

Cause

More than 100 different types of HPV exist, most of which are harmless. About 30 types are spread through sexual contact and are classified as either low risk or high risk.

Some types of HPV cause genital warts--single or multiple bumps that appear in the genital areas of men and women including the vagina, cervix, vulva (area outside of the vagina), penis, and rectum. These are considered low-risk types.

High-risk types of HPV may cause abnormal Pap smear results. They could lead to cancers of the cervix, vulva, vagina, anus, or penis.

Transmission

Genital warts are very contagious. You can get them during oral, vaginal, or anal sex with an infected partner. You can also get them by skin-to-skin contact during vaginal, anal, or (rarely) oral sex with someone who is infected. About two-thirds of people who have sexual contact with a partner with genital warts will develop warts, usually within 3 months of contact.

If you are infected but have no symptoms, you can still spread HPV to your sexual partner and/or develop complications from the virus.

Symptoms

In women, genital warts occur on the outside and inside of the vagina, on the opening to the uterus (cervix), or around the anus.

In men, genital warts are less common. If present, they usually are seen on the tip of the penis. They also may be found on the shaft of the penis, on the scrotum, or around the anus.

Rarely, genital warts also can develop in your mouth or throat if you have oral sex with an infected person.

Like many sexually transmitted diseases, genital HPV infections often do not have signs and symptoms that you can see or feel. One study sponsored by NIAID reported that almost half of women infected with HPV had no obvious symptoms.

If you are infected but have no symptoms, you can still spread HPV to your sexual partner and/or develop complications from the virus.

Diagnosis

Your healthcare provider usually diagnoses genital warts by seeing them.

If you are a woman with genital warts, you also should be examined for possible HPV infection of the cervix. Your healthcare provider can diagnose HPV infection based on results from an abnormal Pap smear, a primary cancer-screening tool for cervical cancer or pre-cancerous changes of the cervix. In some cases, a healthcare provider will take a small piece of tissue from the cervix and examine it under the microscope.

Another test to diagnose HPV infection detects DNA from the virus, which may show possible infection.

Your provider may be able to identify some otherwise invisible warts in your genital tissue by applying vinegar (acetic acid) to areas of your body that might be infected. This solution causes infected areas to whiten, which makes them more visible.

Treatment

There are treatments for genital warts, though the warts often disappear even without treatment.

There is no way to predict whether the warts will grow or disappear. Therefore, if you suspect you have genital warts, you should be examined and treated, if necessary.

Depending on factors such as the size and location of your genital warts, your health care provider will offer you one of several ways to treat them.

- Imiquimod cream
- 20 percent podophyllin antimitotic solution
- 0.5 percent podofilox solution
- 5 percent 5-fluorouracil cream
- Trichloroacetic acid (TCA)

If you are pregnant, you should not use podophyllin or podofilox because they are absorbed by your skin and may cause birth defects in your baby. In addition, you should not use 5-fluorouracil cream if you are pregnant.

If you have small warts, your health care provider can remove them by one of three methods.

- Freezing (cryosurgery)
- Burning (electrocautery)

- Laser treatment

If you have large warts that have not responded to other treatment, you may have to have surgery to remove them.

Some health care providers inject the antiviral drug alpha interferon directly into warts that have returned after removal by traditional means. The drug is expensive, however, and does not reduce the rate that the genital warts return.

Although treatments can get rid of the warts, none get rid of the virus. Because the virus is still present in your body, warts often come back after treatment.

Prevention

The best way to prevent getting an HPV infection is to avoid direct contact with the virus, which is transmitted by skin-to-skin contact. If you or your sexual partner has warts that are visible in the genital area, you should avoid any skin-to-skin and sexual contact until the warts are treated.

Two HPV vaccines, Gardasil and Cervarix, are approved by the Food and Drug Administration. Both vaccines are highly effective in preventing persistent infection with HPV types 16 and 18, two "high-risk" HPVs that cause most (70 percent) of cervical cancers. Gardasil is also effective against types 6 and 11, which cause virtually all (90 percent) of genital warts.

Both vaccines are licensed, safe, and effective for females ages 9 through 26 years. The Centers for Disease Control and Prevention (CDC) recommends that all girls who are 11 or 12 years old get the 3 doses of either brand of HPV vaccine to protect against cervical cancer and precancer.

Gardasil is also licensed for boys and young men ages 9 through 26 years. Males may choose

to get this vaccine to prevent genital warts.

Neither Gardasil nor Cervarix has been proven to provide complete protection against persistent infection with other HPV types, some of which also can cause cervical cancer. Therefore, about 30 percent of cervical cancers and 10 percent of genital warts will not be prevented by the current vaccines. HPV vaccines do not prevent other sexually transmitted diseases, nor do they treat HPV infection or cervical cancer.

For federal HPV vaccine recommendations, go to the CDC Advisory Committee on Immunization Practices website at www.cdc.gov/vaccines/recs/acip . In addition, the National Cancer Institute and CDC have more information on the HPV vaccine at www.cancer.gov/cancertopics/hpv-vaccines and www.cdc.gov/vaccines/vpd-vac/hpv/default.htm , respectively.

Historically, research studies have not confirmed that male latex condoms prevent transmission of HPV. Recent studies, however, demonstrate that consistent condom use by male partners suggests strong protection against low and high risk types of HPV infection in women. Unfortunately, many people who don't have symptoms don't know that they can spread the virus to an uninfected partner.

Complications

Cancer

Some types of HPV can cause cervical cancer. Other types are associated with vulvar cancer, anal cancer, oral cancer, and cancer of the penis (a rare cancer).

Most HPV infections do not progress to cervical cancer. If you are a woman with abnormal cervical cells, a Pap smear will detect them. If you have abnormal cervical cells, it is particularly important for you to have regular pelvic exams and Pap smears so you can be treated early, if necessary.

Pregnancy and Childbirth

Genital warts may cause a number of problems during pregnancy. Because genital warts can multiply and become brittle, your healthcare provider will discuss options for their removal, if necessary.

Genital warts also may be removed to ensure a safe and healthy delivery of the newborn. Sometimes they get larger during pregnancy, making it difficult to urinate if the warts are in the urinary tract. If the warts are in the vagina, they can make the vagina less elastic and cause obstruction during delivery.

Rarely, infants born to women with genital warts develop warts in their throats (respiratory papillomatosis). Although uncommon, it is a potentially life-threatening condition for the child, requiring frequent laser surgery to prevent blocking of the breathing passages. Research on the use of interferon therapy with laser surgery shows that this drug may show promise in slowing the course of the disease.

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