

Ileal-Pouch Anal Anastomosis **A Guide for Patients and Families**

If you are reading this booklet, it's probably because you or a loved one is considering an ileal-pouch anal anastomosis, an operation to restore the passage of stool through the anus after removal of the colon and rectum. The combination of these two surgeries is the treatment of choice for ulcerative colitis or familial polyposis.

This booklet will provide you with information to assist in your decision and prepare for surgery, and serve as a basis for questions and concerns you might have.

It is important that you fully understand your choices before you start your road to recovery --a recovery that includes your mind and feelings, your family and your lifestyle, as well as your body.

About the Procedure

The ileal-pouch anal anastomosis (IPAA) is an operation designed to allow bowel movements through the anus after removing the

entire large bowel and most of the rectum. A straight connection of the small bowel to the anus is undesirable because it results in a high frequency of bowel movements. By creating a pouch with the end of the small bowel (ileum) the frequency of bowel movements is reduced to an acceptable level, about 6 to 10 per day. Other names for the procedure include: ileo-anal procedure, ileo-anal anastomosis, ileo-anal pull-through, pull-through procedure, Soave procedure, "J", "s" or "w" pouch.

The IPAA was first described by a British surgeon in 1976 and perfected by a Japanese surgeon in 1980. During the 1980s many surgeons made substantial contributions to our present understanding of this operation.

We now realize that patients undergoing the IPAA have better results when they are cared for by a multidisciplinary team of professionals with experience in this procedure, and when the patient and family have a clear understanding of the unique features of the IPAA.

Who is a Candidate for the IPAA?:

Nine out of ten patients have this operation as the treatment for ulcerative colitis. With much less frequency, the IPAA is performed for patients with indeterminate colitis and familial polyposis.

Ulcerative Colitis

If you have come to surgery for **ulcerative colitis** you are probably very knowledgeable about this illness. Ulcerative colitis is a chronic inflammation of the inner layer of the colon or large bowel producing painful and bloody diarrhea. The mechanism underlying this inflammatory process is an overreaction of the immune system to the usual intestinal bacteria. Immune reactions designed to attack microorganisms turns against one's self and destroys the cells lining the colon.

The medicines used to treat patients with ulcerative colitis are corticosteroids (Prednisone), sulfasalazine (Azulfidine™), derivatives of 6-aminosalicylic acid (e.g., Pentasa™, Rowasa™) and drugs that suppresses the immune system (6-Mercaptopurine, Azathioprine, Cyclosporin).

When Is Surgery Necessary for Ulcerative Colitis?

Patients with ulcerative colitis are referred to surgery when one of four situations arises.

- The most common is when medicines are not able to control the symptoms of ulcerative colitis.
- When medications produce serious side effects.
- In some patients, the inflammation progresses to the point of producing a sudden enlargement of the colon (toxic mega colon), massive bleeding or a perforation and peritonitis. These are all emergency situations where surgery cannot be delayed.
- Dysplasia and colon cancer
 - Over the years the back and forth of ulcerations and healing can turn cancerous the lining of the colon. For that reason, patients with UC undergo "surveillance" colonoscopy and biopsies. If the cells lining the colon start losing their normal structure, a process called

dysplasia, the development of cancer can be anticipated so surgery is preventive. If cancer has already developed, then surgery is done for cure along with chemotherapy.

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Crohn's Disease

Another inflammatory condition of the colon is called Crohn's disease. The IPAA is not a good option for these patients because the inflammation can extend into the ileal pouch and create fistulas.

Indeterminate Colitis

This condition is neither typical for ulcerative colitis nor for Crohn's disease. When the symptoms of indeterminate colitis are more consistent with ulcerative colitis than with Crohn's disease, the IPAA is good option and patients have the same results as if they had ulcerative colitis.

Familial Polyposis

Familial polyposis is a rare hereditary condition where an error in the gene code produces many polyps in the colon. Over time, these polyps can also develop into cancer. Individuals with familial polyposis are usually brought to the doctor in their teen years, by their parents, without having any symptoms or discomfort.

About the Colon

In order to understand the IPAA it is necessary to review the anatomy and function of the colon. The colon is a horseshoe-shaped tube that traverses the abdomen from the right lower side up and across, then down and connects to the rectum in the pelvis.

The diameter of the colon varies along its course but in the average is twice as big as the small bowel.

The colon has three layers of tissue mounted on top of each other: mucosa -inner layer (lining) that contains the epithelial cells that absorb water and salts; middle layer -muscle that contracts to propel stool into the anus; and serosa -outer layer

At the anus, the muscle fibers of the rectum become rearranged to form the internal anal sphincter. The anal sphincter, which has another muscle called the external anal sphincter, is responsible for keeping the anal canal closed at all times and open only to produce a bowel movement.

The colon is normally filled with bacteria that constitute the colonic flora. These bacteria are capable of fermenting part of the vegetable fiber that escapes digestion in the small bowel. The bacteria extract energy from fiber without causing any harm to the host. Some of the energy products generated by the bacteria are used by the colon and help in the absorption of water and salts.

What Surgical Options are Available?

Understanding the terms:

Colectomy -when the colon is entirely removed through the abdomen

Proctectomy -removal of the rectum

The two procedures combined are called *proctocolectomy*. *Restorative Proctocolectomy* -the anus is preserved and the small bowel is connected to the anus

When the anus is excised with an operation known as Abdominoperineal resection the rectum (APR or Mile's procedure, then the options are:

Ileostomy

. The ileum is projected through the abdominal wall muscles, usually in the lower abdomen, and folded over above the skin level.

. Liquid stool flows through this ileostomy into a plastic external pouch. This plastic external pouch, the “appliance”, is attached to the skin with a special adhesive material, the “flange”, and is worn constantly.

Kock pouch or continent ileostomy

- Instead of constantly wearing an external appliance, liquid stool is collected inside the abdomen within a pouch created with the ileum.
- In order to prevent the constant flow of liquid stool outside of the body, a nipple valve is created at the very end of the bowel which lets stool out of the pouch only when a tube is placed through it.
- Patients have to place the tube four to six times a day, usually at the same time as urination. This operation eliminates the need of any external appliance and allows for more control of the stool output. Initially, this operation had a high degree of failure, mostly at the nipple valve, and patients required multiple operations for revisions. At the same time the IPAA was introduced, the technique for creating a Kock pouch was improved to almost eliminate the need for revisions. Although the Kock pouch is clearly a second choice when compared to the IPAA, many patients enjoy very productive lives with this type of surgery

IPAA

The IPAA consists of the creation of an ileal pouch, similar to the Kock pouch, and a connection of the pouch to the anus. The entire operation, including the colectomy and the IPAA, can be done at one time or it can be staged in different operations depending on the severity of the colitis and the certainty of the diagnosis of Ulcerative Colitis at the initial surgery. If the colitis is very severe, the patient is receiving potent immunosuppressive medications, there is doubt that the colitis could be due to Crohn’s disease or that the patient may have invasive cancer the initial operation may be limited to the removal of the colon and creation of an ileostomy. Then in a second stage the IPAA is created when all those conditions are dealt with. If necessary a temporary ileostomy is created in the second stage which will require a third operation for its reversal, i.e. the third stage.

The addition of a temporary ileostomy to an IPAA is to prevent damage to the pouch if a leak occurs in the IPAA connection. The ileostomy prevents the passage of stool through the IPAA and although in itself does not help with healing it does make the leakage less of a problem if it were to happen. Therefore, the temporary ileostomy is added in patients who are at risk of leakage and those include patients receiving high dose of steroids, anti-TNF drugs (e.g., Remicade™), or cyclosporin, and those who are very weak and sick. Another factor determining the need for an ileostomy is the technical difficulty at surgery. If the mobilization of the pouch is too difficult, as in heavy set men, and the IPAA seems at risk the ileostomy is created. Unfortunately, obesity also creates a difficulty in bringing through the ileostomy and can even be counterproductive for healing of the IPAA. Therefore, this decision is made at surgery considering all these variables.

In a second operation, usually 8-12 weeks later, the ileostomy is closed and stool is allowed to flow through the anus.

What is to be expected from undergoing an IPAA?

From the time a patient is referred to us for surgery until the patient returns to a normal level of activities there are ten steps. Each of these ten steps is equally important to arrive at a successful outcome.

1. Initial visit
2. Preadmission testing
3. Enterostomal therapist visit
4. Preoperative bowel preparation
5. Admission to the hospital
6. Surgery
7. Immediate postoperative period
8. Discharge process
9. Follow-up visits
10. Convalescence

(second surgery if needed)

Initial visit:

It is very likely that by the time you are reading this booklet you have gone through the initial visit already. Occasionally, this booklet is mailed to patients prior to their visit to the hospital. We have printed material with directions to our different offices so please let us know if you need it.

- It is really useful for us to have as much information about your illness as possible. If you have any medical reports (colonoscopy and biopsies) or X-rays at home (CDs), please mail them to us or bring them with you to your initial visit. Usually we receive these materials directly from your doctor's office, but occasionally they do not arrive before you come.
- You will be asked about the medications you have taken in the past and what you are presently taking, so please prepare a list of them.
- During the initial visit we will get a full medical history and perform a physical exam. The surgeon will also perform a rectal exam on you. We are aware that the rectum and anus may be sore in most patients, but we still need to confirm that the strength of the anal sphincter is sufficient to carry out the IPAA to success.

Reading this booklet will elicit many questions. Please write them down and feel free to ask them at either the initial visit, anytime between the initial visit and the day of surgery, or even the day of surgery.

Blood availability for transfusion:

One issue that you may want to discuss with your surgeon is the need for blood for the operation. We like to have two units of blood available to use only in case of serious bleeding. Fortunately, the blood loss with the IPAA has consistently decreased as we gained experience with the operation. There are three choices to be considered:

- You may choose to let us find blood suitable for you in the blood bank. Nowadays, the risks of transmissible infections associated with transfusions of banked blood are extremely low.
- Some patients prefer to **designate a donor** who may be a relative or a friend. This is always an option, but be aware that just because another person has the same blood type as you do not mean it is compatible with yours.
- Bank your own blood (**autologous blood**). While this may seem the preferred way we don't encourage to do it for various reasons. First, many patients with ulcerative colitis have anemia due to rectal bleeding so they cannot donate blood. Second, time is needed to bank the blood (72 hours) and to allow the body to replace some of the red cells (seven days). More importantly, patient can even have reactions to their own blood so we try to not give any blood to any patient, even if we have autologous blood in the bank. Your blood will serve you better in your body than in the blood bank.

Preadmission Testing:

Before your admission to the hospital we need to be sure that you are healthy enough to undergo surgery.

- We will schedule an appointment to have your blood tested for cell counts, and chemistries.
- We usually ask for a urine sample to be sure that your bladder is sterile.
- Depending on the age of the patient we will also ask for a chest X-ray and electrocardiogram.

Anesthesia

You will meet with your anesthesiologist prior to your surgery. You will then have an opportunity to discuss the general anesthesia you will receive.

Epidural Catheter

- You may be offered to have an epidural catheter placed prior to the induction of general anesthesia. This catheter which *lies in* a space surrounding the spinal cord *is* used for delivery of analgesics. The theoretical advantage of such a catheter *is* that it provides effective analgesia *in* the postoperative period without the side effects *like* drowsiness of analgesics delivered into the blood stream.

Patient Controlled Analgesia (PCA)

- The other option is to have a pump that delivers analgesics into your blood stream at the push of a button, called patient controlled analgesia (PCA). You will have a button to push that releases pain medication into your blood stream.

Both of these methods are equally effective so that pain is not really a major issue after surgery.

Enterostomal Therapist visit:

We will try to schedule this visit either the same day as the initial visit with your surgeon or with the preadmission testing. An Enterostomal Therapist (ET) is a nurse specialized in any kind of opening of the gastrointestinal tract to the skin such as ileostomies and colostomies. The ET's role in the IPAA is crucial and involves:

- informing the patient preoperatively about ileostomies
- selecting the appropriate site in the abdominal wall to create an ileostomy if needed
- assisting the patient in the postoperative period with the management of an ileostomy and the protection of the perianal skin

The ideal site for an ileostomy varies from person to person depending on shape of the body, clothing style and dexterity. During the preoperative visit, the ET will determine the best site by having the patient take various positions while trying an appliance. Once the site has been agreed upon, the ET will mark that site with a special ink and sometimes cover it with a transparent dressing.

Preoperative bowel preparation:

In the past, patients were admitted to the hospital for bowel preparation. Now, insurance coverage does not approve hospitalization for bowel preparation, so we rely on patients and families being very meticulous about this important step prior to surgery.

Many patients undergoing an IPAA already experienced some form of bowel preparation for colonoscopy, which is usually drinking a polyethylene glycol solution (Golytely™). In preparation for surgery, the bowel preparation is essential to minimize the chances of postoperative infections. Bowel preparation consists of three parts: diet, laxatives and antibiotics.

For two days before to surgery:

1. No solid foods may be eaten.
2. Drink only a clear liquid diet starting at breakfast. Clear liquids include water, tea, and coffee with no added milk or cream, broth, carbonated.
3. Do not eat milk products, solids, or jello.
4. Take 4 bisacodyl tablets (i.e. Dulcolax) at bedtime.

The day before surgery:

1. Continue drinking a clear liquid diet all day, do not eat solid food.
 2. Drink the gallon of Golytely (Polyethylene Glycol & Electrolytes) at 12 noon
 - a. You should fast for 3 hours prior to ingestion of the solution; clear liquids are allowed after ingestion of the solution.
 - b. Take any other needed medications at least 1 hour before you start the solution.
 - c. Take 240 ml every ten minutes up to 4 liters or until your fecal discharge is clear and free of solid matter (don't worry if after having seen the fecal discharge clear you have some particles in the stool, even if it is in the morning of surgery).
 - d. Rapid drinking of the solution is recommended rather than drinking small amounts continuously.
 - e. It usually starts to work in 30 to 60 minutes.
 3. Take 500 mg of Flagyl and 1 gm of Neomycin by mouth at 7PM and 11PM
 4. Shower carefully with a strong soap the night before surgery
 5. Ensure that your umbilical area (belly button) is clean, one way of achieving this is by using a Q-tip.
 6. Take nothing by mouth after midnight prior to your surgery. No candy, no mints, no chewing gum, and no water. This is essential to undergo general anesthesia. The anesthesiologist will not proceed with anesthesia if the stomach has not been absolutely empty for eight to 12 hours.
 7. Follow special instructions for your medications.
- We strongly recommend going to bed early the night before surgery. **If** you have trouble falling asleep you are welcome to take a sleeping pill.

Admission to the hospital:

You will be asked to come to the surgical access unit two hours prior to the start of your surgery.

- You will be admitted to the hospital. This process takes about 30 minutes. You will need to show your ID and insurance card.
- You will then be escorted in to the holding area. You will encounter many new people asking you many of the same questions over and over again. This is a safety mechanism to make sure you do not have any drug allergies, and that we have recorded as much information about you as possible.
- You will change into a gown which can be a body warmer
- An intravenous will be started in your arm.
- You will see your surgeon and/or other members of the team who will answer any last minute questions you may have.
- If you had not signed consent at your initial visit, you will be asked to do so now. Even if you did it will be updated.
- You will meet the anesthesiologist and you will be offered a sedative to make you feel comfortable.
- You will then be taken to the operating room.
- If your family members are waiting they will go to the family waiting room. Your surgeon will come and speak to them when your surgery is finished. If they prefer to wait at home, he will phone them.

Surgery:

- Everyone working in the operating room will have a face mask. There are usually two nurses assigned to each operating room who will come to greet you and assist you to the operating room table.
- The anesthesiologist will place you under general anesthesia. From the time you fall asleep until we start the surgery there is an additional hour that we need to pad and position your legs, examine and irrigate the rectum, scrub the abdomen and anal area, and finally cover the rest of the body.
- The operation will take between four and six hours depending on many factors.
 - Gender: in females the operating time is shorter because it is easier to expose the rectum in the pelvis.
 - Body size: in heavyset patients the operation is more difficult.
 - Severity of the colitis

Immediate postoperative period:

After surgery you will spend approximately two hours in the recovery room and then you will go to your room. You will not remember much of what happened the day of your surgery. You will wake up the following day realizing that there are a number of devices attached to your body:

- Intravenous tube in your arm and perhaps another intravenous tube in one of your neck veins.
- A catheter in your bladder and possibly one in your new rectum.
- You will have a control button for your PCA pump which you push to receive analgesics as needed.
- The most important device of all is your call button for your nurse.
- On a rare occasion we may leave a Nasogastric tube draining gastric juice

Day After Surgery~

- The day after surgery you will be assisted to get out of bed and sit up in a chair. Although this may seem cruel one day after major surgery, it is not really that bad. Being out of bed helps aerate your lungs and gives you a sense of well being.
- By the second postoperative day we start removing devices such as the nasogastric tube and foley catheter.
- We will then encourage you to walk in the room and possibly in the hallways.
- Usually by the third postoperative day we start detecting signs of your bowel recovering from surgery. Signs of bowel activity start with sounds that we can hear with the stethoscope to your passing gas and stool, either through the rectum or the ileostomy if we created one. Once we document bowel activity, we will start a clear liquid diet that is the same as the preoperative liquid diet.

After 24 hours of tolerating liquids, we will add solid food.

- At this point we are interested in knowing how much stool output you are having. Initially it will be high and over a few days it will decrease. We need to be sure that you are drinking plenty of fluids to compensate for the fluid losses.
- We will use a cream (Calmoseptin™) to protect the skin around the anus. You will also use this cream when you leave the hospital.

Discharge process:

- You will be ready to go home once you are eating, the intravenous fluids are stopped and you are tolerating medications by mouth.
- If we created an ileostomy, we will give you enough supplies to take home with you and will make arrangements for a visiting nurse to go to your house and assist you with the first exchanges

Discharge instructions include:

- Avoid lifting any object heavier than 10 pounds (four weeks)
- Avoid baths in the tub (four weeks)
- Avoid driving until you stop taking analgesics
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- You should be careful with your diet, avoiding spices any food item that can elicit diarrhea.
- You will be encouraged to walk as much as you like. There is no problem going up stairs.
- Avoid sudden changes in temperature or exposure to people with colds since developing a cough or sneezing will be painful in your incision as well as being potentially dangerous.

Follow-up visits:

You will return to see your surgeon in approximately two weeks from the time of discharge. At this point, he may want to do a very superficial exam of your anus. Patients who had an ileostomy created will have an X-ray taken of the pouch (pouchogram) before having the ileostomy closed.

