CONDITION

Cervical cancer

Learn about cervical cancer symptoms, HPV-related risks, diagnosis, treatment options, possible complications, and follow-up care.

WHAT IT IS
Cancer of the cervix

BODY SYSTEM
Reproductive system

MAIN SYMPTOMS
Abnormal vaginal bleeding, unusual vaginal discharge, pain during sex, pelvic pain

WHAT CAUSES IT
Persistent high-risk HPV infection

HOW IT IS DIAGNOSED
Cervical biopsy

MAIN TREATMENT
Surgery, radiation therapy, chemotherapy

CAN IT BE CURED?
Sometimes, when found before spreading

IS IT AN EMERGENCY?
Sometimes, with uncontrolled bleeding

LONG-TERM OUTLOOK
Often treated successfully before it spreads

Overview

Cervical cancer begins in the cervix, the narrow lower part of the uterus that opens into the vagina. Most cervical cancers develop slowly from abnormal cells called precancerous changes. Finding and treating these changes can prevent many cases of invasive cancer.

Nearly all cervical cancers are linked to long-lasting infection with a high-risk type of human papillomavirus, or HPV. HPV is a common virus passed mainly through intimate skin-to-skin contact. Most HPV infections go away on their own. Cancer can develop when a high-risk infection remains for years and causes increasing cell changes.

The two main types are squamous cell carcinoma, which begins in the flat cells covering the outer cervix, and adenocarcinoma, which starts in gland cells inside the cervical canal. Less common types also occur.

Cervical screening can find HPV infection or abnormal cells before symptoms appear. HPV vaccination lowers the risk of developing cancers caused by vaccine-covered HPV types. Vaccination does not treat an existing infection and does not replace recommended screening.

Cervical cancer can often be treated successfully, especially when found before it has spread. Treatment depends on the cancer's size and stage, its exact cell type, the person's overall health, and whether preserving fertility is a goal.

Symptoms

Precancerous cervical changes and early cervical cancer often cause no symptoms. This is why routine screening remains important even when a person feels well.

When symptoms occur, they may include:

These symptoms have many possible causes other than cancer. However, new or unexplained bleeding should be evaluated rather than assumed to be related to a period, menopause, contraception, or infection.

More advanced disease may affect nearby organs or other parts of the body. Possible symptoms include leg swelling, difficulty passing urine or stool, blood in the urine, tiredness, reduced appetite, or unexplained weight loss.

Arrange a prompt medical appointment for bleeding after menopause, repeated bleeding after sex, persistent unusual discharge, or ongoing pelvic pain. Seek emergency care for very heavy bleeding, fainting, severe weakness, trouble breathing, or severe and rapidly worsening pain.

- Vaginal bleeding after sex, between periods, or after menopause
- Periods that are heavier or last longer than usual
- Watery, bloody, or unusual vaginal discharge, sometimes with an odor
- Pain during sex
- Ongoing pain in the pelvis, lower abdomen, or back

Causes and risk factors

Persistent infection with a high-risk HPV type is the main cause of cervical cancer. HPV can remain unnoticed for many years, so a positive test does not show when the infection was acquired or from whom. It is not evidence of recent infidelity.

Factors associated with a higher risk include:

Condoms and other barriers reduce HPV transmission but do not provide complete protection because uncovered skin can carry the virus. Stopping smoking may help the immune system clear HPV and provides many other health benefits.

HPV vaccination offers strong protection against the HPV types responsible for most cervical cancers. In the United States, routine vaccination is recommended during adolescence, with catch-up vaccination through age 26 for people who were not adequately vaccinated earlier. For some adults ages 27 through 45, vaccination may be considered after discussion with a clinician. Recommendations differ by country and individual history.

- Not receiving recommended cervical screening or follow-up after an abnormal result
- Smoking or regular exposure to tobacco smoke
- A weakened immune system, including from HIV or medicines that suppress immunity
- A previous high-grade cervical precancer
- Exposure before birth to diethylstilbestrol, or DES, a medicine once prescribed during some pregnancies
- Having another condition that makes persistent HPV infection more likely

Diagnosis

Cervical screening is used in people without symptoms. Depending on age, medical history, and local guidance, screening may involve an HPV test, a Pap test, or both. A Pap test examines cervical cells for abnormal changes. An HPV test looks for high-risk virus types.

An abnormal screening result does not mean that someone has cancer. Many results show a temporary HPV infection or cell changes that can be monitored or treated before cancer develops. Follow-up may involve repeat testing, additional laboratory analysis, or colposcopy.

During colposcopy, a clinician uses a magnifying instrument to examine the cervix. Small tissue samples, called biopsies, may be removed from suspicious areas. A biopsy is needed to confirm cervical cancer because it allows a pathologist to examine the cells under a microscope.

If cancer is found, further tests determine its stage, meaning how far it has grown or spread. These may include a pelvic examination under anesthesia, blood tests, and imaging such as MRI, CT, or PET scans. In selected cases, the bladder or rectum may be examined with a small camera.

Staging considers the tumor's size, whether it has reached nearby tissues or lymph nodes, and whether it has spread to distant organs. The stage helps the care team recommend treatment

and discuss the likely outlook.

Treatment and management

Treatment planning usually involves a gynecologic oncologist, a specialist in cancers of the reproductive organs. Radiation oncologists, medical oncologists, pathologists, radiologists, fertility specialists, and supportive-care professionals may also participate.

High-grade precancer is not invasive cancer, but it usually requires careful management. Treatment may remove the abnormal area with a loop electrosurgical excision procedure, often called LEEP, or with a cone biopsy. Some abnormalities can be monitored instead. The choice depends on the biopsy result, age, pregnancy plans, and likelihood of returning for follow-up.

For small, early cervical cancers, surgery may be the main treatment. Options can include:

Preserving the ovaries can sometimes prevent early menopause, but it is not appropriate in every situation. Surgery that preserves fertility does not guarantee a future pregnancy and may increase pregnancy risks. A fertility specialist can explain options such as egg or embryo freezing before treatment.

Radiation therapy uses high-energy beams to destroy cancer cells. Cervical cancer treatment may combine external-beam radiation, delivered from a machine outside the body, with brachytherapy, which places a radiation source close to or inside the cervix. Brachytherapy is an important part of curative radiation treatment for many cervical cancers.

For cancers that have grown beyond the cervix, radiation is often given with chemotherapy. This is called chemoradiation. Chemotherapy can make cancer cells more sensitive to radiation, but the combined treatment may also increase side effects.

Cancer that has returned or spread to distant organs may be treated with chemotherapy, immunotherapy, targeted therapy, radiation, or a combination. Immunotherapy helps the immune system recognize cancer. Targeted drugs act on specific features that help tumors grow. Biomarker testing may be needed to determine whether certain treatments are suitable.

Supportive care is part of treatment at every stage. It can address pain, nausea, bowel or bladder symptoms, fatigue, sexual concerns, emotional distress, sleep problems, and nutrition. Palliative care focuses on comfort and quality of life and can be provided alongside treatment intended to control or cure cancer.

- Cone biopsy: A cone-shaped section of the cervix is removed. This may be sufficient for certain very small cancers.

- Trachelectomy: The cervix and nearby tissue are removed while the main part of the uterus remains. This may preserve the possibility of pregnancy in carefully selected cases.
- Hysterectomy: The uterus and cervix are removed. Depending on the operation, nearby tissue, part of the vagina, lymph nodes, fallopian tubes, or ovaries may also be addressed.

Complications

Cervical cancer may spread into nearby tissues, including the vagina, bladder, rectum, or pelvic wall. It can block urine flow from a kidney, causing kidney damage. Cancer may also spread to lymph nodes, lungs, liver, bones, or other organs.

Complications vary according to the disease and treatment. Surgery can cause bleeding, infection, blood clots, bladder problems, or lymph fluid buildup. Removal of pelvic lymph nodes can contribute to leg swelling called lymphedema.

Pelvic radiation may cause tiredness, diarrhea, bladder irritation, skin changes, vaginal dryness or narrowing, and early loss of ovarian function. Some effects improve after treatment, while others may appear later or require ongoing management.

Chemotherapy and other medicines can cause effects such as nausea, low blood cell counts, infection risk, nerve symptoms, or changes in kidney function. The specific risks depend on the medicines used.

Treatment can affect fertility, menopause, body image, sexual comfort, and emotional well-being. Vaginal moisturizers, lubricants, pelvic-floor therapy, vaginal dilators after radiation, counseling, and menopause care may help. These options should be discussed with the treatment team because the right approach depends on the person's treatment and health history.

Follow up

Follow-up after cervical cancer treatment looks for recurrence, manages lasting side effects, and supports general health. The schedule depends on the stage, treatment, symptoms, and time since therapy. Visits are usually more frequent at first and become less frequent over time.

A follow-up visit may include a symptom review and examination. Cervical or vaginal testing and imaging are used when appropriate, but they are not needed at every visit for every person. Ask for a written survivorship care plan explaining the follow-up schedule, which clinician is responsible, and what symptoms to report.

Contact the care team promptly about new vaginal bleeding, persistent pelvic or back pain, new leg swelling, unexplained weight loss, worsening bowel or bladder problems, or a cough that does not improve. These symptoms do not always mean the cancer has returned, but they should be assessed.

Emergency care is appropriate for uncontrolled bleeding, fainting, sudden chest pain, severe shortness of breath, or a painful and rapidly swollen leg.

Continue other recommended preventive care. People treated for cervical precancer or cancer may need longer or different cervical surveillance than those at average risk. Do not stop screening based only on age without discussing the treatment history with a clinician.

Sources

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