COLON CANCER

Colon, or colorectal, cancer is cancer that starts in the large intestine (colon) or the rectum (end of the colon).

Other types of cancer can affect the colon. These include lymphoma, carcinoid tumors, melanoma, and sarcomas. These are rare. In this article, colon cancer refers to colon carcinoma only

CAUSES

Almost all colon cancers start in glands in the lining of the colon and rectum. When doctors talk about colorectal cancer, this is usually what they are talking about.

There is no single definite cause of colon cancer. Nearly all colon cancers begin as noncancerous (benign) polyps, which slowly develop into cancer.

You have a high risk of colon cancer if you:

- Are older than 60
- Are African American of eastern European descent
- Eat a a lot of red or processed meats
- Have colorectal polyps
- Have inflammatory bowel disease (Crohn's disease or ulcerative colitis)
- Have a family history of colon cancer
- Have a personal history of breast cancer

Certain inherited diseases also increase the risk of developing colon cancer. Two of the most common are:

- Familial adenomatous polyposis (FAP)
- Hereditary nonpolyposis colorectal cancer (HNPCC), also known as Lynch syndrome

What you eat may play a role in your risk of colon cancer. Colon cancer may be linked to a high-fat, low-fiber diet and to a high intake of red meat. Some studies, though, have found that the risk does not drop if you switch to a high-fiber diet, so this link is not yet clear.

Smoking cigarettes and drinking alcohol are other risk factors for colorectal cancer.

Symptoms

It is common to have colon or rectal cancer without symptoms. Many patients are free of symptoms until their tumors are quite advanced.

Symptoms associated with colorectal cancer include may also be caused by other conditions. These symptoms include:

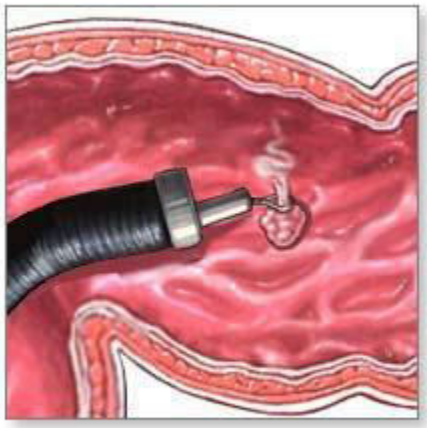
- Changes in bowel movements, such as diarrhea or constipation, or change in consistency of stools
- Feeling that the bowel has not emptied completely after a bowel movement
- Abdominal discomfort such as gas, bloating, and cramps
- Rectal bleeding or blood in stool
- Unexplained weight loss
- Unexplained iron-deficiency anemia (low red blood cell count)
- Weakness and fatigue

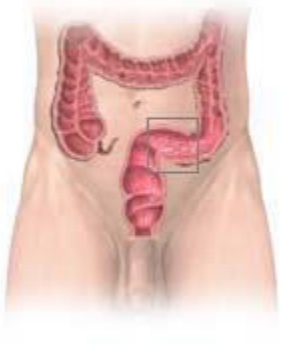
Exams and Tests

With screening colon cancer can be detected before symptoms develop. This is when the cancer is most curable.

Your doctor will perform a physical exam and press on your belly area. The physical exam rarely shows any problems, although the doctor may feel a lump (mass) in the abdomen. A rectal exam may reveal a mass in patients with rectal cancer, but not colon cancer.

A fecal occult blood test (FOBT) may detect small amounts of blood in the stool. This may suggest colon cancer. FOBT must be done along with colonoscopy or sigmoidoscopy to screen for and diagnose colorectal cancer.





Tissue is removed from the colon for examination

Note: Only colonoscopy can see the entire colon. This is the best screening test for colon cancer.

Blood tests that may be done include:

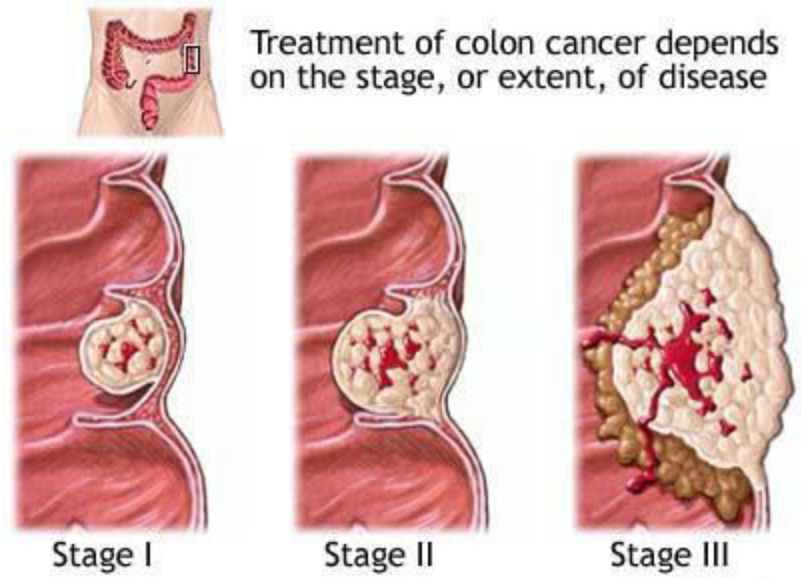
- Complete blood count (CBC) to check for anemia
- Liver function tests

If you are diagnosed with colorectal cancer, more tests will be done to see if the cancer has spread. This is called staging. CT or MRI scans of the abdomen, pelvic area, chest, or brain may be used to stage the cancer. Sometimes, PET scans are also used.

Stages of colon cancer are:

- Stage 0: Very early cancer on the innermost layer of the intestine
- Stage I: Cancer is in the inner layers of the colon
- Stage II: Cancer has spread through the muscle wall of the colon
- Stage III: Cancer has spread to the lymph nodes
- Stage IV: Cancer has spread to other organs outside the colon

Blood tests to detect tumor markers, including carcinoembryonic antigen (CEA) and CA 19-9, may help your physician follow you during and after treatment.



Treatment depends on many things, including stage of the cancer. Treatments may include:

- Surgery (most often a colectomy) to remove cancer cells
- Chemotherapy to kill cancer cells
- Radiation therapy to destroy cancerous tissue

Surgery

In the earliest stages of colorectal cancer (stage 0 and some stage I cases) polyps can be removed during a colonoscopy in a procedure called polypectomy.

Early-stage superficial cancers that are not deep can also be removed through excision, where the cancer is cut out by inserting a tube into the rectum. Unlike colectomy, these procedures do not involve cutting through the abdominal wall.

Colectomy

Unless cancer is very advanced, most tumors are removed by an operation known as colectomy:

- Colectomy involves removing the cancerous part of the colon and nearby lymph nodes.

- The surgeon then reconnects the intestine in a procedure called *anastomosis* .
- If the surgeon cannot reconnect the intestine, usually because of infection or obstruction, the surgeon will perform a colostomy, which brings the end of the colon closest to the stomach up through the skin where stool drains into a sack called an ostomy pouch. The need for colostomies is higher after surgery for rectal cancer. In most cases of colon cancer, colostomies are not needed.
- Stents, expandable metal tube-like devices, may be used as preparation before surgery to remove blockage and to keep the intestine open.

The Surgical Approach. The standard technique for a colectomy is open, invasive surgery. Laparoscopy, sometimes called "keyhole surgery," is a newer less invasive method.

- Open surgery uses a wide incision to open the patient's abdomen. The surgeon then performs the procedures with standard surgical instruments. This is the usual method for performing colectomy.
- Laparoscopy uses a few small incisions through which the surgeon passes a fiber optic tube (laparoscope) containing a small camera or tiny instruments. It is generally used for early colon cancer (for tumors less than 2 centimeters or for well-defined tumors less than 3 centimeters).

Colostomy

A colostomy is performed in order to bypass or remove the lower colon and rectum. The procedure generally involves creating a passage, called a *stoma,* through the abdominal wall that is connected to the colon. The feces pass through this passage and are eliminated. Patients must learn how to care for the stoma and keep the area sanitary.

A colostomy usually will have one opening (single-barreled), or there may be two loops opening through the skin (double-barreled).

Usually the colostomy is temporary and can be reversed by a second operation after about 3 - 6 months. If the rectum and sphincter muscles in the rectum need to be removed, the colostomy is permanent. Permanent colostomies are more common when the cancerous regions are within 2 - 3 centimeters of the anus. Fortunately, surgical advances and knowledge of the extent of safe margins are reducing the need for permanent colostomies.

Managing Permanent Colostomies. In cases where the colostomy is permanent, the patient must wear a colostomy pouch, which sticks to the skin using special glue.

For best results, the pouch should be emptied when about one-third full. It should be replaced 1 - 2 times a week, depending on signs of leakage (itching or burning of the skin near the stoma). The pouches are odor proof.

Managing side effects

Side effects of colon surgery include:

- Sexual dysfunction. In general, colostomy does not usually affect sexual function. However, wide rectal surgery can cause short- or long-term sexual dysfunction.
- Irregular bowel movements.
- Gas and flatulence.- Certain foods produce more gas than others -- usually within 6 - 8 hours after ingestion -- for colostomy patients. They include beans, oat bran, most fruit, and certain vegetables (cabbage, cauliflower, Brussels sprouts, broccoli, and asparagus). To prevent swallowing air, patients should avoid sipping through straws, chewing gum, and chewing with their mouths open.
- Diarrhea.
- Bladder complications.
- Sense of urinary urgency.
- Fecal incontinence. Patients with rectal surgery have a higher risk for bowel dysfunction than those who had a colostomy.
- Complications in or around the stoma. These can occur early after surgery to many years after the procedure. They include skin infection or breakdown, hernias, narrowing of the stoma, bleeding, and collapse.

There are no dietary restrictions, although many patients avoid foods that can produce gas. Everyone should drink plenty of fluids and get sufficient fiber.

The potential side effects of sexual and bowel dysfunction following colorectal surgery can be very difficult, although many patients do very well and live normal productive lives. Patients who are depressed should discuss with a

doctor all aspects of treatment that affect the quality of life, and consider seeking support groups.

Chemotherapy

Almost all patients with stage III and few patients with stage II colon cancer should receive chemotherapy after surgery. This is called adjuvant chemotherapy. The chemotherapy can increase the chance of a cure in certain patients.

Chemotherapy is also used to improve symptoms and prolong survival in patients with stage IV colon cancer.

- Irinotecan, oxaliplatin, capecitabine, and 5-fluorouracil are the most commonly used drugs.
- Monoclonal antibodies, including cetuximab (Erbitux), panitumumab (Vectibix), bevacizumab (Avastin), and other drugs have been used alone or in combination with chemotherapy.

You may receive just one type, or a combination of these drugs. There is some debate as to whether patients with stage II colon cancer should receive chemotherapy after surgery.

Radiation

Radiation therapy uses x-rays to kill cancer cells that might remain after an operation or to shrink large tumors before an operation so that they can be removed surgically. The object of radiation therapy is to damage the tumor as much as possible without harming surrounding tissues

Radiation therapy is sometimes used in patients with colon cancer. It is usually used in combination with chemotherapy for patients with stage III rectal cancer. Radiation and chemotherapy are sometimes given before the surgery to decrease the tumor burden which is called as *neoadjuvant chemoradiation*

Side effects of Radiation Therapy

Side effects of radiation may include:

- Diarrhea
- Skin irritation around the anus
- Incontinence
- Bladder irritation
- Fatigue
- Sexual dysfunction in men and vaginal irritation in women

Stage IV

For patients with stage IV disease that has spread to the liver, treatments directed at the liver are used. This may include:

- Ablation (Burning the cancer)
- Delivering chemotherapy or radiation directly into the liver
- Cryotherapy (Freezing the cancer)
- Surgery

Complications

- Blockage of the colon, causing bowel obstruction
- Cancer returning in the colon
- Cancer spreading to other organs or tissues (metastasis)
- Development of a second primary colorectal cancer

When to contact oncologist:

- Black, tar-like stools
- Blood during a bowel movement
- Change in bowel habits
- Unexplained weight loss

Prevention

The death rate for colon cancer has dropped in the last 15 years. This may be due to increased awareness and screening by colonoscopy.

Colon cancer can almost always be caught by colonoscopy in its earliest and most curable stages. Almost all men and women age 50 and older should have a colon cancer screening. Patients at higher risk may need earlier screening.

Colon cancer screening can often find polyps before they become cancerous. Removing these polyps may prevent colon cancer.

Changing your diet and lifestyle is important. Medical research suggests that low-fat and high-fiber diets may reduce your risk of colon cancer.

Some studies have reported that NSAIDs (aspirin, ibuprofen, naproxen, celecoxib) may help reduce the risk of colorectal cancer. But these medicines can increase your risk of bleeding and heart problems. Your health care provider can tell you more about the risks and benefits of the medicines and other ways that help prevent colorectal cancer.