Patient education: Colon and rectal cancer (Beyond the Basics)

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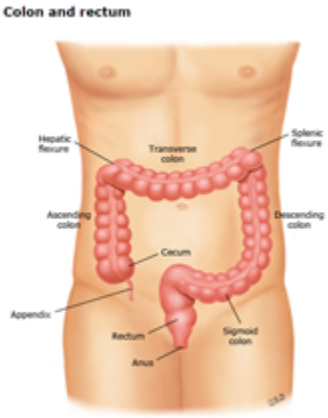
COLORECTAL CANCER OVERVIEW

Colon and rectal cancer are cancers that involve the lowest part of the digestive system: the large intestine and the rectum (figure 1).

Tests that monitor or screen for colorectal cancer are important tools in finding colon and rectal cancer at an early stage. Screening tests are described separately. (See "Patient education: Screening for colorectal cancer (Beyond the Basics)".)

This article has facts about the signs and symptoms, diagnosis, and treatment of early-stage colon and rectal cancer. More information about colon and rectal cancer is available by subscription. (See 'Professional level information' below.)



Colon and rectum

Figure 1 - larger image below

COLORECTAL CANCER SYMPTOMS

The most common symptoms of colon and rectal cancer include:

- Stomach pain or frequent gas pains
- Change in bowel habits (constipation or diarrhea)
- Blood in the bowel movements
- Feeling weak or tired
- Low iron level, commonly with anemia (iron deficiency anemia)
- Black or dark-colored stools

COLORECTAL CANCER DIAGNOSIS

Your doctor or nurse may be concerned that you could have colon or rectal cancer if you have one or more of the above symptoms. In this case, a colonoscopy is often used to look inside the rectum and large intestine. Cancers growing within the large intestine and rectum can be seen during a colonoscopy, and a biopsy (removal of a piece of tissue for examination) can be done, confirming the presence of a cancer. Colonoscopy is described separately. (See "Patient education: Colonoscopy (Beyond the Basics)".)

Staging — Once a colorectal cancer is diagnosed, the next step is to determine its stage. Staging is a system used to describe the aggressiveness and spread of a cancer. The stage of a colorectal cancer is assigned based on:

- Whether there are signs of cancer spread on a physical examination, computed tomography (CT) scan, or magnetic resonance imaging (MRI) of the chest, abdomen, and pelvis, chest X-ray, or other imaging tests.

- The appearance of the cancer specimen when viewed under the microscope after it has been removed with surgery.

Colorectal cancer stages include stage I (cancer has invaded into, but not through, the entire wall of the intestine), stage II (cancer has invaded through the entire wall of the intestine), stage III (cancer involves the lymph nodes irrespective of the involvement of the wall of the intestine), and stage IV (the cancer has spread or "metastasized" to distant organs, such as the liver or lungs). Treatment depends on disease stage.

Earlier stages of disease (stages I through III) are referred to as localized colorectal cancers and are generally treated with surgery, with or without chemotherapy. (See 'Who needs chemotherapy?' below.)

Stage IV cancer is called advanced colorectal cancer and is generally treated with chemotherapy; some patients may benefit from surgery of the primary tumor prior to treatment of metastatic

disease, especially if the primary tumor is causing symptoms. Treatment of stage IV disease is covered elsewhere. (See "Patient education: Treatment of metastatic colorectal cancer (Beyond the Basics)".)

COLON CANCER TREATMENT

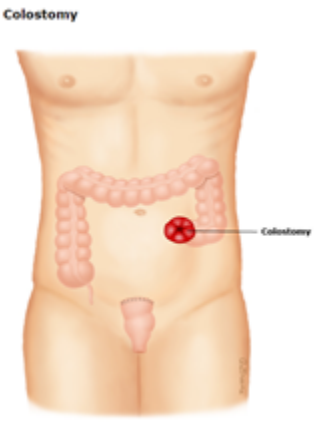
The treatment of colon cancer usually involves surgery, and it may also involve chemotherapy; radiation therapy is only rarely needed.

Surgery — The initial treatment of colon cancer usually involves surgery. (See "Patient education: Colectomy (The Basics)".)

During the surgery, the cancerous part of the colon and surrounding tissues are removed. The lymph nodes (round organs that serve as filters for blood from the intestines) within this surrounding tissue are examined under a microscope to determine if the cancer has spread beyond the colon.

In most people, the two ends of the colon can be reconnected immediately after the cancerous part has been removed. If this can be done, it means that you will continue to have bowel movements normally, through your rectum and anus.

In other cases, the colon cannot be reconnected during the initial surgery. This can happen if the surgeon feels there is a high chance that the reconnection will fail or if the tissues are inflamed and need time to heal. If this occurs, the surgeon will sew the colon (and at times the small bowel) to an opening in the skin on the abdomen. The opening is called an ostomy (colostomy if the colon is sewn to the abdominal wall or ileostomy if the ileum is sewn to the abdominal wall) (figure 2). You will wear a bag over the ostomy to collect bowel movements.



Colostomy

Figure 2 - larger image below

The ostomy is usually temporary. The two ends of the colon can often be reconnected after a few months, sometimes after chemotherapy is completed. In other cases, you will need the colostomy permanently.

Life with a colostomy — Having a colostomy will change how your body looks, which can be hard to accept. However, with education and support, it is possible to lead an active life with a colostomy. A team effort that includes the colorectal surgeon, the oncologist, and an enterostomal therapy (ET) nurse is valuable in learning about the surgery and also in the care and recovery required after the procedure. The United Ostomy Associations of America is also a good source of information and support (www.ostomy.org/). (See "Patient education: Living with a colostomy (The Basics)".)

Chemotherapy — Chemotherapy is a treatment given to slow or stop the growth of cancer cells. Even after a colon cancer has been completely removed with surgery, cancer cells can remain in the body, increasing the risk of the cancer coming back (called a relapse or recurrence). In some people, chemotherapy can eliminate these cancer cells and increase the chance of cure. This type of chemotherapy is called "adjuvant," which means that it is given after a curative surgery (at which time all the tumor was removed).

Most treatments involve a combination of several chemotherapy drugs, which are given in a specific order on specific days. Most of the drugs are given into the vein (intravenous [IV]), but sometimes a single drug will be recommended, which can be given in pill form. Chemotherapy is given for either three months or six months, depending on the stage of the cancer. Your doctor will talk to you about your options for regimen and duration of treatment, as well as what side effects you may experience.

Who needs chemotherapy? — Chemotherapy is recommended for most people with stage III colon cancer (spread to the lymph nodes) and some people with stage II colon cancer. Chemotherapy is not recommended for people with stage I colon cancer (cancer within the bowel wall but not all the way through it).

Before you begin chemotherapy, it is important to discuss the potential risks and benefits of treatment with your doctor.

- In some cases, the benefits of chemotherapy (better chance of survival) clearly outweigh the possible risks (chemotherapy side effects like diarrhea, vomiting, hair loss, nerve damage, or more serious risks). Not everyone will have all of these side effects.
- In other cases, the benefit of chemotherapy is not worth the risks.

RECTAL CANCER TREATMENT

The majority of rectal cancers are treated with a combination of surgery, radiation therapy, and chemotherapy; as with colon cancers, treatment is chosen based on disease stage.

- Stage I rectal cancer – Surgery alone may cure the cancer.
- Stage II and III – There are several treatment options available. More commonly, a four-month course of chemotherapy alone is administered before or after combined chemotherapy and radiation (ie, chemoradiation); surgery then follows. This approach is called total neoadjuvant therapy. Alternatively, some patients may be treated with chemotherapy and omit radiation, followed by surgery and then additional chemotherapy after recovery. Some patients may also be candidates for surgery with or without chemotherapy depending on the stage. Additional clinical factors will help determine which treatment combination is best.
- Stage IV – Predominantly treated with systemic therapy, with or without surgery. (See "Patient education: Treatment of metastatic colorectal cancer (Beyond the Basics)".)

Neoadjuvant chemoradiation and radiation therapy — A combination of chemotherapy and radiation therapy may be recommended before surgery for patients with rectal cancer; this is called neoadjuvant chemoradiation. This treatment can shrink the tumor before it is removed, reduces the risk that the cancer will come back, and may reduce the chances that you will need a permanent colostomy. (See "Neoadjuvant therapy for rectal adenocarcinoma".)

The two most common ways to take chemotherapy during radiation therapy are:

- A pump that fits into a pack you wear around your waist. The pump delivers the medicine (called fluorouracil [FU]) into a port (an intravenous line [IV] in your chest) continuously for approximately six weeks during radiation treatments.
- Daily doses of a pill called capecitabine on the days of radiation treatment. The pill is as effective as FU given by pump and more convenient.

  Discuss all the potential risks and benefits of capecitabine with your doctor.

In some cases, a short course of radiation therapy alone (typically five daily treatments) may be recommended prior to surgery instead of combined chemotherapy and radiation. This approach is more popular outside of the United States.

Surgery — Surgery removes the cancerous part of the rectum and the associated lymph nodes. Sometimes this will require that the anus be removed along with the rectum. If the anus and rectum have to be removed, the surgeon will sew the remaining intestine to an opening in the

skin on the abdomen. The opening is called a colostomy. You will wear a bag over the opening to collect bowel movements. (See 'Life with a colostomy' above.)

The type of surgery you have depends on where your tumor is located and how far it has spread. Another factor to consider is your current bowel function, specifically how well you control your bowels. Ask your surgeon to describe which surgery is right for you.

In patients who have received chemoradiation with or without chemotherapy before surgery, select patients may be able to postpone surgery and undergo close observation with frequent follow-up including physical examinations, proctosigmoidoscopy, and imaging.

Chemotherapy — Chemotherapy can be given before surgery (neoadjuvant) or after surgery (adjuvant) or both. The type of treatment you have after surgery depends on the stage of your cancer as well as the treatment you had before surgery. (See "Adjuvant therapy for resected rectal adenocarcinoma not treated with neoadjuvant therapy".)

- If your tumor is stage II or III, and you did not have chemotherapy before surgery, you may need it after surgery. If chemoradiation was not used before surgery, it rarely is used after surgery. This is called adjuvant chemoradiation. (See 'Neoadjuvant chemoradiation and radiation therapy' above.)

- If you had chemoradiation or radiation therapy alone before surgery, you will probably need approximately four to six months of chemotherapy alone (without further radiation therapy) after surgery.

CLINICAL TRIALS

Progress in treating cancer requires that better treatments be identified through clinical trials, which are conducted all over the world. A clinical trial is a carefully controlled way to study the effectiveness of new treatments or new combinations of known therapies. Ask for more information about clinical trials or read about clinical trials at:

- www.cancer.gov/research/participate/clinical-trials
- https://clinicaltrials.gov/

Videos addressing common questions about clinical trials are available from the American Society of Clinical Oncology (www.cancer.net/research-and-advocacy/clinical-trials/welcome-pre-act).

FOLLOW-UP AFTER TREATMENT

After completing treatment for colorectal cancer, it is important to followup with your health care team. You will need appointments on a regular basis for a few years to monitor for signs that the cancer has recurred. (See "Post-treatment surveillance for colorectal cancer".)

Several expert groups have issued guidelines for follow-up after treatment for colorectal cancer, and they all differ slightly. Most people will have the following:

- A full colonoscopy before or after surgery to evaluate the primary cancer and to look for polyps or other cancers. Colonoscopy is usually repeated one year after surgery, and if this is normal, then every three to five years thereafter. If polyps or new cancers are found, this schedule may be adjusted.

  For patients with rectal cancer who have undergone limited surgery (eg, removal of the cancerous tumor only) or standard surgery without radiation therapy, more frequent follow-up examinations are recommended for the first two to three years. These involve a proctosigmoidoscopy (which is similar to a colonoscopy but only looks at the lower part of the colon) and may or may not involve an endoscopic ultrasound (which is also done by inserting a scope but uses sound waves to produce images of the rectum).

- Visits with your health care provider are usually scheduled every three to six months for the first two to three years, then every six months for two years. Most visits will include a discussion of how you are feeling and a physical examination. A blood test for a colorectal cancer tumor marker (carcinoembryonic antigen [CEA]) may be done at each visit.

- A CT scan is usually recommended once per year for at least three years in people who have been treated for stage II or III colon cancer.

COLORECTAL CANCER AND YOUR FAMILY

Having colon or rectal cancer means that your family may be at an increased risk of developing colorectal cancer. If you have one parent, brother, sister, or child with colorectal cancer or polyps at a young age (before the age of 60 years), or two relatives diagnosed at any age, you should begin screening for colon cancer earlier, typically at age 40 or 10 years younger than the earliest diagnosis in your family, whichever comes first. Colon cancer screening is discussed separately. (See "Patient education: Screening for colorectal cancer (Beyond the Basics)".)

Certain genetic conditions increase the risk of colon cancer. The most common conditions include Lynch syndrome (also called hereditary nonpolyposis colon cancer [HNPCC]) and familial adenomatous polyposis (FAP). If you have a strong family history of colon cancer (two or more close relatives), talk to your doctor about the need for genetic counseling and possible genetic testing.

Although the idea of genetic testing can be frightening, the results of genetic tests can help determine whether you and your family need further treatment, testing, or closer surveillance.

WHERE TO GET MORE INFORMATION

Your health care provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our Web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for health care professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

Patient education: Colon and rectal cancer (The Basics)
Patient education: Colon and rectal cancer screening (The Basics)
Patient education: Living with a colostomy (The Basics)
Patient education: Colectomy (The Basics)
Patient education: Colostomy or ileostomy surgery (The Basics)
Patient education: Fecal immunochemical test (The Basics)
Patient education: Small bowel resection (The Basics)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

Patient education: Screening for colorectal cancer (Beyond the Basics)
Patient education: Colonoscopy (Beyond the Basics)
Patient education: Treatment of metastatic colorectal cancer (Beyond the Basics)
Patient education: Flexible sigmoidoscopy (Beyond the Basics)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

Epidemiology and risk factors for colorectal cancer
Clinical presentation, diagnosis, and staging of colorectal cancer
Overview of the management of primary colon cancer
Adjuvant therapy for resected stage III colon cancer
Adjuvant therapy for resected stage II colon cancer
Adjuvant therapy for resected colon cancer in older adults
Surgical treatment of rectal cancer
Neoadjuvant therapy for rectal adenocarcinoma
Adjuvant therapy for resected rectal adenocarcinoma not treated with neoadjuvant therapy
Post-treatment surveillance for colorectal cancer
Clinical manifestations and diagnosis of familial adenomatous polyposis
Lynch syndrome (hereditary nonpolyposis colorectal cancer): Clinical manifestations and diagnosis

The following organizations also provide reliable health information.

- National Cancer Institute

  1-800-4-CANCER

  (www.cancer.gov)

- American Society of Clinical Oncology

  (www.cancer.net/)

- National Library of Medicine

  (https://medlineplus.gov/healthtopics.html)

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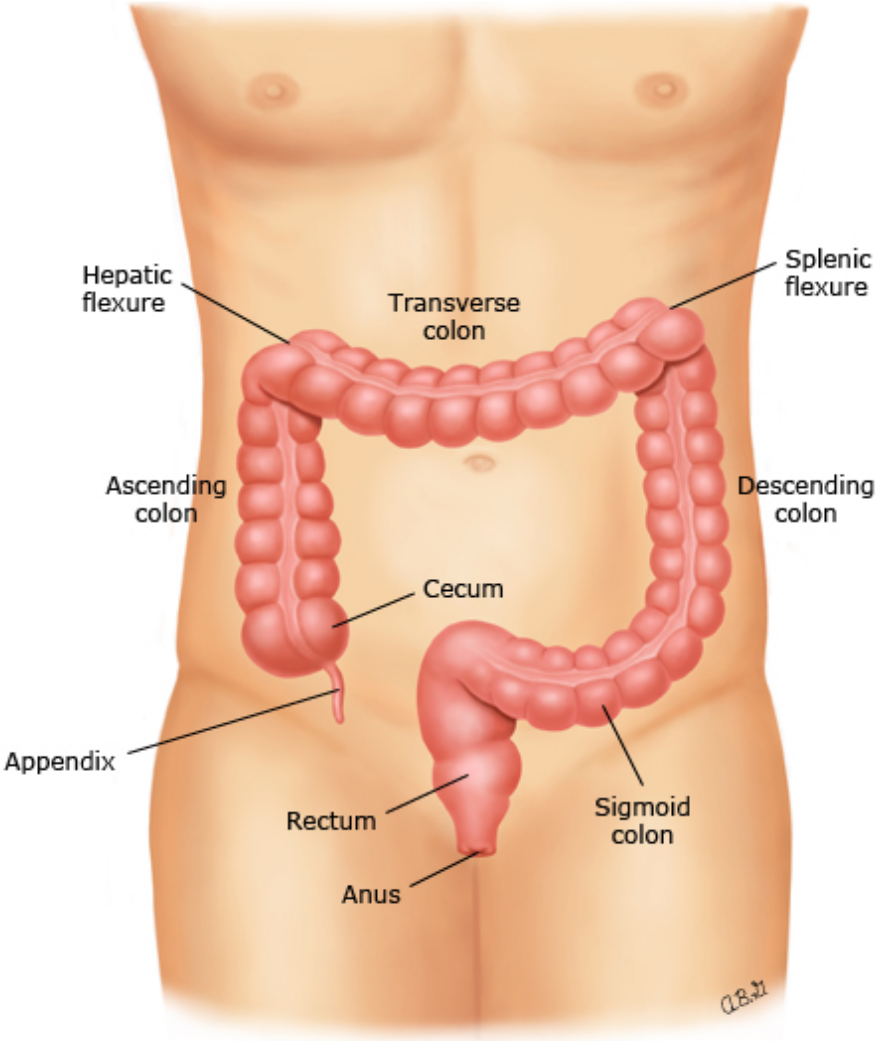
GRAPHICS

Figure 1: **Colon and rectum**



This figure shows the the colon (also known as the large intestine), the rectum, and the anus. Doctors use different names for different parts of the colon.

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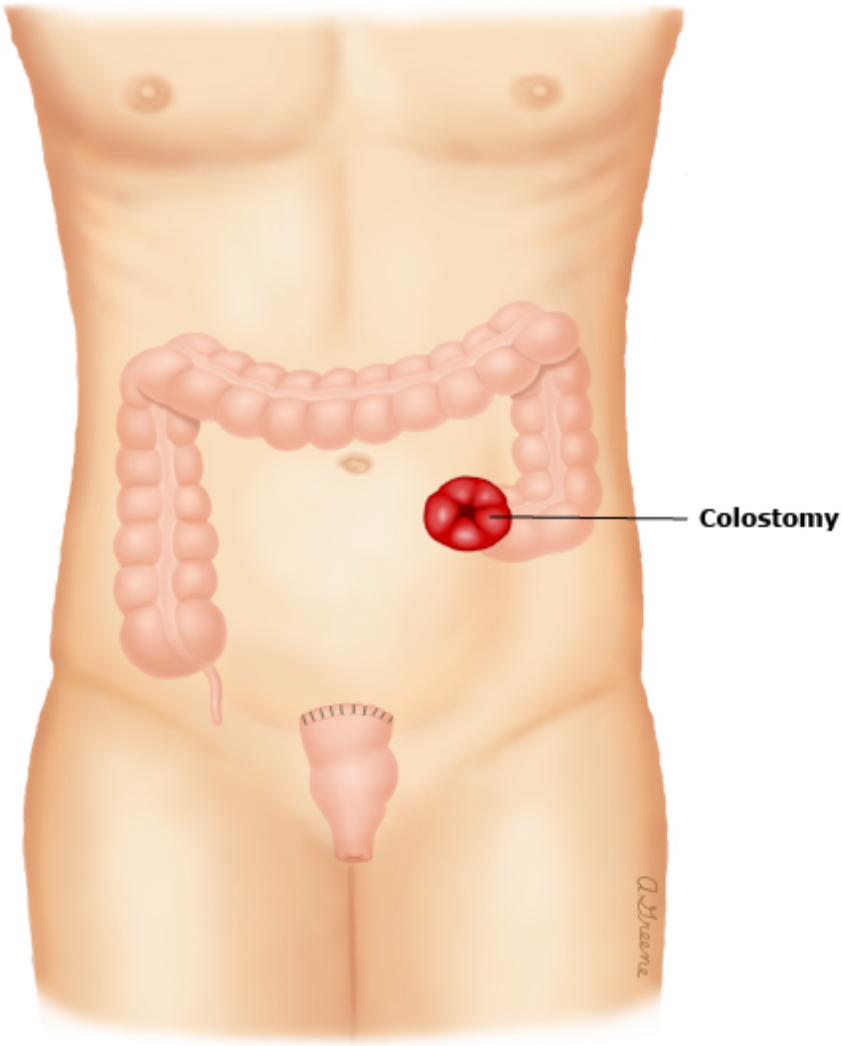
Figure 2: **Colostomy**



This picture shows a colostomy, which is necessary in some people with severe diverticulitis or Crohn disease, or who are being treated for colon cancer. In some people, the colostomy is temporary. In other people, the colostomy is permanent.

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