

# Anal Cancer

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# Anal Cancer

## General Information About Anal Cancer

### KEY POINTS

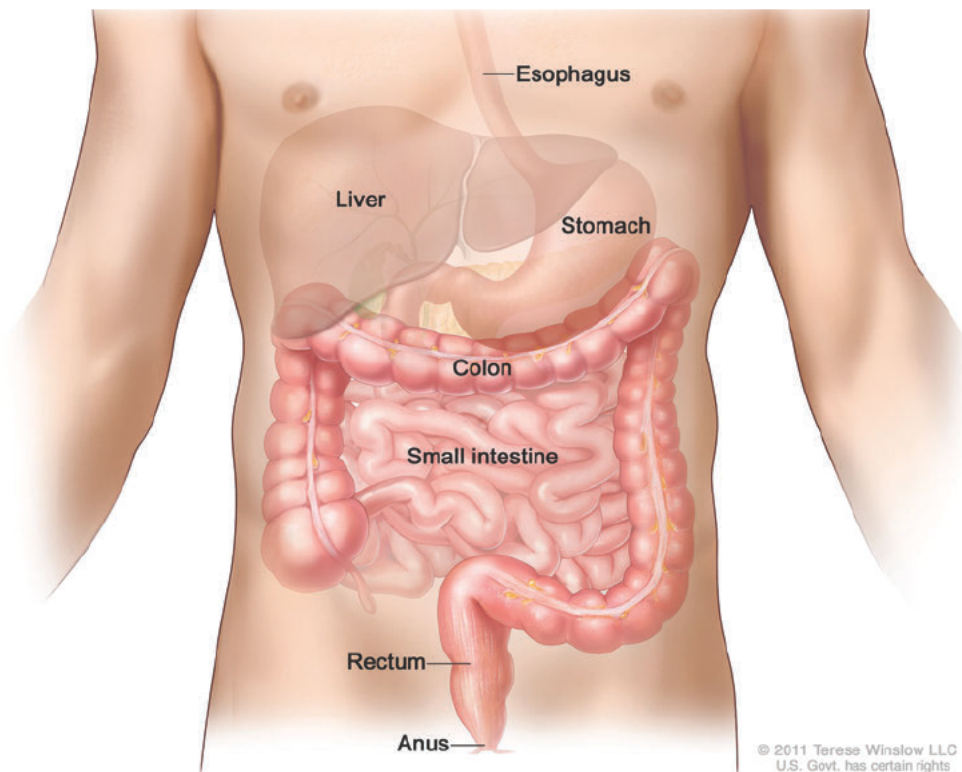
- Anal cancer is a disease in which malignant (cancer) cells form in the tissues of the anus.
- Most anal cancers are related to human papillomavirus (HPV) infection.
- Signs of anal cancer include bleeding from the anus or rectum or a lump near the anus.
- Tests that examine the rectum and anus are used to diagnose anal cancer.
- Certain factors affect the prognosis (chance of recovery) and treatment options.

**Anal cancer** is a disease in which malignant (cancer) cells form in the tissues of the anus. The anus is the end of the large intestine, below the rectum, through which stool (solid waste) leaves the body. The anus is formed partly from the outer skin layers of the body and partly from the intestine. Two ring like muscles, called sphincter muscles, open and close the anal opening and let stool pass out of the body. The anal canal, the part of the anus between the rectum and the anal opening, is about 1 1/2 inches long.

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### Lower Gastrointestinal Anatomy

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Anatomy of the lower digestive system, showing the colon and other organs.

The skin around the outside of the anus is called the perianal area. Tumors of the perianal skin that do not involve the anal sphincter are usually treated the same as anal cancers, although local therapy (treatment directed to a limited area of skin) may be used for some tumors.

Risk factors for anal cancer include the following:

- Being infected with human papillomavirus (HPV).
- Having a condition or disease that causes a weakened immune system such as human immunodeficiency virus (HIV) or an organ transplant.
- Having a personal history of vulvar, vaginal, or cervical cancers.
- Having many sexual partners.
- Having receptive anal intercourse (anal sex).
- Smoking cigarettes.

## Signs and Symptoms

These and other signs and symptoms may be caused by anal cancer or by other conditions. Check with your doctor if you have any of the following:

- Bleeding from the anus or rectum.
- A lump near the anus.
- Pain or pressure in the area around the anus.
- Itching or discharge from the anus.
- A change in bowel habits.

## Testing

Tests that examine the rectum and anus are used to diagnose anal cancer. The following are tests and procedures that may be used:

- **Physical exam and health history:** An exam of the body to check general signs of health including checking for signs of disease such as lumps or anything else that seems unusual. A history of the patient's health habits and past illnesses and treatments will also be taken.
- **Digital rectal examination (DRE):** An exam of the anus and rectum. The doctor or nurse inserts a lubricated, gloved finger into the lower part of the rectum to feel for lumps or anything else that seems unusual.
- **Anoscopy:** An exam of the anus and lower rectum using a short, lighted tube called an anoscope.
- **Proctoscopy:** A procedure to look inside the rectum and anus to check for abnormal areas using a proctoscope. A proctoscope is a thin, tube like instrument with a light and a lens for viewing the inside of the rectum and anus. It may also have a tool to remove tissue samples which are checked under a microscope for signs of cancer.
- **Endo-anal or endorectal ultrasound:** A procedure in which an ultrasound transducer (probe) is inserted into the anus or rectum and is used to bounce high energy sound waves (ultrasound) off internal tissues or organs and make echoes. The echoes form a picture of body tissues called a sonogram.
- **Biopsy:** The removal of cells or tissues, so they can be viewed under a microscope by a pathologist to check for signs of cancer. If an abnormal area is seen during the anoscopy, a biopsy may be done at that time.



## Prognosis Factors

Certain factors affect the prognosis (chance of recovery) and treatment options. The prognosis and treatment options depend on the following:

- The size of the tumor.
- Whether the cancer has spread to the lymph nodes.

The treatment options depend on the following:

- The stage of the cancer.
- Where the tumor is located in the anus.
- Whether the patient has human immunodeficiency virus (HIV).

Taking part in one of the clinical trials being done to improve treatment should be considered.

## Stages of Anal Cancer

### KEY POINTS

- After anal cancer has been diagnosed, tests are done to find out if cancer cells have spread within the anus or to other parts of the body.
- There are three ways that cancer spreads in the body.
- Cancer may spread from where it began to other parts of the body.
- The following stages are used for anal cancer:
  - Stage 0
  - Stage I
  - Stage II
  - Stage III
  - Stage IV
- Anal cancer can recur (come back) after it has been treated.
- Whether cancer remains after initial treatment or has recurred.

The process used to find out if cancer has spread within the anus or to other parts of the body is called staging. The information gathered from this staging process determines the stage of the disease. It is important to know the stage in order to plan treatment. The following tests may be used in the staging process:

- **CT scan (CAT scan):** A procedure that makes a series of detailed pictures of areas inside the body, such as the abdomen, pelvis, or chest, taken from different angles. The pictures are made by a computer linked to an x ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly. This procedure is also called computed tomography, computerized tomography, or computerized axial tomography. For anal cancer, a CT scan of the pelvis and abdomen may be done.
- **Chest x-ray:** An x ray of the organs and bones inside the chest. An x ray is a type of energy beam that can go through the body and onto film making a picture of areas inside the body.
- **MRI (magnetic resonance imaging):** A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI).



- **PET scan (positron emission tomography scan):** A procedure to find malignant tumor cells in the body. A small amount of radioactive glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Malignant tumor cells show up brighter in the picture because they are more active and take up more glucose than normal cells do.

## Possible Spreading of Cancer

There are three ways that cancer spreads in the body. Cancer can spread through tissue, the lymph system, and the blood.

- **Tissue:** The cancer spreads from where it began by growing into nearby areas.
- **Lymph system:** The cancer spreads from where it began by getting into the lymph system. The cancer travels through the lymph vessels to other parts of the body.
- **Blood:** The cancer spreads from where it began by getting into the blood. The cancer travels through the blood vessels to other parts of the body.

Cancer may spread from where it began to other parts of the body. When cancer spreads to another part of the body, it is called metastasis. Cancer cells break away from where they began (the primary tumor) and travel through the lymph system or blood. The metastatic tumor is the same type of cancer as the primary tumor. For example, if anal cancer spreads to the lung, the cancer cells in the lung are actually anal cancer cells. The disease is metastatic anal cancer and not lung cancer.

## Stages Used for Anal Cancer

### Stage 0 (Carcinoma in Situ)

In stage 0, abnormal cells are found in the innermost lining of the anus. These abnormal cells may become cancer and spread into nearby normal tissue. Stage 0 is also called carcinoma in situ.

### Stage I

In stage I, cancer has formed, and the tumor is 2 centimeters or smaller.

### Stage II

Stage II anal cancer is divided into stages IIA and IIB.

**Stage IIA:** The tumor is larger than 2 centimeters but not larger than 5 centimeters.

**Stage IIB:** The tumor is larger than 5 centimeters.

### Stage III

Stage III anal cancer is divided into stages IIIA, IIIB, and IIIC.

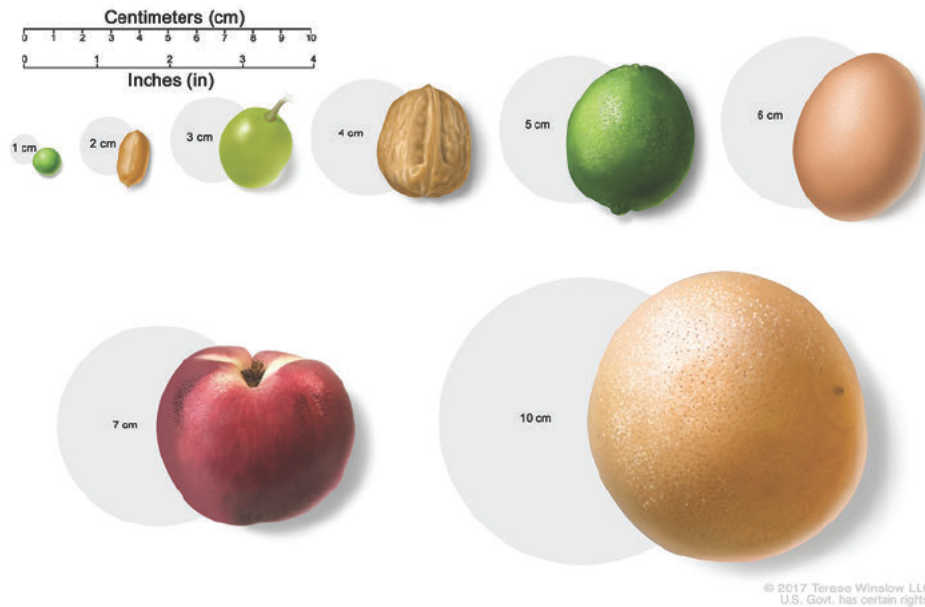
- **Stage IIIA:** The tumor is 5 centimeters or smaller and has spread to lymph nodes near the anus or groin.
- **Stage IIIB:** The tumor is any size and has spread to nearby organs such as the vagina, urethra, or bladder. Cancer has not spread to lymph nodes.
- **Stage IIIC:** The tumor is any size and may have spread to nearby organs. Cancer has spread to lymph nodes near the anus or groin.



## Stage IV

In stage IV, the tumor is any size. Cancer may have spread to lymph nodes or nearby organs and has spread to other parts of the body such as the liver or lungs.

### Tumor Sizes



**Recurrent Anal Cancer:** Recurrent anal cancer is cancer that has recurred (come back) after it has been treated. The cancer may come back in the anus or in other parts of the body.

## Treatment Option Overview

### KEY POINTS

- There are different types of treatments for patients with anal cancer.
- Three types of standard treatments are used:
  - Surgery
  - Radiation therapy
  - Chemotherapy
- New types of treatments are being tested in clinical trials:
  - Radiosensitizers
  - Immunotherapy
- Treatment for anal cancer may cause side effects.
- Patients may want to think about taking part in a clinical trial.
- Patients can enter clinical trials before, during, or after starting their cancer treatment.
- Follow up tests may be needed.

## Treatment Options for Patients with Anal Cancer

There are different types of treatments for patients with anal cancer. Some treatments are standard (the currently used treatments), and some are being tested in clinical trials. A treatment clinical trial is a research study meant to help improve current treatments or obtain information on new treatments for patients with cancer. When clinical trials show that a new treatment is better than the standard treatment, the new treatment may become the standard treatment. Patients may want to think about taking part in a clinical trial. Some clinical trials are open only to patients who have not started treatment.

Three types of standard treatments are used:

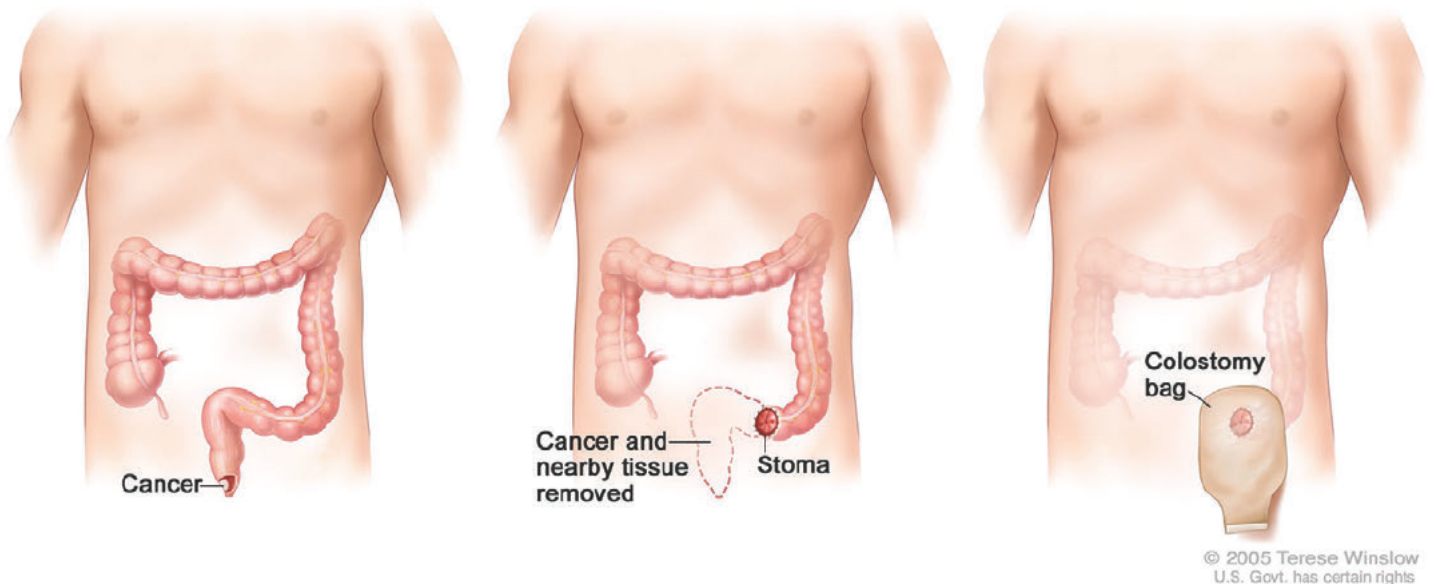
### Surgery

- **Local resection:** A surgical procedure in which the tumor is cut from the anus along with some of the healthy tissue around it. Local resection may be used if the cancer is small and has not spread. This procedure may save the sphincter muscles, so the patient can still control bowel movements. Tumors that form in the lower part of the anus can often be removed with local resection.
- **Abdominoperineal resection:** A surgical procedure in which the anus, the rectum, and part of the sigmoid colon are removed through an incision made in the abdomen. The doctor sews the end of the intestine to an opening called a stoma made in the surface of the abdomen, so body waste can be collected in a disposable bag outside of the body. This is called a colostomy. Lymph nodes that contain cancer may also be removed during this operation. This procedure is used only for cancer that remains or comes back after treatment with radiation therapy and chemotherapy.

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### Resection of the Colon with Colostomy

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Anal cancer surgery with colostomy. Part of the colon containing the cancer and nearby healthy tissue is removed, a stoma is created, and a colostomy bag is attached to the stoma.

## Radiation Therapy

Radiation therapy is a cancer treatment that uses high energy x rays or other types of radiation to kill cancer cells or keep them from growing. There are two types of radiation therapy:

- **External radiation therapy:** This type of radiation uses a machine outside the body to send radiation toward the area of the body with cancer.
- **Internal radiation therapy:** This type of radiation uses a radioactive substance sealed in needles, seeds, wires, or catheters that are placed directly into or near the cancer.

The way the radiation therapy is given depends on the type and stage of the cancer being treated. External and internal radiation therapies are used to treat anal cancer.

## Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells either by killing the cells or by stopping the cells from dividing.

When chemotherapy is taken by mouth or injected into a vein or muscle, the drugs enter the bloodstream and can reach cancer cells throughout the body (systemic chemotherapy).

When chemotherapy is placed directly into the cerebrospinal fluid, an organ, or a body cavity such as the abdomen, the drugs mainly affect cancer cells in those areas (regional chemotherapy).

The way the chemotherapy is given depends on the type and stage of the cancer being treated.

**New types of treatments are being tested in clinical trials.** This summary section describes treatments that are being studied in clinical trials. It may not mention every new treatment being studied.

- **Radiosensitizers** are drugs that make tumor cells more sensitive to radiation therapy. Combining radiation therapy with radiosensitizers may kill more tumor cells.
- **Immunotherapy** is a treatment that uses the patient's immune system to fight cancer. Substances made by the body or made in a laboratory are used to boost, direct, or restore the body's natural defenses against cancer. This type of cancer treatment is also called biotherapy or biologic therapy.

## Clinical Trials

For some patients, taking part in a clinical trial may be the best treatment choice. Clinical trials are part of the cancer research process. Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

Many of today's standard treatments for cancer are based on earlier clinical trials. Patients who take part in a clinical trial may receive the standard treatment or be among the first to receive a new treatment.

Patients who take part in clinical trials also help improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

**Patients can enter clinical trials before, during, or after starting their cancer treatment.**

Some clinical trials only include patients who have not yet received treatment. Other trials test treatments for patients whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from recurring (coming back) or reduce the side effects of cancer treatment.





### **Follow-up tests may be needed.**

Some of the tests that were done to diagnose the cancer or to find out the stage of the cancer may be repeated. Some tests will be repeated in order to see how well the treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests.

Some of the tests will continue to be done from time to time after treatment has ended. The results of these tests can show if your condition has changed or if the cancer has recurred (come back). These tests are sometimes called follow up test or check ups.

## **Treatment Options by Stage**

### **Stage 0 (Carcinoma in Situ)**

Treatment of stage 0 is usually local resection.

### **Stages I, II, and III**

Treatment of stages I, II, and III anal cancer may include the following:

- Local resection for tumors of the skin around the outside of the anus and tumors inside the anal opening that do not involve the anal sphincter.
- External beam radiation therapy with chemotherapy.
- Radiation therapy alone.
- Abdominoperineal resection if cancer remains or comes back after treatment with radiation therapy and chemotherapy.
- Other options may include treatment with additional chemoradiation therapy, chemotherapy alone, or immunotherapy.

Patients who have had treatment that saves the sphincter muscles may receive follow up exams every 3 months for the first 2 years including rectal exams with endoscopy and biopsy as needed to check for recurrence.

### **Stage IV Anal Cancer**

Treatment of stage IV anal cancer may include the following:

- Palliative surgery to relieve symptoms and improve the quality of life.
- Palliative radiation therapy.
- Palliative chemotherapy with or without radiation therapy.
- A clinical trial of immune checkpoint inhibitors.
- A clinical trial of new treatment options.



Check the list of NCI supported cancer clinical trials that are now accepting patients with the anal cancer stage you are experiencing. For more specific results, refine the search by using other search features such as the location of the trial, the type of treatment, or the name of the drug. Talk with your doctor about clinical trials that may be right for you. General information about clinical trials is available from the following NCI website:

[www.cancer.gov/about\\_cancer/treatment/clinical\\_trials](http://www.cancer.gov/about_cancer/treatment/clinical_trials)

### **Treatment of HIV and Anal Cancer**

In general, treatment for patients who have anal cancer and the human immunodeficiency virus (HIV) is similar to treatment for other patients, and these patients have similar outcomes. However, this treatment can further damage the weakened immune systems of patients who have HIV. Treatment in patients with a history of AIDS related complications may require lower doses of anticancer and radiation therapy than doses used for patients who do not have HIV.

### **Treatment Options for Recurrent Anal Cancer**

Treatment of recurrent anal cancer may include the following:

- Radiation therapy and chemotherapy for recurrence after surgery.
- Surgery for recurrence after radiation therapy and/or chemotherapy.
- A clinical trial of radiation therapy with chemotherapy and radiosensitizers.
- A clinical trial of chemotherapy options.
- A clinical trial of immune checkpoint inhibitors.



## Notes

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For more information and related links visit: [www.cancer.gov/types/anal](http://www.cancer.gov/types/anal)

Resource: PDQ® Adult Treatment Editorial board. PDQ Anal Cancer Treatment. Bethesda, MD: National Cancer Institute. Available at <https://www.cancer.gov/types/anal/patient/anal-treatment-pdq>. Accessed 08/06/2021.







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