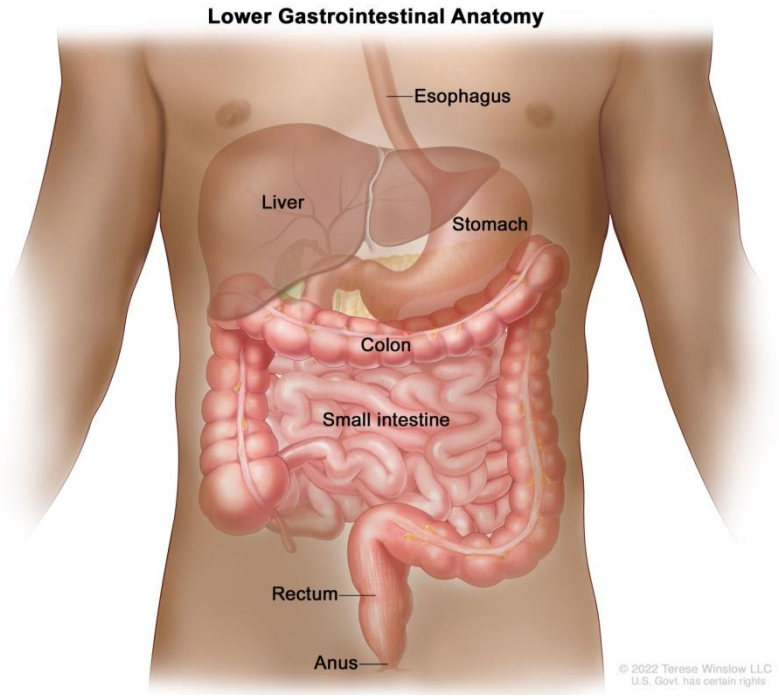
Anal canal Cancer

- Anal cancer is a disease in which 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 and treatment options.

Anal cancer is a disease in which malignant 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 1-1½ inches long.



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 may be used for some.

Most anal cancers are related to human papillomavirus (HPV) infection.

Risk factors for anal cancer include the following:

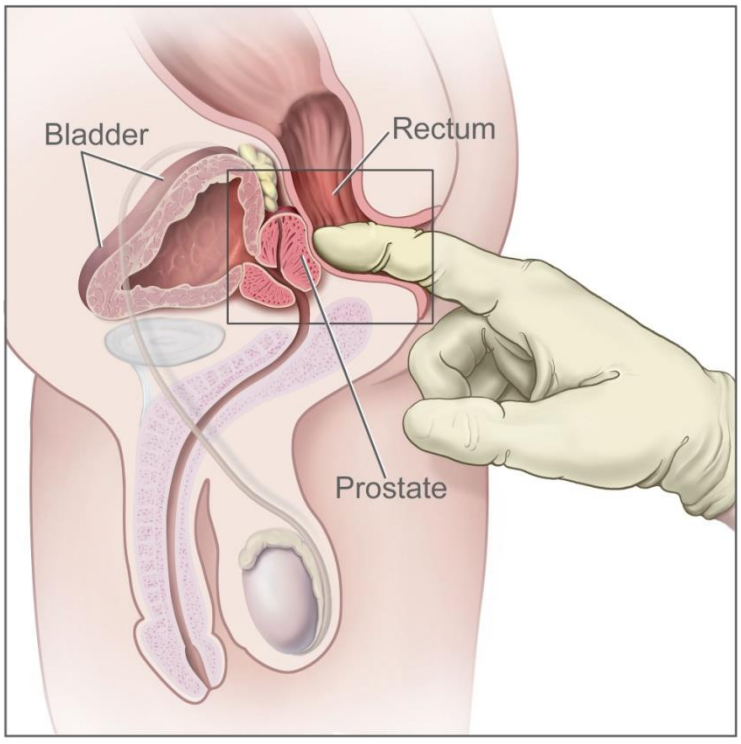
- Being infected with human papillomavirus (HPV).
- Having a condition or disease that causes a weakened immune system, such as human immunodeficiency virus (HIV) or an organ transplant.
- Having a personal history of vulvar, vaginal, or cervical cancers.
- Having many sexual partners.
- Having receptive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

Signs of anal cancer

- 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.

Tests that examine the rectum and anus are used to diagnose anal cancer.

- **Physical exam and health history**: An exam of the body to check general signs of health
- **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 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.

Certain factors affect the prognosis and treatment options.

The prognosis depends 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 in the anus.
- Whether the patient has human immunodeficiency virus (HIV).
- Whether cancer remains after initial treatment or has recurred.

Stages of Anal Cancer

- 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.

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.

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** : 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.
- **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 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.

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.

The following stages are used for anal cancer:

Stage 0

In stage 0, abnormal cells are found in the mucosa (innermost layer) of the anus. These abnormal cells may become cancer and spread into nearby normal tissue. Stage 0 is also called high-grade squamous intraepithelial lesion (HSIL).

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.

- In stage IIA, the tumor is larger than 2 centimeters but not larger than 5 centimeters.
- In stage IIB, the tumor is larger than 5 centimeters.

Stage III

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

- In stage IIIA, the tumor is 5 centimeters or smaller and has spread to lymph nodes near the anus or groin.

- In 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.
- In 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.

Anal cancer can recur (come back) after it has been treated.

The cancer may come back in the anus or other parts of the body, such as the liver or lungs.

Treatment Option Overview

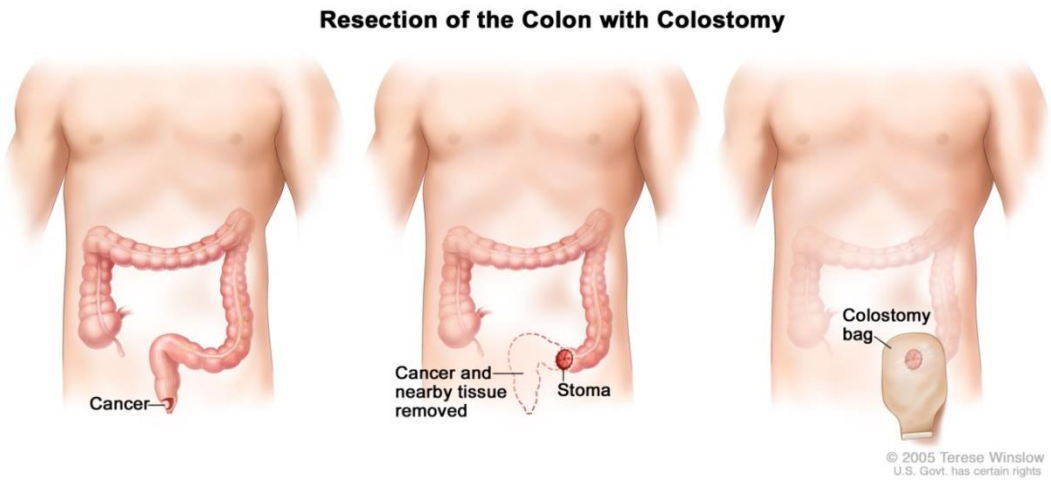
Key Points

- There are different types of treatment for patients with anal cancer.
- Three types of standard treatment are used:
  - Surgery
  - Radiation therapy
  - Chemotherapy
- New types of treatment
  - Immunotherapy
- Follow-up tests may be needed.

Three types of standard treatment 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.



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 uses a machine outside the body to send radiation toward the area of the body with cancer.
- Internal radiation therapy 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 therapy 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).

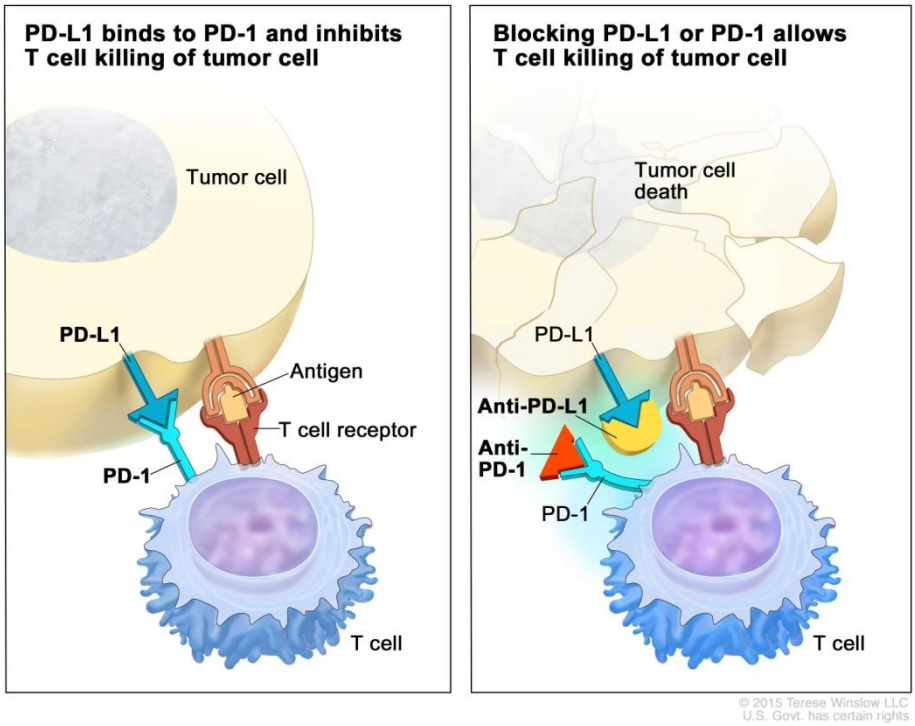
New types of treatment

Immunotherapy

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 cancer treatment is a type of biologic therapy.

Immune checkpoint inhibitor therapy is a type of immunotherapy.

- PD-1 and PD-L1 inhibitor therapy: PD-1 is a protein on the surface of T cells that helps keep the body's immune responses in check. PD-L1 is a protein found on some types of cancer cells. When PD-1 attaches to PD-L1, it stops the T cell from killing the cancer cell. PD-1 and PD-L1 inhibitors keep PD-1 and PD-L1 proteins from attaching to each other. This allows the T cells to kill cancer cells. Pembrolizumab and nivolumab are types of PD-1 inhibitors.



Immunotherapy uses the body's immune system to fight cancer.

Follow-up tests are 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 tests or check-ups.

Treatment of Stage 0 (Carcinoma in Situ)

Treatment of stage 0 is usually local resection.

Treatment of Stages I, II, and III Anal Cancer

- 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.

Treatment of Stage IV Anal Cancer

- Palliative surgery to relieve symptoms and improve the quality of life.
- Palliative radiation therapy.
- Palliative chemotherapy with or without radiation therapy.
- Palliative immune checkpoint inhibitors.