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Gastrointestinal Carcinoid Tumors (PDQ®): Treatment Patient Version Last Modified: 05/14/2004

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General Information About Gastrointestinal Carcinoid Tumors

Key Points for This Section

- [A gastrointestinal carcinoid tumor is cancer that forms in the lining of the gastrointestinal tract.](#)
- [Health history can affect the risk of developing gastrointestinal carcinoid tumors.](#)
- [A gastrointestinal carcinoid tumor often has no signs in its early stages. Carcinoid syndrome may occur if the tumor spreads to the liver or other parts of the body.](#)
- [Tests that examine the blood and urine are used to detect \(find\) and diagnose gastrointestinal carcinoid tumors.](#)
- [Certain factors affect prognosis \(chance of recovery\) and treatment options.](#)

A gastrointestinal carcinoid tumor is cancer that forms in the lining of the gastrointestinal tract.

The gastrointestinal tract includes the stomach, small intestine, and large intestine. These organs are part of the digestive system, which processes nutrients (vitamins, minerals, carbohydrates, fats, proteins, and water) in foods that are eaten and helps pass waste material out of the body. Gastrointestinal carcinoid tumors develop from a certain type of hormone-making cell in the lining of the gastrointestinal tract. These cells produce hormones that help regulate digestive juices and the muscles used in moving food through the stomach and intestines. A gastrointestinal carcinoid tumor may also produce hormones. Carcinoid tumors that start in the rectum (the last several inches of the large intestine) usually do not produce hormones.

Gastrointestinal carcinoid tumors grow slowly. Most of them occur in the appendix (an organ attached to the large intestine), small intestine, and rectum. It is common for more than one tumor to develop in the small intestine. Having a carcinoid tumor increases a person's chance of getting other cancers in the digestive system, either at the same time or later.

Health history can affect the risk of developing gastrointestinal carcinoid tumors.

Risk factors include the following:

- Having a family history of multiple endocrine neoplasia type 1 (MEN1) syndrome.
- Having certain conditions that affect the stomach's ability to produce stomach acid, such as atrophic gastritis, pernicious anemia, or Zollinger-Ellison syndrome.
- Smoking tobacco.

A gastrointestinal carcinoid tumor often has no signs in its early stages. Carcinoid syndrome may occur if the tumor spreads to the liver or other parts of the body.

The hormones produced by gastrointestinal carcinoid tumors are usually destroyed by blood and liver enzymes. If the tumor has spread to the liver, however, high amounts of these hormones may remain in the body and cause the following group of symptoms, called carcinoid syndrome:

- Redness or a feeling of warmth in the face and neck.
- Diarrhea.
- Shortness of breath, fast heartbeat, tiredness, or swelling of the feet and ankles.
- Wheezing.
- Pain or a feeling of fullness in the abdomen.

These symptoms and others may be caused by gastrointestinal carcinoid tumors or by other conditions. A doctor should be consulted if any of these symptoms occur.

Tests that examine the blood and urine are used to detect (find) and diagnose gastrointestinal carcinoid tumors.

The following tests and procedures may be used:

- Complete blood count: A procedure in which a sample of blood is drawn and checked for the following:
 - The number of red blood cells, white blood cells, and platelets.
 - The amount of hemoglobin (the protein that carries oxygen) in the red blood cells.
 - The portion of the sample made up of red blood cells.
- Physical exam and 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.
- Blood chemistry studies: A procedure in which a blood sample is checked to measure the amounts of certain substances, such as hormones, released into the blood by organs and tissues in the body. An unusual (higher or lower than normal) amount of a substance can be a sign of disease in the organ or tissue that produces it. The blood sample is checked to see if it contains a hormone produced by carcinoid tumors. This test is used to help diagnose carcinoid syndrome.
- Twenty-four-hour urine test: A test in which a urine sample is checked to measure the amounts of certain substances, such as hormones. An unusual (higher or lower than normal) amount of a substance can be a sign of disease in the organ or tissue that produces it. The urine sample is checked to see if it contains a hormone produced by carcinoid tumors. This test is used to help diagnose carcinoid

syndrome.

Certain factors affect prognosis (chance of recovery) and treatment options.

The prognosis (chance of recovery) and treatment options depend on the following:

- Whether the cancer can be completely removed by surgery.
- Whether the cancer has spread from the stomach and intestines to other parts of the body, such as the liver or lymph nodes.
- The size of the tumor.
- Where the tumor is in the gastrointestinal tract.
- Whether the cancer is newly diagnosed or has recurred.

Treatment options also depend on whether the cancer is causing symptoms. Most gastrointestinal carcinoid tumors are slow-growing and can be treated and often cured. Even when not cured, many patients may live for a long time.

Stages of Gastrointestinal Carcinoid Tumors

Key Points for This Section

- After a gastrointestinal carcinoid tumor has been diagnosed, tests are done to find out if cancer cells have spread within the stomach and intestines or to other parts of the body.
- Gastrointestinal carcinoid tumors are grouped for treatment based on where they are in the body.
 - Localized
 - Regional
 - Metastatic

After a gastrointestinal carcinoid tumor has been diagnosed, tests are done to find out if cancer cells have spread within the stomach and intestines or to other parts of the body.

Staging is the process used to find out how far the cancer has spread. The information gathered from the staging process determines the stage of the disease. There are no standard stages for gastrointestinal carcinoid tumors. In order to plan treatment, it is important to know the extent of the disease and whether the tumor can be removed by surgery. The following tests and procedures may be used:

- Gastrointestinal endoscopy: A procedure to look inside the gastrointestinal tract for abnormal areas or cancer. An endoscope (a thin, lighted tube) is inserted through the mouth and esophagus into the stomach and first part of the small intestine. Also, a colonoscope (a thin, lighted tube) is inserted through the rectum into the colon (large intestine); this is called a colonoscopy.
- CT scan (CAT scan): A procedure that makes a series of detailed pictures of areas inside the body, 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.
- Somatostatin receptor scintigraphy (SRS): A type of radionuclide scan used to find carcinoid tumors. In SRS, radioactive octreotide, a drug similar to somatostatin, is injected into a vein and travels through the bloodstream. The radioactive octreotide attaches to carcinoid tumor cells that have somatostatin receptors. A radiation-measuring device detects the radioactive material, showing where the carcinoid

tumor cells are in the body. This procedure is also called an octreotide scan.

- **Biopsy:** The removal of cells or tissues so they can be viewed under a microscope to check for signs of cancer. Tissue samples may be taken during endoscopy and colonoscopy.
- **Angiogram:** A procedure to look at blood vessels and the flow of blood. A contrast dye is injected into the blood vessel. As the contrast dye moves through the blood vessel, x-rays are taken to see if there are any blockages.
- **PET scan** (positron emission tomography scan): A procedure to find malignant tumor cells in the body. A small amount of radionuclide 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.
- **X-ray of the abdomen:** An x-ray of the organs and tissues inside the abdomen. 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.

Gastrointestinal carcinoid tumors are grouped for treatment based on where they are in the body.

Localized

Cancer is found in the appendix, colon, rectum, small intestine, and/or stomach only.

Regional

Cancer has spread from the appendix, colon, rectum, stomach, and/or small intestine to nearby tissues or lymph nodes.

Metastatic

Cancer has spread to other parts of the body.

Recurrent Gastrointestinal Carcinoid Tumors

A recurrent gastrointestinal carcinoid tumor is a tumor that has recurred (come back) after it has been treated. The tumor may come back in the stomach or intestines or in other parts of the body.

Treatment Option Overview

Key Points for This Section

- There are different types of treatment for patients with gastrointestinal carcinoid tumors.
- Seven types of standard treatment are used:
 - Surgery
 - Radiation therapy
 - Chemotherapy
 - Percutaneous ethanol injection
 - Biologic therapy
 - Hormone therapy
 - Other drug therapy
- Other types of treatment are being tested in clinical trials.

There are different types of treatment for patients with gastrointestinal carcinoid tumors.

Different types of treatment are available for patients with gastrointestinal carcinoid tumors. Some treatments are standard (the currently used treatment), and some are being tested in clinical trials. Before starting treatment, patients may want to think about taking part in a clinical trial. 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.

Clinical trials are taking place in many parts of the country. Information about ongoing clinical trials is available from the [NCI Cancer.gov Web site](http://www.nci.nih.gov) ¹. Choosing the most appropriate cancer treatment is a decision that ideally involves the patient, family, and health care team.

Seven types of standard treatment are used:

Surgery

Treatment of gastrointestinal carcinoid tumors usually includes surgery. One of the following surgical procedures may be used:

- Appendectomy: Removal of the appendix.
- Fulguration: Use of an electric current to burn away the tumor using a special tool.
- Cryosurgery: A treatment that uses an instrument to freeze and destroy abnormal tissue, such as carcinoma in situ. This type of treatment is also called cryotherapy. The doctor may use ultrasound to guide the instrument.
- Resection: Surgery to remove part or all of the organ that contains cancer. Resection of the tumor and a small amount of normal tissue around it is called a local excision.
- Bowel resection and anastomosis: Removal of the bowel tumor and a small section of healthy bowel on each side. The healthy parts of the bowel are then sewn together (anastomosis). Lymph nodes are removed and checked by a pathologist to see if they contain cancer.
- Radiofrequency ablation: The use of a special probe with tiny electrodes that release high-energy radio waves (similar to microwaves) that kill cancer cells. The probe may be inserted through the skin or through an incision (cut) in the abdomen.
- Hepatic resection: Surgery to remove part or all of the liver.
- Hepatic artery ligation or embolization: A procedure to ligate (tie off) or embolize (block) the hepatic artery, the main blood vessel that brings blood into the liver. Blocking the flow of blood to the liver helps kill cancer cells growing there.

Radiation therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells. There are two types of radiation therapy. External radiation therapy uses a machine outside the body to send radiation toward the 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.

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 spinal column, an organ, or a body cavity such as the abdomen, the drugs mainly affect cancer cells in those areas (regional chemotherapy).

Chemoembolization of the hepatic artery is a type of regional chemotherapy that may be used to treat a gastrointestinal carcinoid tumor that has spread to the liver. The anticancer drug is injected into the hepatic artery through a catheter (thin tube). The drug is mixed with a substance that embolizes (blocks) the artery, cutting off blood flow to the tumor. Most of the anticancer drug is trapped near the tumor and only a small amount of the drug reaches other parts of the body. The blockage may be temporary or permanent, depending on the substance used to block the artery. The tumor is prevented from getting the oxygen and nutrients it needs to grow. The liver continues to receive blood from the hepatic portal vein, which carries blood from the stomach and intestine.

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

Percutaneous ethanol injection

Percutaneous ethanol injection is a cancer treatment in which a small needle is used to inject ethanol (alcohol) directly into a tumor to kill cancer cells. This procedure is also called intratumoral ethanol injection.

Biologic therapy

Biologic therapy 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 immunotherapy.

Hormone therapy

Hormone therapy is a cancer treatment that removes hormones or blocks their action and stops cancer cells from growing. Hormones are substances produced by glands in the body and circulated in the bloodstream. The presence of some hormones can cause certain cancers to grow. If tests show that the cancer cells have places where hormones can attach (receptors), drugs, surgery, or radiation therapy are used to reduce the production of hormones or block them from working.

Other drug therapy

MIBG (metaiodobenzylguanidine) is sometimes used, with or without radioactive iodine (I^{131}), to lessen the symptoms of gastrointestinal carcinoid tumors.

Other types of treatment are being tested in clinical trials.

Treatments being studied in clinical trials for gastrointestinal carcinoid tumors include new combinations of chemotherapy. Information about these and other ongoing clinical trials is available from the [NCI Cancer.gov Web site](http://www.nci.nih.gov)¹.

Treatment Options for Gastrointestinal Carcinoid Tumors

Localized Gastrointestinal Carcinoid Tumors

Carcinoid tumors in the appendix

Treatment of localized gastrointestinal carcinoid tumors in the appendix may include the following:

- Appendectomy.
- Appendectomy and local excision.
- Appendectomy, bowel resection with anastomosis, and removal of lymph nodes.

Rectal carcinoid tumors

Treatment of localized gastrointestinal carcinoid tumors in the rectum may include the following:

- Fulguration.
- Local excision.
- Resection.

Surgery that saves the sphincter muscles (the muscles that open and close the anus) may be possible.

Small bowel carcinoid tumors

Treatment of localized gastrointestinal carcinoid tumors in the small intestine may include the following:

- Local excision.
- Resection with removal of nearby lymph nodes.

Gastric, colon, and pancreatic carcinoid tumors

Treatment of localized gastrointestinal carcinoid tumors in the stomach, colon, or pancreas is usually resection.

Regional Gastrointestinal Carcinoid Tumors

Treatment is usually surgery to remove all the cancer that can be seen at the site of the original tumor, as well as nearby tissues and lymph nodes.

If the tumor cannot be completely removed by surgery, treatment is usually palliative therapy to relieve symptoms and improve the patient's quality of life. This may include the following:

- Resection, cryosurgery, or radiofrequency ablation to remove as much of the tumor as possible.
- Chemoembolization to shrink tumors in the liver.

Metastatic Gastrointestinal Carcinoid Tumors

Distant metastases

If the metastatic gastrointestinal carcinoid tumor is not causing symptoms, there may be a period of watchful waiting before treatment is given. Treatment of distant metastases of gastrointestinal carcinoid tumors is usually palliative therapy that may include the following:

- Surgery to bypass or remove part of a tumor blocking the small intestine.
- Chemotherapy, which may include chemoembolization.
- Radiation therapy, sometimes with radioisotopes such as radioactive iodine (I¹³¹).
- MIBG (metaiodobenzylguanidine) therapy.
- Biologic therapy and/or hormone therapy.
- Clinical trials of new treatments.

Carcinoid syndrome

Treatment of metastatic gastrointestinal carcinoid tumors that are causing carcinoid syndrome may include the following:

- Resection, cryosurgery, radiofrequency ablation, or percutaneous ethanol injection for tumors in the liver.
- Hepatic artery ligation or embolization, with or without regional or systemic chemotherapy.
- Hormone therapy.
- Biologic therapy with or without chemotherapy.
- Clinical trials of new combinations of chemotherapy.

A heart valve replacement may be done for some patients with carcinoid syndrome.

This summary section refers to specific treatments under study in clinical trials, but it may not mention every new treatment being studied. Information about ongoing clinical trials is available from the [NCI Cancer.gov Web site](#)¹.

Recurrent Gastrointestinal Carcinoid Tumors

Treatment of recurrent gastrointestinal carcinoid tumors may include the following:

- Surgery to remove part or all of the tumor.
- A clinical trial.

Information about ongoing clinical trials is available from the [NCI Cancer.gov Web site](#)¹.

Changes to This Summary (05/14/2004)

The PDQ cancer information summaries are reviewed regularly and updated as new information becomes available. This section describes the latest changes made to this summary as of the date above.

Editorial changes were made to this summary.

To Learn More

Call

For more information, U.S. residents may call the National Cancer Institute's (NCI's) Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237) Monday through Friday from 9:00 a.m. to 4:30 p.m. Deaf and hard-of-hearing callers with TTY equipment may call 1-800-332-8615. The call is free and a trained Cancer Information Specialist is available to answer your questions.

Web sites and Organizations

The [NCI Web site](#)² provides online access to information on cancer, clinical trials, and other Web sites and organizations that offer support and resources for cancer patients and their families. There are also many other places where people can get materials and information about cancer treatment and services. Local hospitals may have information on local and regional agencies that offer information about finances, getting to and from treatment, receiving care at home, and dealing with problems associated with cancer treatment.

Publications

The NCI has booklets and other materials for patients, health professionals, and the public. These publications discuss types of cancer, methods of cancer treatment, coping with cancer, and clinical trials. Some publications provide information on tests for cancer, cancer causes and prevention, cancer statistics, and NCI research activities. NCI materials on these and other topics may be ordered online or printed directly from the [NCI Publications Locator](#)³. These materials can also be ordered by telephone from the Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237), TTY at 1-800-332-8615.

LiveHelp

The NCI's LiveHelp service, a program available on several of the Institute's Web sites, provides Internet users with the ability to chat online with an Information Specialist. The service is available from 9:00 a.m. to 11:00 p.m. Eastern time, Monday through Friday. Information Specialists can help Internet users find information on NCI Web sites and answer questions about cancer.

Write

For more information from the NCI, please write to this address:

NCI Public Inquiries Office
Suite 3036A
6116 Executive Boulevard, MSC8322
Bethesda, MD 20892-8322

About PDQ

PDQ is a comprehensive cancer database available on NCI's Web site.

PDQ is the National Cancer Institute's (NCI's) comprehensive cancer information database. Most of the information contained in PDQ is available online at [NCI's Web site](#)². PDQ is provided as a service of the NCI. The NCI is part of the National Institutes of Health, the federal government's focal point for biomedical research.

PDQ contains cancer information summaries.

The PDQ database contains summaries of the latest published information on cancer prevention, detection, genetics, treatment, supportive care, and complementary and alternative medicine. Most summaries are available in two versions. The health professional versions provide detailed information written in technical language. The patient versions are written in easy-to-understand, nontechnical language. Both versions provide current and accurate cancer information.

The PDQ cancer information summaries are developed by cancer experts and reviewed regularly.

Editorial Boards made up of experts in oncology and related specialties are responsible for writing and maintaining the cancer information summaries. The summaries are reviewed regularly and changes are made as new information becomes available. The date on each summary ("Date Last Modified") indicates the time of the most recent change.

PDQ also contains information on clinical trials.

Before starting treatment, patients may want to think about taking part in a clinical trial. A clinical trial is a study to answer a scientific question, such as whether one treatment is better than another. Trials are based on past studies and what has been learned in the laboratory. Each trial answers certain scientific questions in order to find new and better ways to help cancer patients. During treatment clinical trials, information is collected about new treatments, the risks involved, and how well they do or do not work. If a clinical trial shows that a new treatment is better than one currently being used, the new treatment may become "standard."

Listings of clinical trials are included in PDQ and are available online at [NCI's Web site](#)⁴. Descriptions of the trials are available in health professional and patient versions. Many cancer doctors who take part in clinical trials are also listed in PDQ. For more information, call the Cancer Information Service 1-800-4-CANCER (1-800-422-6237); TTY at 1-800-332-8615.

Glossary Terms

abdomen (AB-do-men)

The area of the body that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs.

abnormal

Not normal. An abnormal lesion or growth may be cancerous, premalignant (likely to become cancer), or benign.

anastomosis (an-AS-ta-MO-sis)

A procedure to connect healthy sections of tubular structures in the body after the diseased portion has been surgically removed.

angiogram (AN-jee-o-gram)

An x-ray of blood vessels; the person receives an injection of dye to outline the vessels on the x-ray.

anus (AY-nus)

The opening of the rectum to the outside of the body.

appendix

A small, fingerlike pouch that sticks out from the cecum (the first part of the large intestine near the end of the small intestine).

arterial embolization (ar-TEE-ree-al EM-bo-lih-ZAY-shun)

The blocking of an artery by a clot of foreign material. This can be done as treatment to block the flow of blood to a tumor.

biological therapy (by-oh-LAH-jih-kul THAYR-uh-pee)

Treatment to stimulate or restore the ability of the immune system to fight cancer, infections, and other diseases. Also used to lessen certain side effects that may be caused by some cancer treatments. Also called immunotherapy, biotherapy, or biological response modifier (BRM) therapy.

biopsy (BY-op-see)

The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue. When only a sample of tissue is removed, the procedure is called an incisional biopsy. When an entire lump or suspicious area is removed, the procedure is called an excisional biopsy. When a sample of tissue or fluid is removed with a needle, the procedure is called a needle biopsy, core biopsy, or fine-needle aspiration.

blood

A tissue with red blood cells, white blood cells, platelets, and other substances suspended in fluid called plasma. Blood takes oxygen and nutrients to the tissues, and carries away wastes.

blood chemistry study

A procedure in which a sample of blood is examined to measure the amounts of certain substances made in the body. An abnormal amount of a substance can be a sign of disease in the organ or tissue that produces it.

blood vessel

A tube through which the blood circulates in the body. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins.

bowel (BOW-ul)

The long, tube-shaped organ in the abdomen that completes the process of digestion. The bowel has two parts, the small bowel and the large bowel. Also called the intestine.

bypass

A surgical procedure in which the doctor creates a new pathway for the flow of body fluids.

cancer

A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissues and can spread through the bloodstream and lymphatic system to other parts of the body. There are several main types of cancer. Carcinoma is cancer that begins in the skin or in tissues that line or cover internal organs. Sarcoma is cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue. Leukemia is cancer that starts in blood-forming tissue such as the bone marrow, and causes large numbers of abnormal blood cells to be produced and enter the

bloodstream. Lymphoma and multiple myeloma are cancers that begin in the cells of the immune system.

carbohydrate

A sugar molecule. Carbohydrates can be small and simple (for example, glucose) or they can be large and complex (for example, polysaccharides such as starch, chitin or cellulose).

carcinoid (KAR-sin-oyd)

A slow-growing type of tumor usually found in the gastrointestinal system (most often in the appendix), and sometimes in the lungs or other sites. Carcinoid tumors may spread to the liver or other sites in the body, and they may secrete substances such as serotonin or prostaglandins, causing carcinoid syndrome.

carcinoid syndrome (KAR-sin-oyd)

A combination of symptoms caused by the release of serotonin and other substances from carcinoid tumors of the gastrointestinal tract. Symptoms may include flushing of the face, flat angiomas (small collections of dilated blood vessels) of the skin, diarrhea, bronchial spasms, rapid pulse, and sudden drops in blood pressure.

carcinoma in situ (KAR-sih-NOH-muh in SYE-too)

Cancer that involves only cells in the tissue in which it began and that has not spread to nearby tissues.

catheter (KATH-i-ter)

A flexible tube used to deliver fluids into or withdraw fluids from the body.

cell

The individual unit that makes up the tissues of the body. All living things are made up of one or more cells.

chemoembolization

A procedure in which the blood supply to the tumor is blocked surgically or mechanically and anticancer drugs are administered directly into the tumor. This permits a higher concentration of drug to be in contact with the tumor for a longer period of time.

chemotherapy (kee-moh-THAYR-uh-pee)

Treatment with drugs that kill cancer cells.

clinical trial

A type of research study that tests how well new medical approaches work in people. These studies test new methods of screening, prevention, diagnosis, or treatment of a disease. Also called a clinical study.

colon (KO-lun)

The longest part of the large intestine, which is a tube-like organ connected to the small intestine at one end and the anus at the other. The colon removes water and some nutrients and electrolytes from partially digested food. The remaining material, solid waste called stool, moves through the colon to the rectum and leaves the body through the anus.

colonoscope (koh-LAH-noh-SKOPE)

A thin, tube-like instrument used to examine the inside of the colon. A colonoscope has a light and a lens for viewing and may have a tool to remove tissue.

colonoscopy (KOH-luh-NOSS-koh-pee)

Examination of the inside of the colon using a colonoscope, inserted into the rectum. A colonoscope is a thin, tube-like instrument with a light and a lens for viewing. It may also have a tool to remove tissue to be checked under a microscope for signs of disease.

complete blood count

CBC. A test to check the number of red blood cells, white blood cells, and platelets in a sample of blood. Also called blood cell count.

cryosurgery (KRY-o-SER-juh-ree)

A procedure performed with an instrument that freezes and destroys abnormal tissues.

CT scan

Computed tomography scan. A series of detailed pictures of areas inside the body taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called computerized tomography and computerized axial tomography (CAT) scan.

diagnosis

The process of identifying a disease by the signs and symptoms.

diarrhea

Frequent and watery bowel movements.

digestive system (dye-JES-tiv)

The organs that take in food and turn it into products that the body can use to stay healthy. Waste products the body cannot use leave the body through bowel movements. The digestive system includes the salivary glands, mouth, esophagus, stomach, liver, pancreas, gallbladder, small and large intestines, and rectum.

distant cancer

Refers to cancer that has spread from the original (primary) tumor to distant organs or distant lymph nodes. Also known as distant metastasis.

embolization (EM-bo-lih-ZAY-shun)

The blocking of an artery by a clot or foreign material. Embolization can be done as treatment to block the flow of blood to a tumor.

endoscope (EN-doh-SKOPE)

A thin, tube-like instrument used to look at tissues inside the body. An endoscope has a light and a lens for viewing and may have a tool to remove tissue.

endoscopy (en-DOSS-koh-pee)

A procedure that uses an endoscope to examine the inside of the body. An endoscope is a thin, tube-like instrument with a light and a lens for viewing. It may also have a tool to remove tissue to be checked under a microscope for signs of disease.

enzyme

A protein that speeds up chemical reactions in the body.

esophagus (ee-SOF-uh-gus)

The muscular tube through which food passes from the throat to the stomach.

excision (ek-SIH-zhun)

Removal by surgery.

external radiation (ray-dee-AY-shun)

Radiation therapy that uses a machine to aim high-energy rays at the cancer. Also called external-beam radiation.

fulguration (ful-guh-RAY-shun)

A procedure to destroy tissue (such as a tumor) using an electric current. Also called electrofulguration.

gastritis

Inflammation of the lining of the stomach.

gastrointestinal (GAS-tro-in-TES-tih-nul)

GI. Refers to the stomach and intestines.

gastrointestinal tract (GAS-tro-in-TES-tih-nul)

The stomach and intestines.

gland

An organ that makes one or more substances, such as hormones, digestive juices, sweat, tears, saliva,

or milk. Endocrine glands release the substances directly into the bloodstream. Exocrine glands release the substances into a duct or opening to the inside or outside of the body.

glucose

A type of sugar; the chief source of energy for living organisms.

hemoglobin (HE-muh-GLOW-bun)

The substance inside red blood cells that binds to oxygen and carries it from the lungs to the tissues.

hepatic

Refers to the liver.

hepatic artery

The major blood vessel that carries blood to the liver.

hepatic portal vein

A blood vessel that carries blood to the liver from the stomach, small and large intestines, spleen, pancreas, and gallbladder. Also called portal vein.

hormone

A chemical made by glands in the body. Hormones circulate in the bloodstream and control the actions of certain cells or organs. Some hormones can also be made in a laboratory.

hormone therapy (HOR-mone THAYR-uh-pee)

Treatment that adds, blocks, or removes hormones. For certain conditions (such as diabetes or menopause), hormones are given to adjust low hormone levels. To slow or stop the growth of certain cancers (such as prostate and breast cancer), synthetic hormones or other drugs may be given to block the body's natural hormones. Sometimes surgery is needed to remove the gland that makes a certain hormone. Also called hormonal therapy, hormone treatment, or endocrine therapy.

immune system (im-YOON)

The complex group of organs and cells that defends the body against infections and other diseases.

incision (in-SIH-zhun)

A cut made in the body to perform surgery.

injection

Use of a syringe and needle to push fluids or drugs into the body; often called a "shot."

internal radiation (ray-dee-AY-shun)

A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy.

intestine (in-TES-tin)

The long, tube-shaped organ in the abdomen that completes the process of digestion. The intestine has two parts, the small intestine and the large intestine. Also called the bowel.

large intestine

The long, tube-like organ that is connected to the small intestine at one end and the anus at the other. The large intestine has four parts: cecum, colon, rectum, and anal canal. Partly digested food moves through the cecum into the colon, where water and some nutrients and electrolytes are removed. The remaining material, solid waste called stool, moves through the colon, is stored in the rectum, and leaves the body through the anal canal and anus.

ligation (lye-GAY-shun)

The process of tying off blood vessels so that blood cannot flow to a part of the body or to a tumor.

liver

A large organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile.

local therapy

Treatment that affects cells in the tumor and the area close to it.

localized

Restricted to the site of origin, without evidence of spread.

lymph node (limf node)

A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called a lymph gland.

malignant (ma-LIG-nant)

Cancerous. Malignant tumors can invade and destroy nearby tissue and spread to other parts of the body.

metastatic (MET-uh-STAT-ik)

Having to do with metastasis, which is the spread of cancer from one part of the body to another.

mineral

A nutrient required to maintain health.

multiple endocrine neoplasia type 1 syndrome

MEN1 syndrome. A rare, inherited disorder that affects the endocrine glands and can cause tumors in the parathyroid and pituitary glands and the pancreas. These tumors (usually benign) cause the glands to secrete high levels of hormones, which can lead to other medical problems, such as kidney stones, fertility problems, and severe ulcers. In some cases, tumors inside the pancreas can become cancerous. Also called multiple endocrine adenomatosis and Wermer's syndrome.

nutrient

A chemical compound (such as protein, fat, carbohydrate, vitamins, or minerals) that make up foods. These compounds are used by the body to function and grow.

octreotide

A drug similar to the naturally occurring growth hormone inhibitor somatostatin. Octreotide is used to treat diarrhea and flushing associated with certain types of tumors.

organ

A part of the body that performs a specific function. For example, the heart is an organ.

palliative therapy (PA-lee-uh-tiv...)

Treatment given to relieve the symptoms and reduce the suffering caused by cancer and other life-threatening diseases. Palliative cancer therapies are given together with other cancer treatments, from the time of diagnosis, through treatment, survivorship, recurrent or advanced disease, and at the end of life.

pancreas

A glandular organ located in the abdomen. It makes pancreatic juices, which contain enzymes that aid in digestion, and it produces several hormones, including insulin. The pancreas is surrounded by the stomach, intestines, and other organs.

pathologist (pa-THOL-o-jist)

A doctor who identifies diseases by studying cells and tissues under a microscope.

percutaneous ethanol injection (per-kyoo-TAY-nee-uss...)

An injection of ethanol (alcohol) through the skin directly into the tumor to kill cancer cells.

pernicious anemia (per-NISH-us a-NEE-mee-a)

A type of anemia (low red blood cell count) caused by the body's inability to absorb vitamin B12.

PET scan

Positron emission tomography scan. A procedure in which a small amount of radioactive glucose (sugar) is injected into a vein, and a scanner is used to make detailed, computerized pictures of areas inside the body where the glucose is used. Because cancer cells often use more glucose than normal

cells, the pictures can be used to find cancer cells in the body.

physical examination

An exam of the body to check for general signs of disease.

platelet (PLATE-let)

A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called a thrombocyte.

prognosis (prog-NO-sis)

The likely outcome or course of a disease; the chance of recovery or recurrence.

protein (PRO-teen)

A molecule made up of amino acids that are needed for the body to function properly. Proteins are the basis of body structures such as skin and hair and of substances such as enzymes, cytokines, and antibodies.

quality of life

The overall enjoyment of life. Many clinical trials assess the effects of cancer and its treatment on the quality of life. These studies measure aspects of an individual's sense of well-being and ability to carry out various activities.

radiation (ray-dee-AY-shun)

Energy released in the form of particles or electromagnetic waves. Common sources of radiation include radon gas, cosmic rays from outer space, and medical x-rays.

radiation therapy (RAY-dee-AY-shun THAYR-uh-pee)

The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy.

radioactive (RAY-dee-o-AK-tiv)

Giving off radiation.

radioactive drug

A drug containing a radioactive substance that is used in the diagnosis and treatment of cancer and in pain management of bone metastases. Also called a radiopharmaceutical.

radioactive seed

A small, radioactive pellet that is placed in or near a tumor. Cancer cells are killed by the energy given off as the radioactive material decays (breaks down).

radiofrequency ablation

The use of electrodes to heat and destroy abnormal tissue.

radioisotope

An unstable element that releases radiation as it breaks down. Radioisotopes can be used in imaging tests or as a treatment for cancer.

radionuclide scanning (RAY-dee-oh-NOO-klide)

A test that produces pictures (scans) of internal parts of the body. The person is given an injection or swallows a small amount of radioactive material; a machine called a scanner then measures the radioactivity in certain organs.

receptor

A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell.

rectum

The last several inches of the large intestine. The rectum ends at the anus.

recur

To occur again.

recurrent cancer

Cancer that has returned after a period of time during which the cancer could not be detected. The cancer may come back to the same place as the original (primary) tumor or to another place in the body. Also called recurrence.

red blood cell

RBC. A cell that carries oxygen to all parts of the body. Also called an erythrocyte.

regional chemotherapy (REE-juh-nul KEE-moh-THAYR-uh-pee)

Treatment with anticancer drugs directed to a specific area of the body.

resection (ree-SEK-shun)

A procedure that uses surgery to remove tissue or part or all of an organ.

risk factor

Something that may increase the chance of developing a disease. Some examples of risk factors for cancer include age, a family history of certain cancers, use of tobacco products, certain eating habits, obesity, lack of exercise, exposure to radiation or other cancer-causing agents, and certain genetic changes.

small intestine (in-TES-tin)

The part of the digestive tract that is located between the stomach and the large intestine.

sphincter

A ring-shaped muscle that relaxes or tightens to open or close a passage or opening in the body. Examples are the anal sphincter (around the opening of the anus) and the pyloric sphincter (at the lower opening of the stomach).

stage

The extent of a cancer in the body. Staging is usually based on the size of the tumor, whether lymph nodes contain cancer, and whether the cancer has spread from the original site to other parts of the body.

staging (STAY-jing)

Performing exams and tests to learn the extent of the cancer within the body, especially whether the disease has spread from the original site to other parts of the body. It is important to know the stage of the disease in order to plan the best treatment.

standard therapy

In medicine, treatment that experts agree is appropriate, accepted, and widely used. Health care providers are obligated to provide patients with standard therapy. Also called standard of care or best practice.

stomach

An organ that is part of the digestive system. The stomach helps digest food by mixing it with digestive juices and churning it into a thin liquid.

surgery (SER-juh-ree)

A procedure to remove or repair a part of the body or to find out whether disease is present. An operation.

symptom

An indication that a person has a condition or disease. Some examples of symptoms are headache, fever, fatigue, nausea, vomiting, and pain.

systemic chemotherapy (sis-TEH-mik kee-moh-THAYR-uh-pee)

Treatment with anticancer drugs that travel through the blood to cells all over the body.

tissue (TISH-oo)

A group or layer of cells that work together to perform a specific function.

tumor (TOO-mer)

An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancerous), or malignant (cancerous). Also called neoplasm.

urine (YOOR-in)

Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra.

vitamin

A key nutrient that the body needs in small amounts to grow and stay strong. Examples are vitamins A, C, and E.

watchful waiting

Closely monitoring a patient's condition but withholding treatment until symptoms appear or change. Also called observation.

white blood cell

WBC. Refers to a blood cell that does not contain hemoglobin. White blood cells include lymphocytes, neutrophils, eosinophils, macrophages, and mast cells. These cells are made by bone marrow and help the body fight infection and other diseases.

x-ray

A type of high-energy radiation. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.

Zollinger-Ellison syndrome

A disorder in which tumors of the pancreatic islet cells produce large amounts of gastrin (a hormone), leading to excess acid in the stomach and, possibly, a peptic ulcer (ulcer of the stomach or the upper part of the small intestine).

Table of Links

1 <http://cancer.gov/clinicaltrials>

2 <http://cancer.gov>

3 <https://cissecure.nci.nih.gov/ncipubs>

4 http://cancer.gov/clinical_trials