CONDITION

Human papillomavirus

Human papillomavirus is a common infection that can cause genital warts and, in some people, abnormal cells that may become cancer.

WHAT IT IS
Common viral infection affecting skin and moist body linings

BODY SYSTEM
Skin and reproductive system

MAIN SYMPTOMS
No symptoms, genital warts, abnormal bleeding, persistent throat symptoms

WHAT CAUSES IT
Infection with human papillomavirus

HOW IT IS DIAGNOSED
Examination, HPV testing, cell testing, or biopsy

MAIN TREATMENT
Wart removal and treatment of abnormal cells

CAN IT BE CURED?
No - treatments do not eradicate HPV

IS IT AN EMERGENCY?
No - symptoms usually need routine assessment

LONG-TERM OUTLOOK
Most infections clear; persistent high-risk HPV needs monitoring

Overview

Human papillomavirus, usually called HPV, is a group of more than 200 related viruses. Some types infect the genital area, anus, mouth, or throat. Others cause common skin warts on places such as the hands and feet.

Genital HPV is mainly passed through intimate skin-to-skin contact. It is very common, and most sexually active people are exposed at some point. Having HPV does not mean that anyone has been unfaithful. The virus can remain unnoticed for months or years before it is detected.

Most HPV infections cause no symptoms and become undetectable as the immune system controls them. Certain low-risk types can cause genital warts. Other types, known as high-risk HPV, can cause abnormal cell changes. If these changes remain for years without being found

and treated, a small proportion may develop into cancer.

HPV is linked most strongly with cervical cancer. It can also contribute to cancers of the anus, vulva, vagina, penis, and the back of the throat. Screening, vaccination, and treatment of abnormal cells can reduce these risks.

Symptoms

Most people with HPV have no symptoms. You may only learn about it after an HPV test, cervical screening test, or examination for another concern.

Genital warts are soft or firm growths around the vulva, vagina, cervix, penis, scrotum, anus, or nearby skin. They may be flat, raised, or clustered in a cauliflower-like shape. Warts are often painless, although they can itch, become irritated, or bleed with friction.

The HPV types that cause genital warts are usually different from the high-risk types associated with cancer. Having visible warts does not mean that you have cancer.

High-risk HPV and early abnormal cell changes usually cause no symptoms. Symptoms such as bleeding after sex, bleeding between periods, unusual vaginal discharge, a persistent anal lump, or ongoing throat symptoms need assessment, but they can have many causes other than HPV or cancer.

Persistent throat symptoms may include hoarseness, pain when swallowing, a neck lump, or a sore throat that does not settle. These symptoms are common and are usually caused by other conditions, but they should not be ignored if they continue.

Causes and risk factors

HPV spreads through direct contact with infected skin or moist body linings. Genital infection can pass during vaginal, anal, or oral sex and through genital-to-genital contact without penetration. A person can pass HPV without having symptoms or visible warts.

Condoms and internal condoms lower the chance of transmission but do not cover all nearby skin. Shared sex toys may also carry infected cells if they are not cleaned or covered with a new condom between users.

A positive HPV result cannot show when you acquired the infection or who it came from. HPV may become detectable long after exposure. A new diagnosis is therefore not evidence of recent sexual contact or infidelity.

Factors that make persistent infection or abnormal cell changes more likely include:

HPV can occasionally pass from a pregnant person to a baby during birth, but serious problems in the baby are uncommon.

- Smoking
- A weakened immune system, including from HIV or immune-suppressing medicines
- Exposure to a high-risk HPV type
- Missing recommended cervical screening or follow-up
- Having more sexual partners, which increases opportunities for exposure

Diagnosis

There is no blood test that can tell whether you have genital HPV. There is also no single test that checks every body area or identifies a person's complete HPV status.

A healthcare professional can often diagnose external genital warts by examining the skin. If a growth looks unusual, is discoloured, is ulcerated, bleeds, or does not respond as expected to treatment, a biopsy may be needed. A biopsy removes a small tissue sample for examination under a microscope.

Cervical HPV tests look for high-risk virus types in cells collected from the cervix. Depending on the screening programme, the sample may also be checked for abnormal cells. A positive result means high-risk HPV was found; it does not mean that you have cancer.

Further assessment may include colposcopy. This is a close examination of the cervix using a magnifying instrument that stays outside the body. Small tissue samples may be taken from suspicious areas.

Routine HPV testing is not generally used to screen the penis, vulva, vagina, anus, mouth, or throat in the general population. Some people at higher risk of anal cancer may be offered specialist testing, depending on local services and guidance.

Treatment and management

There is no treatment that directly removes HPV from the whole body. Treatment focuses on visible warts, abnormal cells, and any complications. The immune system controls most infections over time.

Genital warts do not always require immediate removal. Some disappear without treatment, while others remain or increase in number. Treatment may be chosen because of discomfort,

irritation, appearance, or personal preference.

Wart treatments include prescription medicines applied to the skin and procedures performed in a clinic. Clinic treatments may freeze the wart, use a chemical treatment, apply heat or electrical energy, or remove it surgically. Some treatments are unsuitable during pregnancy, so pregnancy should be discussed before treatment begins.

Removing warts does not guarantee that HPV has gone. Warts can return, especially during the first months after treatment. Over-the-counter remedies intended for hand or foot warts should not be used on genital skin.

Minor cervical cell changes may only need repeat testing because they can return to normal. More significant changes may be removed or destroyed to prevent them progressing. Follow-up remains important because abnormal cells can return.

Cancer caused by HPV is treated according to its location and stage. Treatment may involve surgery, radiotherapy, drug treatment, or a combination of these approaches.

Complications

Persistent infection with certain high-risk HPV types can cause precancerous changes. "Precancerous" means the cells are abnormal and could become cancer if they are not monitored or treated. It does not mean cancer is already present.

HPV-related cancers can affect the:

These cancers usually develop after persistent infection over many years. Most people with HPV do not develop cancer.

Large or numerous genital warts may cause discomfort, bleeding, or distress. During pregnancy, warts may grow more quickly or become easier to irritate. They rarely interfere with birth, and a caesarean birth is not routinely needed solely to prevent HPV transmission.

A diagnosis may also affect confidence, relationships, or sexual wellbeing. HPV is common and is not a sign of poor hygiene. Clear information and open, non-blaming conversations can help reduce anxiety and stigma.

- Cervix
- Vulva or vagina
- Penis
- Anus
- Tonsils or base of the tongue

Prevention

HPV cannot always be prevented because it spreads through close skin contact and may be present without symptoms.

HPV vaccination offers strong protection against the virus types responsible for most HPV-related cancers and many genital warts. It works best before exposure, but some people may still benefit later. The vaccine prevents new infections; it does not clear an infection or treat existing warts.

Condoms or internal condoms reduce the risk during vaginal or anal sex. Condoms or dental dams can also reduce exposure during oral sex. They do not provide complete protection because HPV may infect uncovered skin.

Not smoking may help the immune system clear cervical HPV and lowers the risk of abnormal cervical cells. If you have a cervix, attend screening when invited, even if you have been vaccinated. Vaccination does not protect against every high-risk HPV type.

There is no recommended routine HPV screening test for every body site. Paying attention to persistent lumps, sores, bleeding, or throat symptoms remains important.

Living with it and what to expect

For most people, HPV becomes undetectable within one or two years without causing lasting health problems. A positive test may later become negative as the immune system suppresses the infection. HPV can sometimes become detectable again, and testing cannot always distinguish a new infection from reactivation of an older one.

Genital warts may clear, remain unchanged, or return after treatment. Recurrence does not necessarily mean you were exposed again. Over time, recurrences often become less frequent as immune control improves.

Persistent high-risk HPV needs follow-up because the chance of abnormal cell changes rises when infection remains for years. Follow-up may involve another HPV test, cervical cell testing, colposcopy, or treatment. Attending scheduled appointments is more important than trying to identify when the infection began.

HPV itself does not usually affect fertility. Procedures used to treat significant cervical changes can sometimes affect a future pregnancy, depending on how much tissue is removed. A clinician can explain this before treatment.

You can usually continue normal relationships and sexual activity. There is no reliable way to know whether a long-term partner already shares the virus. Partners without symptoms do not

usually need testing, although visible genital growths should be assessed.

When to get medical help

Arrange a routine appointment if you notice new genital or anal growths, itching, sores, or skin changes. You should also seek advice after an abnormal screening result or if you are unsure whether a growth is a wart.

Make an appointment for symptoms that persist, including bleeding after sex, bleeding between periods, unusual vaginal discharge, an anal lump, ongoing hoarseness, difficulty swallowing, or a neck lump. These symptoms often have other explanations, but they deserve assessment.

Contact a healthcare service promptly if a wart or other growth becomes very painful, develops an open sore, changes colour, or bleeds repeatedly. Prompt review is also appropriate if you have a weakened immune system or are pregnant and develop genital warts.

Seek urgent medical care for heavy bleeding, severe pain, or difficulty swallowing fluids. Call emergency services for uncontrolled bleeding, fainting, or difficulty breathing. These are not usual features of uncomplicated HPV and may have another cause.

Common questions

Is HPV the same as genital warts?

No. HPV is the virus, while genital warts are one possible effect of infection. Only some HPV types cause warts. High-risk types associated with cancer often cause no visible symptoms.

Does having HPV mean my partner cheated?

No. HPV can remain unnoticed for months or years, and tests cannot show when it was acquired. A positive result does not prove recent transmission or infidelity.

Can HPV go away on its own?

Yes, most infections become undetectable as the immune system controls them. However, no test can guarantee that every viral cell has left the body. Persistent high-risk infection requires follow-up.

Can I have sex if I have HPV?

Usually, yes. HPV may pass even when there are no symptoms. Condoms and barriers reduce, but do not remove, the risk. You may prefer to avoid sexual contact while warts are sore or while treated skin is healing.

Will HPV turn into cancer?

Usually not. Most infections clear without causing serious problems. Cancer risk is mainly linked to persistent infection with a high-risk type over several years. Screening and treatment of abnormal cells reduce this risk.

Do I still need screening after HPV vaccination?

Yes, if you have a cervix and are eligible for screening. Vaccination protects against important HPV types but not every type that can cause cervical cancer. Follow your local screening programme.

Sources

- Centers for Disease Control and Prevention: About Genital HPV Infection
- Centers for Disease Control and Prevention: Sexually Transmitted Infections Treatment Guidelines - Anogenital Warts
- National Cancer Institute: HPV and Cancer
- World Health Organization: Cervical Cancer
- World Health Organization: Human Papillomavirus Vaccines - Position Paper
- NHS: Human Papillomavirus