CONDITION

Cervical dysplasia

Learn what cervical dysplasia means, how HPV-related cervical cell changes are diagnosed, and when monitoring or treatment may be recommended.

WHAT IT IS
Abnormal cells on the cervix surface

BODY SYSTEM
Reproductive system

MAIN SYMPTOMS
Usually no symptoms, no typical bleeding, no typical discharge, no typical pelvic pain

WHAT CAUSES IT
Persistent high-risk HPV infection

HOW IT IS DIAGNOSED
Colposcopy with cervical biopsy

MAIN TREATMENT
Monitoring or abnormal tissue removal

CAN IT BE CURED?
Sometimes - abnormal tissue can be removed

IS IT AN EMERGENCY?
Sometimes - severe bleeding with fainting

LONG-TERM OUTLOOK
Usually manageable, but untreated high-grade changes can progress to cancer

Overview

Cervical dysplasia means that some cells on the surface of the cervix look abnormal. The cervix is the lower, narrow part of the uterus that opens into the vagina. Cervical dysplasia is not cancer, but certain high-grade changes can become cervical cancer if they are not found and managed.

Most cervical dysplasia is linked to persistent infection with a high-risk type of human papillomavirus, or HPV. HPV is a common virus passed through intimate skin-to-skin contact, including sexual contact. In many people, the immune system clears or controls HPV without treatment. Dysplasia may develop when a high-risk infection remains active over time.

Abnormal cells may first be found through an HPV test or Pap test. A Pap test examines cervical cells for changes. An HPV test looks for high-risk types of the virus. These are

screening tests; they do not by themselves confirm cervical dysplasia. A closer examination called colposcopy and, when needed, a biopsy are used to make the diagnosis.

A biopsy result is often described as cervical intraepithelial neoplasia, or CIN:

A separate abnormality called adenocarcinoma in situ, or AIS, affects gland-forming cells in the cervix. It requires its own evaluation and management plan.

- CIN 1 is a low-grade change affecting the lower part of the surface tissue. It often resolves without treatment.
- CIN 2 is a higher-grade change affecting more of the tissue. It may be monitored or treated, depending on the situation.
- CIN 3 is a high-grade change involving most or all of the surface tissue. It is not cancer, but treatment is generally recommended because it has a greater chance of progressing.

Symptoms

Cervical dysplasia usually causes no symptoms. Most people learn about it after routine cervical cancer screening. The absence of symptoms does not show whether an abnormality is mild or high grade.

Bleeding after sex, bleeding between menstrual periods, bleeding after menopause, unusual watery or bloody discharge, or ongoing pelvic pain are not typical symptoms of dysplasia itself. These symptoms can have many causes, such as infection, polyps, hormonal changes, or irritation. They can also occur with cervical cancer, so they should be assessed promptly rather than assumed to be dysplasia.

Seek emergency care for severe vaginal bleeding accompanied by fainting, marked weakness, shortness of breath, or other signs of significant blood loss. Otherwise, new unexplained bleeding or discharge usually calls for a prompt medical appointment rather than emergency care.

Causes and risk factors

Persistent infection with a high-risk HPV type is the main cause of cervical dysplasia. HPV can remain unnoticed for years. An abnormal test does not show when the infection was acquired or from whom, and it does not necessarily mean a partner has recently been unfaithful.

Factors that can increase the chance that HPV will persist or that abnormal cells will develop include:

HPV vaccination lowers the risk of infection from the HPV types responsible for most cervical cancers. It can still offer protection after a person becomes sexually active, but it does not treat an existing HPV infection or remove dysplasia that is already present.

Condoms and other barriers can reduce HPV transmission, but they do not provide complete protection because HPV can affect skin that is not covered. Having HPV is not a sign of poor hygiene.

- Smoking or exposure to tobacco smoke
- A weakened immune system, such as from HIV, an organ transplant, or immune-suppressing treatment
- A history of high-grade cervical changes or cervical cancer
- Missed or irregular cervical cancer screening
- Exposure to high-risk HPV types

Diagnosis

An abnormal screening result is not the same as a diagnosis of cervical dysplasia. Screening reports may use terms such as atypical squamous cells, low-grade squamous intraepithelial lesion, or high-grade squamous intraepithelial lesion. These terms describe how cells look on a Pap test. Follow-up depends on the exact result, HPV findings, age, pregnancy status, immune health, and previous screening or treatment history.

Some results can be followed with repeat HPV or Pap testing. Others require colposcopy. During colposcopy, a clinician uses a magnifying instrument to inspect the cervix after applying solutions that make abnormal areas easier to see. The instrument stays outside the body. Small tissue samples may be taken from suspicious areas.

A biopsy may cause brief cramping and light bleeding or dark discharge afterward. A pathologist examines the tissue and reports whether CIN is present and, if so, its grade. Cells may also be sampled from the cervical canal if the area cannot be fully seen or if glandular changes are suspected.

Management is based on the estimated risk of a significant precancerous change, not on one test result alone. Current risk-based guidance considers present findings together with previous HPV tests, Pap tests, biopsies, and treatment history.

People who are pregnant can usually have colposcopy and selected biopsies when indicated. Procedures intended to remove dysplasia are generally postponed until after pregnancy unless cancer is suspected. Pregnancy does not appear to speed the natural progression of

HPV-related cervical changes, but follow-up should not be missed.

Treatment and management

Treatment depends on the biopsy grade, the size and location of the abnormal area, whether the entire area can be seen, previous results, age, pregnancy, and future pregnancy preferences.

CIN 1 is usually monitored because it often returns to normal as the immune system controls HPV. Monitoring may involve repeat HPV testing, Pap testing, or colposcopy at an interval chosen from current guidance and the person's history. Treatment may be considered if CIN 1 persists or if other findings raise concern.

CIN 2 requires a shared decision. Treatment is commonly recommended, but careful observation may be an option for selected people who are concerned about the effect of cervical procedures on a future pregnancy. Observation requires reliable follow-up with repeated HPV-based testing and colposcopy. It is not the right choice in every situation.

CIN 3 is generally treated. The main goal is to remove or destroy the abnormal tissue before it can progress to cancer.

Excisional treatment removes a piece of the cervix so it can be examined by a pathologist. Common procedures include:

Ablative treatment destroys abnormal tissue rather than removing it. Examples include thermal ablation and cryotherapy, which freezes tissue. Ablation is appropriate only when certain safety criteria are met, including being able to see the full abnormal area and having no concern for invasive cancer or disease inside the cervical canal.

Hysterectomy, which removes the uterus and cervix, is not a routine first treatment for CIN alone. It may be considered in selected situations, such as recurrent high-grade disease when another excision is not practical, or for some cases of AIS. Decisions about AIS are different from those for squamous dysplasia and often involve a gynecologic specialist.

No medicine or supplement has been shown to remove cervical dysplasia reliably. Stopping smoking may help the immune system control HPV and also improves overall health. HPV vaccination may prevent future infections with vaccine-covered types, but it does not replace follow-up or treatment.

- Loop electrosurgical excision procedure, or LEEP: A thin wire loop carrying electrical current removes the abnormal area.

- Cold-knife cone biopsy: A surgeon removes a cone-shaped piece of cervical tissue, usually in an operating room.

Complications

The main concern with untreated high-grade dysplasia is progression to cervical cancer. This usually occurs over time rather than suddenly, which is why appropriate monitoring and treatment are effective. Low-grade changes are less likely to progress, but follow-up is still important because screening and biopsy results can change.

LEEP, cone biopsy, and other procedures may cause bleeding, infection, pain, or narrowing of the cervical opening. Excisional procedures can slightly increase the risk of later pregnancy complications, including preterm birth. Risk may be greater when a larger amount of cervical tissue is removed or when procedures are repeated. These concerns should be balanced against the need to prevent cancer.

After a biopsy or treatment, contact the treating clinic promptly for heavy or increasing bleeding, fever, worsening pelvic pain, or foul-smelling discharge. Seek emergency care if bleeding is severe or is accompanied by fainting, breathing difficulty, confusion, or profound weakness.

Cervical dysplasia can also cause anxiety, especially when HPV is discussed. HPV may have been present for years and does not identify when transmission occurred. Asking the clinician to explain the exact test result and next step can make the situation easier to understand.

Follow up

Follow-up is essential even after abnormal tissue has been removed. Treatment greatly reduces risk, but it does not guarantee that HPV has cleared or that abnormal cells will never return.

After treatment for high-grade dysplasia, HPV-based testing is generally performed more often at first. If the early follow-up tests are reassuring, testing can become less frequent. Current U.S. risk-based guidance recommends long-term surveillance at three-year intervals for at least 25 years after treatment of high-grade disease, after the initial series of negative follow-up tests. Surveillance may continue beyond age 65 when health status allows.

People being observed rather than treated also need testing and, in some cases, repeat colposcopy at the recommended times. Missing these visits can allow persistent high-grade changes to go unnoticed.

Routine follow-up is appropriate when there are no new symptoms and a monitoring plan is already in place. Arrange a prompt visit sooner for unexplained bleeding, unusual discharge, or pelvic pain. People who become pregnant, start immune-suppressing treatment, or receive a new HIV diagnosis should tell the clinician managing their cervical follow-up because the plan may need to change.

Sources

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