

Understanding Laparoscopic Colorectal Surgery

A Problem with Your Colon

Your doctor has told you that you have a colon problem. Now you've learned that surgery is needed to treat this problem. As you prepare for surgery, you may have many questions. Why is surgery needed? How does laparoscopic surgery work? What will recovery be like? This booklet can help answer some of your questions.

Correcting Your Problem with Surgery

Many colon problems can be treated with surgery. There are two ways of performing this surgery:

- **Open Surgery** is the traditional method. It is done through one incision in the abdomen large enough for the surgeon to have a direct view of the organs.
- **Laparoscopic surgery (also called laparoscopy)** is done through several smaller incisions in the abdomen. Your surgeon has recommended laparoscopic surgery for your problem. This booklet can help you learn more about this type of surgery.

Understanding Laparoscopy

Laparoscopy is minimal access surgery. This means that incisions are as small as possible, often less than an inch long. A laparoscope (a tool with a very small video camera and a light) is inserted through one incision. This gives the surgeon a clear view of the inside of the abdomen. Surgical tools are then inserted through other small incisions to perform the surgery.

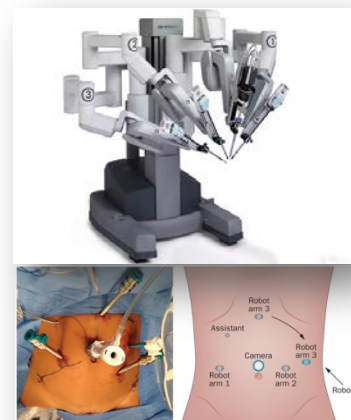
What are the advantages of laparoscopic colon resection?

Results vary depending upon the type of procedure and patient's overall condition. Common advantages are:

- Less postoperative pain
- May shorten hospital length of stay
- May result in a faster return of solid food diet
- May result in quicker return of bowel function
- Improved cosmetic results

What is Robotic Laparoscopic Surgery?

Robotic colorectal surgery uses technological advancements to improve a surgeon's visualization and dexterity in certain procedures. During the minimally invasive procedure, the surgeon controls a robotic instrument that is able to operate on a patient with intricate tools, allowing more precise maneuverability. Unlike standard open surgeries, which require a large abdominal incision, a robot-assisted procedure makes use of several small incisions. The goal is less surgical trauma in order to produce less pain, a shorter recovery time, as well as more aesthetically pleasing cosmetic results.



Advanced Precision!

When a patient undergoes robotic colorectal surgery, it's important to remember that the surgeon has complete control of the operation. The robotic instruments only perform actions based on the surgeon's guidance.

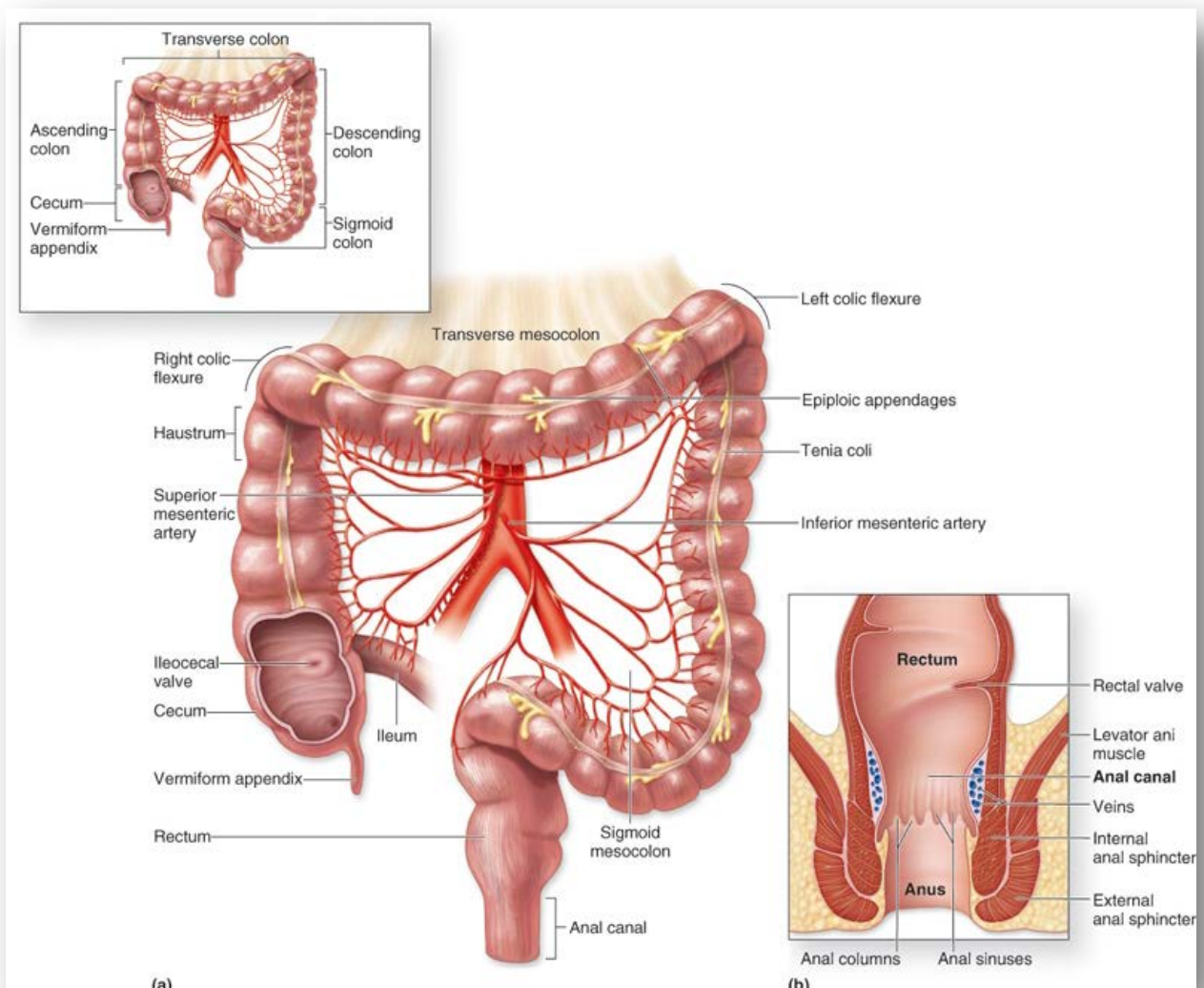
Understanding the Colon

The **colon** (also called the large bowel or the large intestine) is a muscular tube that forms the last part of the digestive tract. It absorbs water and helps prepare waste to be expelled from the body. The colon is about 4 to 6 feet long. The **rectum** is the last 6 inches of the colon. The colon can develop many problems, such as polyps (fleshy growths), cancer, infection, and inflammation.

How the Colon Works

Food waste from the small intestine enters the colon at the cecum (beginning of the colon). As this waste (stool) travels through the colon, it loses water and becomes more solid. Strong muscles move the stool up the ascending colon, across the transverse colon, and down the descending colon. Finally, the stool passes through the sigmoid colon into the rectum. It is stored there until it leaves the body through the anus.

Parts of the Colon & Rectum

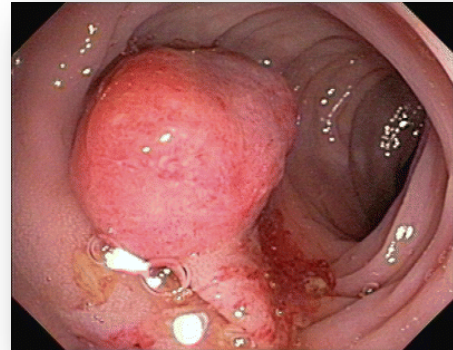


Colorectal Problems Treated with Laparoscopic Surgery

Many types of colon problems can be treated with laparoscopic surgery. These are the most common:

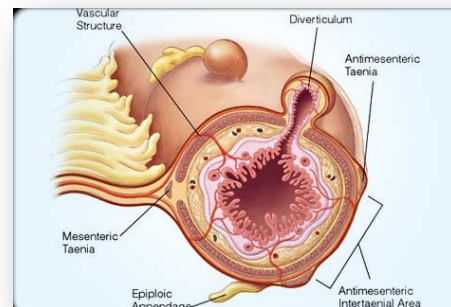
Polyps and Cancer

Polyps are small fleshy growths in the lining of the colon. They are often benign (not cancerous). But some polyps may turn into cancer over time. Removing polyps prevents them from becoming cancerous. In some cases, a polyp has already started to turn into cancer. Removing it while the cancer is in an early stage can prevent it from growing and spreading. Small polyps can often be removed during colonoscopy (insertion of a flexible tube through the rectum into the colon). But in some cases, surgery to remove a section of the colon is needed.



Diverticular Disease

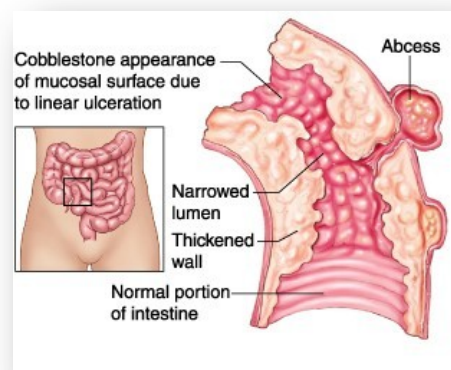
This condition occurs when pouches form in the walls of the colon. In many cases, it can be treated without surgery. **Diverticulitis** occurs when the pouches become infected. This can be acute (sudden) or recurrent (comes back again and again). Diverticulitis can sometimes be treated with medication. In other cases, the best treatment is to remove the involved part of the colon.



Inflammatory Bowel Disease (IBD)

IBD causes the lining of the colon to become inflamed (red and swollen). Removing the affected sections of the colon may help relieve symptoms. Types of IBD include:

- **Crohn's disease.** Inflammation can occur in different parts of the large and small bowel, with sections of healthy bowel between them.
- **Ulcerative Colitis.** Inflammation can affect part or all of the colon.

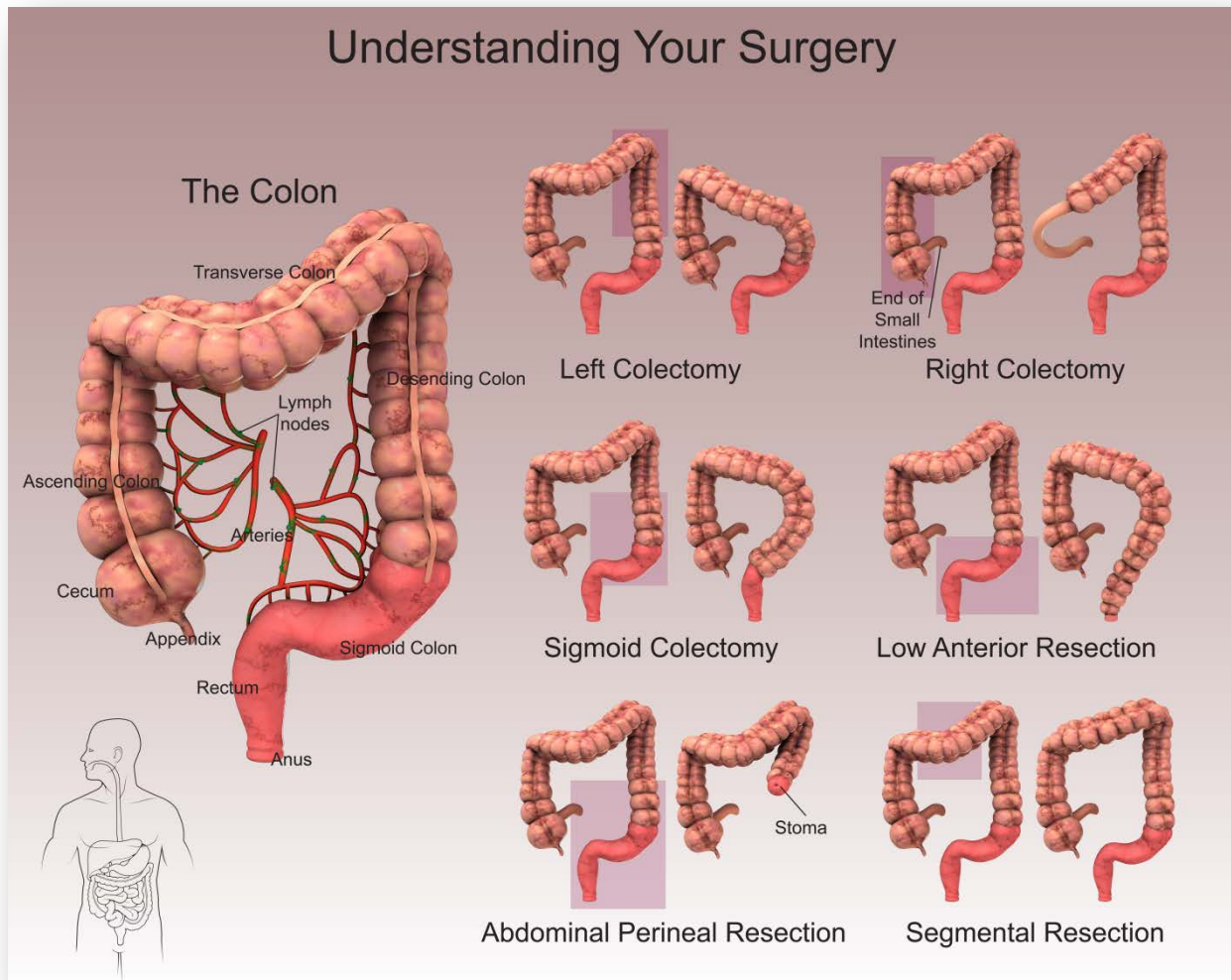


Other Problems

Laparoscopic surgery is also sometimes used to treat the following problems:

- **Rectal Prolapse.** This occurs when the rectum comes out through the anus.
- **A volvulus.** This is a blockage due to a twist in the colon.
- **Severe chronic constipation.**
- **Problems that require temporary fecal diversion.** Part of the colon can be diverted for a time so that waste won't flow through an area that needs to heal.

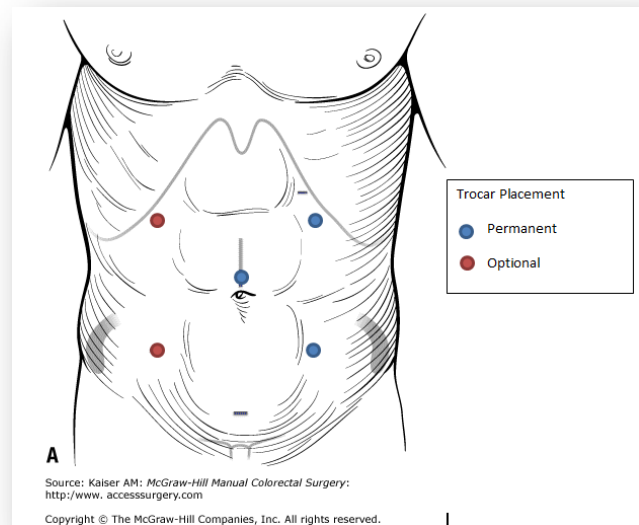
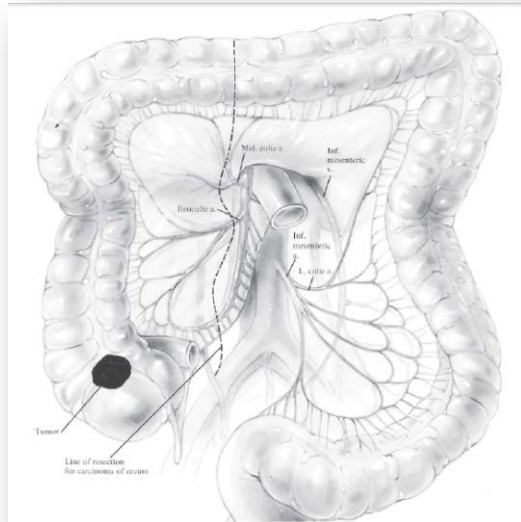
Types of Colorectal Surgery



The idea of having part of your colon removed may sound scary. However, part or all of the colon can be resected (removed) without causing serious problems. After the section of bowel is removed, the two ends are then reconnected (anastomosis). These pages show some of the surgeries that can be performed on the colon. The type of surgery depends on the location of the colon problem.

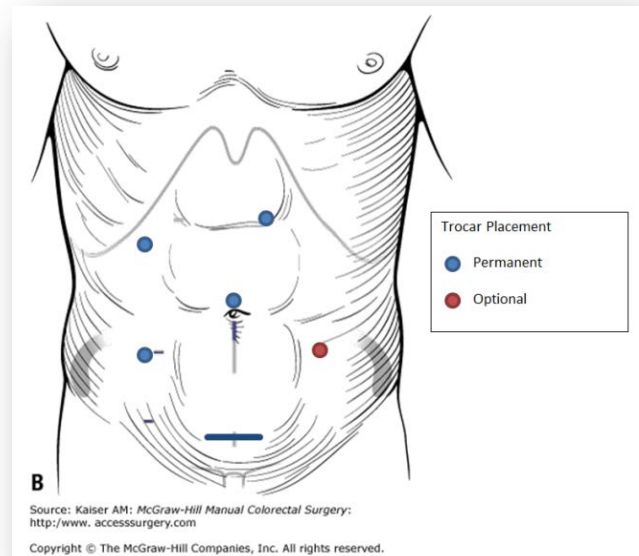
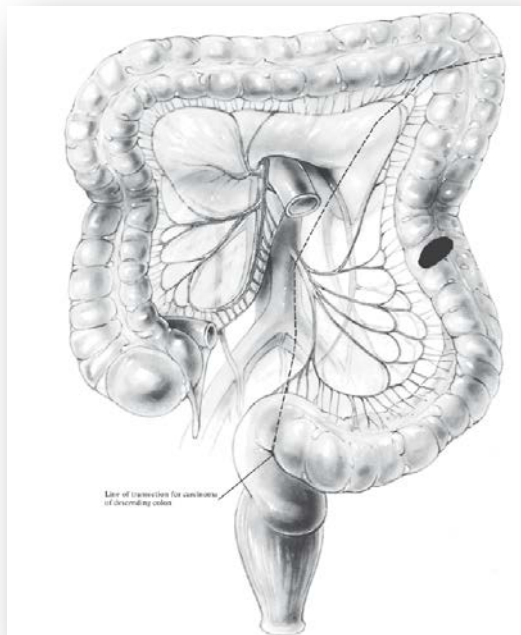
Right Hemicolectomy

Part or all of the ascending (right side) colon is removed. The remaining colon is then reconnected to the small intestine.



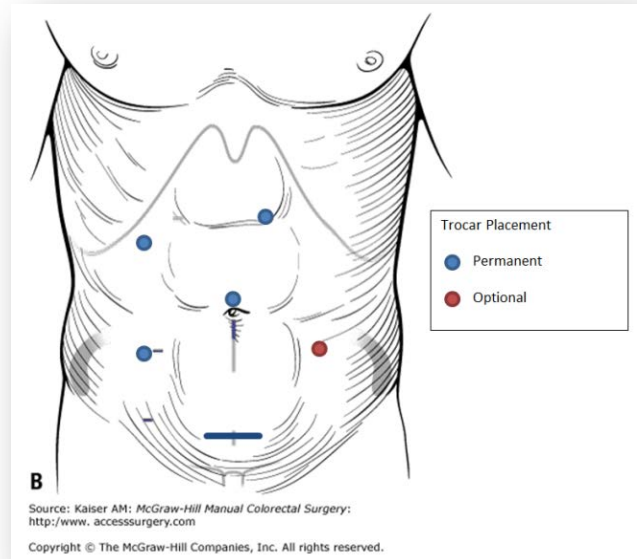
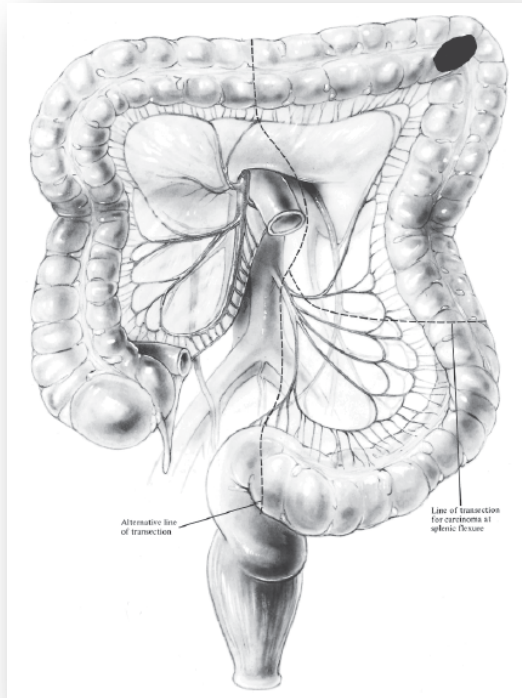
Left Hemicolectomy

Part or all of the descending (left side) colon is removed. The remaining colon is then reconnected to the rectum.



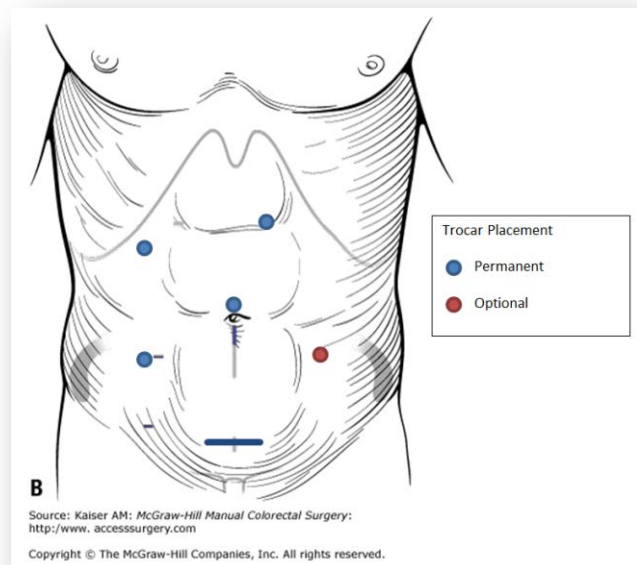
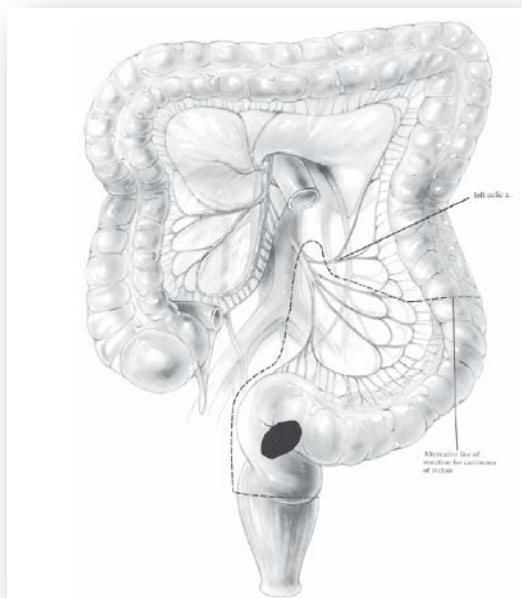
Sigmoid Colectomy (Sigmoidectomy)

Part or all of the sigmoid colon is removed. The descending colon is then reconnected to the rectum.



Low Anterior Resection

The sigmoid colon and part of the rectum are removed. The descending colon is then reconnected to what remains of the rectum.



Abdominal Perineal Resection

Part or all of the sigmoid colon, rectum, and anus is removed. The descending colon is then diverted to a new opening on the abdomen (see “What is a Stoma?” below).

Segmental Resection

One or more short segments of the colon are removed. The remaining ends of the colon are reconnected.

Total Colectomy

Depending on the situation, surgery can consist of:

Total colectomy. The entire colon is removed. The small intestine is reconnected to the rectum.

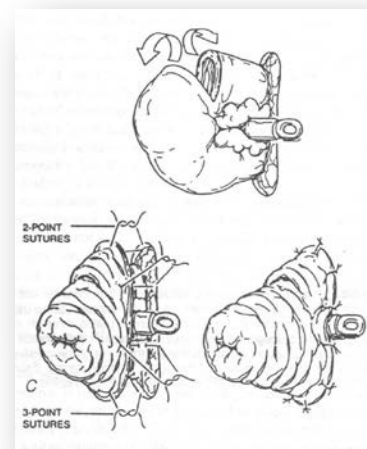
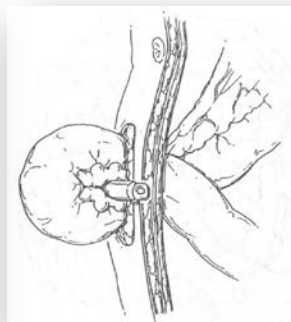
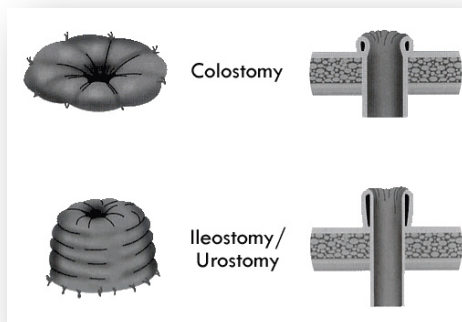
Total proctocolectomy. The entire colon is removed, along with the rectum and anus. The end of the small intestine is then connected to a new opening on the abdomen (see “What Is a Stoma?” below).

What is a Stoma?

With some surgeries, one end of the intestine is used to make an opening on the abdomen. This opening, called a **stoma**, creates a new path for waste to leave the body. A stoma from the colon is called a **colostomy**. A stoma from the small intestine is called an **ileostomy**.

A **temporary stoma** is created when the waste needs to be diverted for a time, but the rectum and anus can remain intact. In a later surgery, the colon is reconnected to the rectum, and the stoma is closed.

A **permanent stoma** is created if the rectum and anus must be removed.



Preparing for Surgery

Before your surgery, you'll be told how to prepare. Follow these instructions carefully. By doing your part, you can help make your surgery a success. You will likely be admitted to the hospital on the day of your surgery. In certain cases, you'll need to be admitted the day before.

A Few Weeks Before

To help prepare your body, you will be instructed on what to do during the weeks before surgery. Follow these instructions carefully. Ask question if something is unclear.

Have a medical checkup. Have a thorough physical exam before surgery, as instructed by your doctor. This checks the health of your heart and lungs.

Ask about Medications. Tell your surgeon

Quit Smoking. If you smoke, do your best to quit now. Smoking increases your risk during surgery and slows healing. It also increases your risk for complications.

Risks and Complications of Laparoscopic Colorectal Surgery include:

- Infection
- Injury to nearby organs
- Leaking or separation where the colon is reconnected = Anastomotic Leak
- Hernia formation
- Small bowel obstruction
- Ostomy complications
- Enterocutaneous fistula
- Blood clots
- Medical risks: DVT, PE, MI, Pneumonia, urinary tract infection
- Risks of anesthesia
- Death
- Others

THE DAY BEFORE SURGERY

You will have to prepare your bowel for surgery. Follow your surgeon's instructions carefully and ask any questions you have.

Have only clear liquids. You will be told not to eat any solid foods and to drink only clear liquids on the day before surgery. These liquids include broth, plain tea, gelatin, and clear fruit juice. Any liquid that you can see through when it's held up to the light is considered clear.

Do your bowel prep. To be sure your colon is clear of stool, you'll do a bowel prep the day before surgery. This involves drinking a liquid laxative, taking pills, using enemas, or using a combination of these methods. Ask you surgeon how many hours before surgery the bowel prep must be completed.

Complete bowel prep by: _____

Surgery date and time: _____

How the Surgery is Performed

These next few pages give an overview of laparoscopic colorectal surgery. The exact details of your surgery may vary. In most cases, the surgery itself takes several hours. During this time, you'll be asleep under general anesthesia.

The Day of Surgery

When you arrive at the hospital, you will be asked to fill out certain forms. You will then change into a gown. An **IV (intravenous) line** will be inserted into your arm. This provides fluids and medications. You'll meet with your anesthesiologist or nurse anesthetist. At this time, you'll discuss the medication (general anesthetic) that keeps you asleep and pain free during surgery. Ask any questions you have about this medication. It will be given to you just before surgery begins. A soft tube called a **catheter** may then be placed into your bladder. This tube drains urine from your bladder during surgery.

If Open Surgery is Needed

During the procedure, the surgeon may find that it is safer to convert to open surgery. In most cases, this is because of the detail of anatomy that could not be seen on scans done before the surgery. It doesn't mean that anything went wrong. Conversion to open surgery is done to assure the best outcome for you. Before surgery you'll be asked to sign a release giving your consent for open surgery if it is needed.

Factors that may increase the possibility of choosing or converting to the "open" procedure may include:

- Obesity
- A history of prior surgery causing dense scar tissue
- Inability to visualize organs
- Bleeding problems during the operation
- Large tumors

When the surgeon feels that is necessary and safest to convert to open, this is not a complication but rather a sound surgical judgement.

During Your Surgery

During surgery, 3 to 5 small incisions are made in the abdomen. Rigid tubes called ports are then inserted into the incisions to hold them open. Carbon dioxide or another harmless gas is let into the abdomen through one of these ports. The gas lifts the abdominal wall away from the organs, creating room for the surgeon to see and work. A laparoscope is then inserted through a port. This instrument has a camera that sends images to a video monitor. The surgeon can see the inside of the abdomen by looking at the monitor. This allows the surgeon to perform surgery on the colon using instruments inserted through the ports.

The location and number of incisions depends on the type of resection. Some common port sites are shown here. On the back cover of this booklet, your surgeon can draw in the port sites that will be used for your surgery.

Completing the Surgery

In addition to the port sites, a longer incision (about 2-3 inches long) is often made. The resected colon is taken out through this incision. After the section of colon is removed, the two remaining ends are reconnected using staples or sutures. Or, if the stoma is needed, it is created at this time. When surgery is finished, the gas is released from the abdomen. The incisions are then closed with staples or sutures.

Your Recovery after Surgery

Your hospital stay may last 2 to 7 days. During your recovery, you'll be monitored closely to be sure you're healing well and there are no complications. Pain medication will help keep you comfortable. While in the hospital you'll begin a liquid diet and progress to solid food. And you'll gradually become more active, preparing to go home.

When You Wake Up

After surgery, you'll be taken to the recovery room (also called the post anesthesia care unit, or PACU). Here, your blood pressure, pulse, and breathing will be checked. You'll have a urinary catheter; it will likely be removed shortly before surgery. When you're ready, you'll be moved to a regular hospital room.

Recovery in Your Room

Once you're moved to your regular room, your family can visit you. You'll still be checked often to be sure you're healing well. You'll also continue to receive medication for pain. (It is normal to feel some shoulder pain. This occurs because the gas placed in the abdomen irritates certain nerves.) Your IV line will remain in place to give you fluids. You'll be asked to do breathing exercises in to prevent pneumonia. For these exercises you'll use a device (spirometer) that helps you practice taking deeper breaths. You'll start on a liquid diet once the remaining part of your bowel begins to function again. Nurses may ask whether you're passing gas—one sign that the bowel is working.

Getting Up and Around

Soon after surgery you'll be urged to get up and take short walks. As you gain strength, you'll walk farther and be up for longer periods. Walking as soon as possible after surgery helps prevent blood clots and other problems. It can also help bowel function return to normal. When your bowel has recovered enough, you'll be allowed to start eating solid food.

If you have a Stoma

If a stoma was created, this is where stool now leaves the body. Stool passes through the stoma into a special bag or appliance. Before you leave the hospital, an ET (enterostomal therapy) nurse will show you how to care for your stoma. You'll continue to receive support once you're home. If your stoma is permanent, caring for it will, in time, become part of your daily routine.

Your Recovery at Home

You can return home once you're eating solid food. Over the next few weeks, you'll get back to your normal activities. But don't forget that you're still healing from major surgery. If you feel pain, stop what you're doing. If you're tired, rest. Full recovery takes about a month. This can vary depending on the type of surgery and your overall health.

The First Two Weeks

As you start to recover, be aware that bowel movements may be more frequent and looser than usual. This is normal. In general, you can be as active as you feel able to be. This includes sexual activity. You can drive when you're no longer taking pain medication, often in about a week. To aid in recovery:

- Get plenty of sleep.
- Follow any special diet instructions. (You can most likely eat normally.)
- Follow your surgeon's instructions on caring for your incisions.
- Shower instead of bathing for the first week or so.
- Increase your activity level as you feel stronger. For example, if your main exercise is walking, walk a little farther each day.

Following Up with Your Surgeon

Within the first few weeks after surgery, you'll have a follow-up visit with your surgeon. This is to make sure that you're getting better as expected, and that there are no complications. You'll discuss further follow-up or treatment. This visit is a good time to ask your surgeon about returning to work, or any other questions you have.

When to Call Your Doctor

Call your doctor if you have any of the following after surgery:

- Fever over 101°F (38.3°C)
- Persistent nausea or vomiting
- Unusual redness, swelling, or pain at an incision
- Severe constipation or diarrhea
- Worsening pain

A Healthy Future

There are things you can do to protect your colon health in the future. Once you're completely recovered, you'll have few if any restrictions on your diet. But you may be advised to eat or to avoid certain foods. Getting daily physical activity is another way to improve your colon health and your overall health. Finally, your surgeon may recommend having regular screening tests to check your colon health.

Choosing Foods Carefully

Certain eating habits promote colon health. As a bonus, these eating habits are also good for your heart. The best eating pattern may depend on what your original problem was and how much of the colon was removed. In general:

Eat foods high in fiber. These include fruits, vegetables, and whole grains. Eating plenty of fiber helps prevent constipation and diverticular disease. It may also help protect against colon cancer.

Cut down on fat, especially animal fat. A high fat diet has been linked to colon cancer.

Drink plenty of water. This helps prevent constipation.

Tips for Staying Active

Physical activity has many benefits for your health. Try these tips for making daily exercise part of your life.

- **Find an activity you enjoy.** Try walking, swimming, biking or an aerobics class.
- **If you're new to exercise, start slowly.** Begin with 5 to 10 minutes at a time, 3 times a week. Work up to 30 minutes or more most days.
- **Make activity fun.** Try exercising with a friend or family member. Or listen to music as you exercise.
- **Be active in small ways each day.** For example, do an errand on foot instead of driving. Walk to see a friend rather than calling. And use the stairs instead of the elevator.