do not need Pap tests more often than other women.
- Time of HPV acquisition cannot be definitively determined. Genital warts can develop months or years after getting HPV. HPV types that cause genital warts can be passed on to another person even in the absence of visible signs of warts. Sex partners tend to share HPV, even though signs of HPV (e.g., warts) might occur in only one partner or in neither partner.
- Although genital warts are common and benign, some persons might experience considerable psychosocial impact after receiving this diagnosis.
- Although genital warts can be treated, such treatment does not cure the virus itself. For this reason, it is common for genital warts to recur after treatment, especially in the first 3 months.
- Because genital warts can be sexually transmitted, patients with genital warts benefit from testing for other STDs. Sexual activity should be avoided with new partners until the warts are gone or removed. HPV might remain present and can still be transmitted to partners even after the warts are gone.
- Condoms might lower the chances of transmitting genital warts if used consistently and correctly; however, HPV can infect areas that are not covered by a condom and might not fully protect against HPV.

- A vaccine is available for males and females to prevent genital warts (Gardasil), but it will not treat existing HPV or genital warts. This vaccine can prevent most cases of genital warts in persons who have not yet been exposed to wart-causing types of HPV.

Management of Sex Partners

Persons should inform current partner(s) about having genital warts because the types of HPV that cause warts can be passed on to partners. Partners should receive counseling messages that partners might already have HPV despite no visible signs of warts, so HPV testing of sex partners of persons with genital warts is not recommended. Partner(s) might benefit from a physical examination to detect genital warts and tests for other STDs. No recommendations can be made regarding informing future sex partners about a diagnosis of genital warts because the duration of viral persistence after warts have resolved is unknown.

Special Considerations

Pregnancy

Podofilox (podophyllotoxin), podophyllin, and sinecatechins should not be used during pregnancy. Imiquimod appears to pose low risk but should be avoided until more data are available. Anogenital warts can proliferate and become friable during pregnancy. Although removal of warts during pregnancy can be considered, resolution might be incomplete or poor until pregnancy is complete. Rarely, HPV types 6 and 11 can cause respiratory papillomatosis in infants and children, although the route of transmission (i.e., transplacental, perinatal, or postnatal) is not completely understood. Whether cesarean section prevents respiratory papillomatosis in infants and children also is unclear (781); therefore, cesarean delivery should not be performed solely to prevent transmission of HPV infection to the newborn. Cesarean delivery is indicated for women with anogenital warts if the pelvic outlet is obstructed or if vaginal delivery would result in excessive bleeding. Pregnant women with anogenital warts should be counseled concerning the low risk for warts on the larynx of their infants or children (recurrent respiratory papillomatosis).

HIV Infection and Other Causes of Immunosuppression

Persons with HIV infection or who are otherwise immunosuppressed are more likely to develop anogenital warts than those who do not have HIV infection (782). Moreover, such persons can have larger or more numerous lesions, might not respond to therapy as well as those who are immunocompetent, and might have more frequent recurrences after treatment (782-785). Despite these factors, data do not support altered approaches to treatment for persons with HIV infection. Squamous cell carcinomas arising in or resembling anogenital warts might occur more frequently among immunosuppressed persons, therefore requiring biopsy for confirmation of diagnosis for suspicious cases (786-788).

High-grade Squamous Intraepithelial Lesions (HSIL)

Biopsy of an atypical wart might reveal HSIL or cancer of the anogenital tract. In this instance, referral to a specialist for treatment is recommended.

[Next](#)

[STDs Home Page](#)

[Treatment](#)

Follow STD

[STD on Twitter \(https://twitter.com/CDCSTD\)](https://twitter.com/CDCSTD)

[STD on Facebook \(https://www.facebook.com/CDCSTD\)](https://www.facebook.com/CDCSTD)

File Formats Help:

How do I view different file formats (PDF, DOC, PPT, MPEG) on this site? (<https://www.cdc.gov/Other/plugins/>)

(<https://www.cdc.gov/Other/plugins/#pdf>)

Page last reviewed: June 4, 2015

Page last updated: June 4, 2015

Content source: Division of STD Prevention (/std/dstdp), National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (/nchhstp), Centers for Disease Control and Prevention (/)