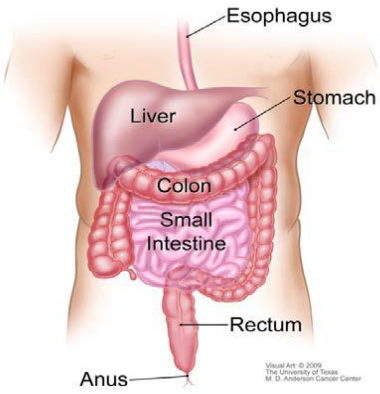
Colon Cancer

What is the Colon?
The esophagus, stomach, small intestine, colon and rectum are part of the body's digestive system. (See image.) The digestive system removes nutrients from food and stores the waste until it passes out of the body. The large bowel, called the colon and rectum, starts in the lower right part of the abdomen at the end of the small intestine. It is about five or six feet in length. The large bowel is divided into six main segments. These segments include the cecum, right (ascending) colon, transverse colon, left (descending) colon, sigmoid colon and rectum.

After the small intestine meets the cecum, the colon follows a horseshoe shape up the right side and across, then down the left side to the sigmoid colon.



The colon and nearby organs.

How Does the Colon Function?
The large intestine is the final part of your digestive tract. There are five main functions of the large bowel, including absorption, secretion, motility (movement), formation and elimination of stool (bowel movement). Undigested food enters your large intestine from your small intestine. It reabsorbs water that is used in digestion and gets rid of undigested food and fiber. This causes food waste products to harden and form stool, which is then eliminated with each bowel movement.

What is Colon Cancer?
Many kinds of cells make up all organs, like the colon. Cells are the basic unit of life. Normally, cells grow, divide and reproduce because they are needed to keep the body healthy and functioning properly.

Sometimes cells can grow abnormally and keep dividing when new cells are not needed. The mass of extra cells forms a growth or tumor. Tumors can be either benign (not cancerous) or malignant (cancerous).

Cancer that begins in the colon is called colon cancer. Most tumors in the colon begin when normal tissue in the wall forms a polyp or benign growth. A specific type of polyp, called an adenoma, can turn into cancer. They are common in people over the age of 50 and vary in size and shape. The majority of colon cancers are adenocarcinomas, also known as cancerous tumors.

Familial Colon Cancer
Familial adenomatous polyposis (FAP) is a rare, inherited condition. In classic FAP, hundreds to thousands of polyps form in the colon and rectum. If not treated, virtually all affected patients will develop colon cancer by the age of 45. In a less severe form of FAP, patients can have less than one hundred adenomatous polyps.

FAP is caused by a mutation in the APC gene. It affects approximately one in 8,000 people or one percent of colon cancers diagnosed in the United States. Children of affected individuals have a 50 percent risk of having FAP. Family members of patients with FAP should undergo genetic testing to determine if they also have the same abnormal gene.

Hereditary non-polyposis colorectal cancer (HNPCC) is another genetic syndrome caused by a mutation (change) in one of several genes. HNPCC accounts for about three to five percent of all colon cancers. Persons affected by HNPCC can develop single or multiple colorectal cancers rather than numerous polyps as in FAP.

Individuals with the HNPCC gene mutations have an 80 percent lifetime risk of developing colon cancer. Testing a tumor sample for microsatellite instability (MSI) can often provide a way to determine whether genetic testing for HNPCC is appropriate. Approximately 90 percent of tumors from people with HNPCC show gene instability or absence of protein expression. This means the DNA sequence is longer or shorter than normal. In these patients, genetic testing is recommended because children of affected individuals have a 50 percent risk of developing HNPCC.

What are the Symptoms?
Some people with colon cancer have few to no symptoms. However, the most common symptoms include:

- Changes in bowel habits, such as constipation.
- Blood in the stool or dark-black stool if the cancer in the colon is bleeding. This can also cause anemia, which is a decrease in the number of red blood cells and decreased oxygen in the blood. If you have anemia, you may feel more tired, get short of breath easily, become pale or have a fast heartbeat.
- Stomach or abdominal pain.

Diagnostic Tests for Colon Cancer
After your cancer is diagnosed, other tests and exams are ordered to determine the extent of the cancer. This process is called staging. Staging determines whether the disease has spread to other parts of the body. Some of the tests and exams that are used to determine stage are described below.

A colonoscopy is a test that examines the entire colon using an instrument called a colonoscope, which is a flexible, lighted instrument inserted through the anus/rectum.

A colon biopsy is the removal of a tissue sample for examination under a microscope. The biopsy can be performed during the colonoscopy.

Blood tests are performed before, during and after cancer treatment. The testing will include a CEA (carcinoembryonic antigen) level, which is a value that is frequently elevated in patients with colon cancer.

A CT scan, commonly referred to as a CAT scan, takes multiple highly detailed pictures of your internal organs.

Other tests may include a chest X-ray and MRI (magnetic resonance imaging).

After your tests are completed, your doctor will explain the status of your cancer to you in more detail. You may want to write down your questions so that you and your doctor can discuss them when you meet. Your personal wishes and general health are important factors to consider when planning and deciding treatment.

Staging
The stage of colon cancer is determined utilizing the TNM (Tumor Lymph Node Metastasis) staging system. It is based on radiology results, the findings of the surgeon at the time of surgery and the surgical pathology. Surgical pathology is an evaluation of the removed tumor specimen by a pathologist, a doctor who specializes in the examination of tissue using X-ray and surgical pathology results. Your doctor needs to know the TNM stage of your colon cancer in order to plan the best treatment for you.

Listed below is a simplified description of the various stages of colon cancer:

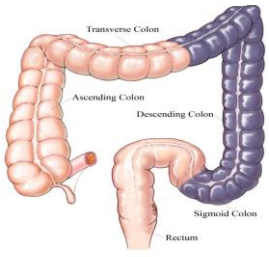
- Stage I: The cancer has invaded into the innermost layers of the bowel wall.
- Stage II: The cancer has invaded through the bowel wall but has not yet spread to the lymph nodes.
- Stage III: The cancer has spread to nearby lymph nodes but not to other parts of the body.
- Stage IV: The cancer has metastasized or spread to other organs in the body. The most common areas of colon cancer metastasis are the liver and lungs.

How is Colon Cancer Treated?
The treatment of colon cancer may involve surgery, chemotherapy and radiation therapy. Your treatment depends on the stage of disease and your symptoms. In most cases, surgery will be the first and maybe only treatment required. In other cases, chemotherapy will be recommended. In certain situations radiation may also be added.

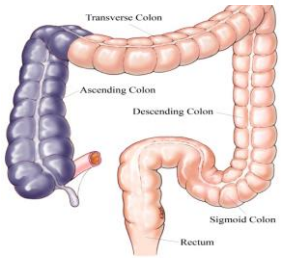
Surgical Treatment
Surgery is the most common treatment for all stages of colon cancer. During surgery, the cancer along with a portion of healthy colon and nearby lymph nodes may be removed. The two ends of the bowel are then sewn or stapled together. This reconnection of the bowel is called an anastomosis.

The type of surgery, called colon resection or colectomy, used is based on tumor location and size. For example, if the cancer is in the right side of the colon, then a “right colon resection” is performed. In some instances, your surgeon may offer laparoscopic surgery, a newer technique utilizing telescopes and very small incisions. The types of colon cancer surgeries are shown in the images below. The shaded areas represent the portion of the colon that is removed during surgery. Your health care team will discuss your type of surgery in detail with you.

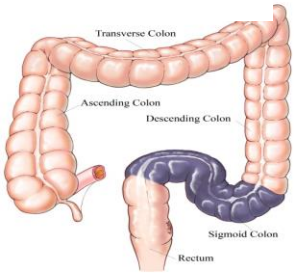
Right Hemicolectomy



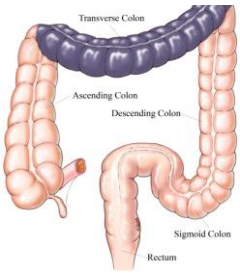
Left Hemicolectomy



Low Anterior Resection



Transverse Resection



Chemotherapy
Not all patients with colon cancer need chemotherapy. Recommendations for treatment are based on the stage of the cancer. In general, stages III and IV will require chemotherapy. Sometimes chemotherapy is recommended for stage II as well.

Chemotherapy uses cancer-fighting medicines to kill cancer cells. They may be prescribed alone or in combination with other medications and administered intravenously (into your veins) or by mouth. Currently, several types of chemotherapy medications are used to treat colon cancer.

When taking chemotherapy medicines, normal cells as well as the cancer cells can be damaged. Therefore, most patients will experience some side effects. These side effects may include nausea, vomiting, appetite loss, diarrhea and mouth sores. There are, however, very good medications available to help decrease these side effects and help you through your chemotherapy treatment without too much discomfort. If you have side effects, tell your doctor so he or she can make your treatment experience as comfortable as possible.

Chemotherapy can also affect the bone marrow, which produces blood, by decreasing your blood counts. This can result in an increased risk of infection, bleeding, bruising or fatigue. Therefore, your blood counts will be carefully monitored before you begin each chemotherapy treatment.

Radiation Treatment
Radiation treatment uses high-energy X-rays to treat or control the cancer. Radiation therapy is used infrequently to treat colon cancer. Your physician will make an appointment for you to see a radiation oncologist if they believe you would benefit from this treatment.

Clinical Trials
Clinical trials are in progress to find the best ways to treat colon cancer. New chemotherapy drugs alone and in combinations are being studied as treatments for cancer that has spread and as a way to relieve symptoms. Your doctor will tell you if you are eligible for a clinical trial.

What Can I Expect After Treatment?
Follow-up care is very important and it should become part of your routine for life. This care will help protect you and allow for early detection if your cancer returns. Follow-up care may include physical examinations, blood tests, X-rays and colonoscopies. The frequency of your follow-up appointments and tests will depend on the stage of your cancer and your current medical status.

It is also important to maintain your overall medical well-being. You should schedule appointments with your primary care provider for annual physical examinations and routine screening tests that may include cholesterol testing, cardiovascular evaluations, mammograms, pelvic exams and prostate exams.

You can help yourself recover from cancer by making healthy lifestyle choices. Choose to eat a healthy diet rich in fruits, vegetables and whole grains. Choose to exercise on a regular basis, but also allow yourself time to rest. Choose to quit smoking, limit alcohol intake and avoid drug use.

These choices will help you live a healthier life and, more importantly, help you to feel better.

Resources

The American Cancer Society (ACS) is a voluntary national health organization with local offices around the country. The ACS supports research, provides information about cancer and offers many programs and services to patients and their families. For more information, call 800.227.2345 or visit www.cancer.org.

The Cancer Information Service (CIS) is a program of the National Cancer Institute (NCI). People who call the CIS speak with highly trained and caring information specialists who can answer questions about cancer screening tests, risks, symptoms, how cancer is diagnosed, the latest treatments and support organizations. For more information, call 800.422.6237.

The National Cancer Institute has valuable cancer-related health information for over 200 cancer types, clinical trials, cancer statistics, prevention, screening, treatment and news. For more information, visit www.cancer.gov.

The United Ostomy Associations of America, Inc. (UOAA) is an association of affiliated, non-profit support groups committed to improving the quality of life of people who have or will have an intestinal or urinary diversion. Call the toll-free number to locate the support group nearest you at 800.826.0826 or visit www.uoaa.org.