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For more information on ileal pouch reconstruction and our providers, please visit uwhealth.org or call UW Health Colon and Rectal Surgery at (608) 263-2521.

To schedule an appointment or reach our clinic, please call the UW Health Digestive Health Center at (608) 890-5000.
WHY ILEAL POUCH RECONSTRUCTION?

Ileal pouch reconstruction allows patients with conditions such as ulcerative colitis, familial polyposis and certain types of colon cancer to avoid living with a permanent ileostomy and external appliance after surgical removal of the colon. The procedure involves removing the colon, rectum and anal canal lining and uses the end of the small bowel (ileum) to create a stool reservoir that connects directly to the anus. This allows patients the possibility of voluntary bowel control. Since its development in the late 1970s by British and Japanese surgeons, ileal pouch reconstruction is the “gold standard” for patients undergoing colon removal. Surgeons have improved both the pouch and the technique over time, eliminating many complications. The most recent change has been the addition of minimally invasive techniques in colectomy and pouch reconstruction procedures.

Surgeons at University of Wisconsin Hospitals and Clinics began performing ileal pouch reconstructions in 1984. Since then, we’ve helped more than 1,000 individuals ranging in age from 10 to 75. We have seen our ileal pouch patients go on to lead normal lives and achieve milestones, such as graduating from college, working, getting married and enjoying social activities that their disease had kept them from in the past. Some have even participated in marathons and cross-country ski races, wrestled in the Badger State Games, bungee jumped and competed in rodeos.

This booklet will give you an overview of ileal pouch reconstruction and the prognosis after surgery. We hope it will answer many of your questions about the procedure.

ANATOMY AND TERMINOLOGY

The following are brief descriptions of some terms used in describing reconstructive colon surgery:

Anastomosis
The surgical connections between the loops of the small intestine that make up the pouch. This also refers to the connections between the ileum and anal canal.

Colon
The portion of the large intestine that extends from the cecum to the rectum (bottom section). The colon’s primary function is to absorb water and serve as a reservoir for stool.

Ileal pouch reconstruction
This is the technical term for the procedure that combines complete removal of the colon and creation of a new rectum using the lower part of the small intestine called the ileum. This procedure may also be referred to as ileal reservoir reconstruction, ileal pouch-anal anastomosis, restorative proctocolectomy, or S- or J-pouch reconstruction.

Loop ileostomy
A loop of small bowel brought to the skin’s surface to divert bowel contents away from the newly created ileal pouch. The ileostomy empties into an external appliance that must be changed regularly. Ileal pouch reconstruction patients may live with a temporary ileostomy for two to three months or until the internal pouch has adequately healed. Ileostomy takedown refers to the removal of the temporary ileostomy.

Neorectum
A new rectum created from the end of the small bowel.
Small bowel
The small bowel consists of two parts: the upper portion, called the jejunum and the lower portion, called the ileum. Approximately 12–15 inches of the ileum is used for pouch reconstruction.

Sub-total colectomy
A colectomy is the surgical removal of some or all of the large intestine. A sub-total colectomy refers to the removal of of the colon but not the rectum.

Total abdominal colectomy or proctocolectomy
Complete removal of the colon and rectum.

INDICATIONS FOR ILEAL POUCH RECONSTRUCTION
Most ileal pouch recipients have a history of familial polyposis or ulcerative colitis that has failed to respond to more conservative treatments. Additionally, some have hereditary cancers that require colon removal.

Ulcerative colitis
Ulcerative colitis is an inflammatory bowel disease that causes ulceration of the colon (large intestine) and rectum. Because ulcerative colitis involves only the colon and rectum, removal of the colon and rectum is curative, and allows us to use the lower part of the ileum to create an internal pouch.

If you have any of the following indications, then colectomy with pouch is commonly recommended:
- Severe or fulminant disease that does not respond to medication
- Chronically active disease that requires long-term treatment with immune-suppressant drugs or steroids
- Recurrent or persistent flare-ups or disease that compromises your quality of life
- Secondary complications such as skin disorders (i.e., pyoderma gangrenosum)
- Evidence of cancer or dysplasia (abnormal cells)

Your surgeon will discuss this with you in more detail at your initial consultation.

Familial polyposis
This genetically transmitted disorder manifests itself as a large number of polyps in the colon. The disease often begins in adolescence. If untreated, the chance of developing colon cancer is 100 percent, with the majority of cancers occurring by age 40. If you have few or no polyps in the rectal region, one option is to remove the colon and leave the rectum. Patients who have this condition may be candidates for a procedure which would join the ileum to the rectum called an ileo-rectal anastomosis. Patients having this procedure would still require regular
screening at the anastomosis. If you have a significant number of rectal polyps, total colectomy with ileal pouch reconstruction is preferred. Your physician can discuss the benefits and complications with you to decide on the optimal management for your disease.

**Hereditary nonpolyposis colon cancer**

Recent research has identified patients and families who are genetically susceptible to colon cancer. If hereditary nonpolyposis colon cancer runs in your family, total abdominal colectomy with ileal pouch reconstruction may be an option for decreasing your risk of colon or rectal cancer. Other less radical operations may also be indicated. Please discuss with your provider.

**Unsuitable candidates**

An absolute contraindication means that a treatment would be harmful or potentially life-threatening. There are few absolute contraindications to ileal pouch reconstruction. There are some situations, however, where ileal pouch surgery may not be the right choice. Your surgeon will help you evaluate available treatment options and the related risks to determine if you may be a candidate for a pouch reconstruction. In general, patients who may not be good candidates for total abdominal colectomy and ileal pouch reconstruction include those who:

- have Crohn's disease with involvement of the rectum, anus or small bowel
- are incontinent and have poor sphincter muscle tone
- have had a previous sphincter injury
- have undergone partial removal of the small bowel

In some situations, patients who are obese or who have significant heart and/or lung disease may not be candidates for this type of surgery. However, we have successfully reconstructed many obese patients to maintain fecal continence. Your surgeon will help you evaluate available treatment options and the related risks to determine if you may be a candidate for a pouch reconstruction.

**THE POUCH RECONSTRUCTION PROCEDURE**

**The Basics**

Essentially, ileal pouch reconstruction is a multi-stage surgery, where the surgeon first removes the colon and the rectum. This is called a total proctocolectomy. A reservoir, or pouch, is created from a portion of the small intestine and is attached to the anus. At the same time, a temporary ileostomy is created to allow bowel contents, or stool, to empty into an external pouch while the internal bowel heals. Most patients are in the hospital for about 7 days following the initial surgery.

**Technical Description**

Ileal pouch reconstruction is one of the most technically demanding and complex procedures done in colon and rectal surgery. It requires the surgeon to be very comfortable with the anatomy of the entire abdomen and pelvis. The first part of the operation involves mobilization of the colon and division of its blood supply. Upon completion, the surgeon then mobilizes the rectum down to the top of the anal canal. Once this is completed, the diseased colon and rectum are removed. Next, the blood supply to the terminal ileum is carefully mobilized, and its ability to reach to the anal canal is determined. Most patients' terminal ileum will easily reach to the anal canal and an ileal reservoir can be fashioned. However, in the very rare situation where the ileum cannot reach to the anus, a permanent ileostomy is required. Once it is clear that the terminal ileum will comfortably reach to the anus, an ileal reservoir is fashioned. The type of reservoir created is dependent upon a number of factors, including surgeon preference, body type and pelvic anatomy. In general, functional outcomes are the same with all reservoirs created.

After the ileal pouch is created, it is attached to the top of the anal canal using sutures or a stapling device. The type of anastomosis created, sewn or stapled, is dependent upon a number of factors, including surgeon preference, anatomy, disease involving the anal canal, and reach of the reservoir. In general, we prefer to use a stapling technique as studies have shown there are no significant differences in outcomes between patients who have had stapled or hand-sewn anastomoses. After completion of the anastomosis, a suction drain is placed into the pelvis and a temporary loop ileostomy is fashioned.
Minimally Invasive Approach

Historically, this operation has required a large incision extending from above the belly button to the top of the pubic bone. At UW Health, we specialize in performing some of the most complex procedures through the smallest of incisions. In colon and rectal surgery, the use of laparoscopic and other minimally invasive techniques has revolutionized many of our procedures. This is especially true with the restorative proctocolectomy. Today, the entire operation can be done with a minimally invasive approach. We performed our first laparoscopic-assisted restorative proctocolectomy in 2003 and have since done more than 300 such operations. Furthermore, we now use the laparoscopic approach with almost all patients (see graph). We prefer the laparoscopic operation to the open procedure as research has shown that short-term outcomes are better in patients who undergo a laparoscopic operation.

Types of pouches

After the colon is removed, a reservoir is created using the small intestine. As previously mentioned, there are different types of reservoirs that can be created. The J- and S-reservoirs are the most common types of pouches. The name is based on the shape of the pouch that is created and describes the amount of small bowel used to create the pouch.

The J-reservoir is made from two side-by-side portions of bowel stapled or sewn together to create what is called a J-loop. An S-reservoir has three loops of bowel sewn to form a

However, the laparoscopic operation is not for everyone. There are very few reasons for not using a laparoscopic operation. Most of the variability in use of the laparoscopic approach is related to degree of surgeon comfort with the operation. Your surgeon will help you evaluate available treatment options and the related risks to determine the best approach for you. Some reasons to consider an open operation over a laparoscopic approach might include a history of multiple abdominal operations or inability to tolerate the additional air in the abdomen that is used with laparoscopic procedures (for example, some patients with severe heart disease).
pouch; one loop serves as the ileal reservoir’s outlet for emptying the pouch. Function, capacity and elasticity vary with design.

Both reservoir types are viable options with similar functional results and stool frequency. Only during surgery can we determine which type of reservoir will work best.

**ILEOSTOMY TAKEDOWN**
Tests will be performed to make certain that the pouch is healed before the next stage. After your pouch is completely healed, you will return for another procedure called an ileostomy takedown. During this procedure, we remove the ileostomy, allowing the pouch to begin functioning on its own. Following the ileostomy takedown, normal ileal pouch function and bowel movements will begin. You will have a small scar where the ileostomy was attached.

**FUNCTIONAL RESULTS**
Stool frequency and continence are the two main factors that determine optimal pouch function. Patients who have 4–5 bowel movements a day with nearly perfect continence are considered to have the best functional results.

**Stool Frequency**
A variety of factors including age, eating habits and quality of the anal sphincter muscles can affect stool frequency. At the time of the ileostomy takedown, the ileal reservoir has a fairly small capacity. Therefore, it’s not uncommon to have 10 or more bowel movements a day. As the ileal reservoir adapts and stretches to its normal capacity, stool frequency will decrease.

Most patients experience a decline in stool frequency during the first 6–12 months after surgery. Younger patients usually have fewer bowel movements than older patients. Other factors that can affect frequency are the amount of fiber in your diet or use of products such as Metamucil®, Lomotil® or Imodium®, that can decrease stool frequency.

There is no perfect regimen for all patients. Our staff will follow up with you in the first year after surgery to help with this process. Diet is the main factor that contributes to stool frequency. A diet consisting of relatively bland, easily digested foods will help reduce stool frequency. Additionally, avoiding in-between meal snacking or grazing throughout the day will help you to have fewer bowel movements. Many of our patients have found that a food journal will help with this process. The importance of a healthy, regimented diet cannot be understated.
**Continenence**

During the early years of pouch reconstruction, continence was a major problem. However, current techniques give approximately 95 percent of patients near-perfect control during the day and 90 percent good to excellent control at night. Adjustment of eating habits and using certain medications can improve continence.

**OPERATIVE RISKS/COMPLICATIONS**

The vast nature of total abdominal and ileal pouch reconstruction predisposes you to complications that, if treated early, can be minimized. About one in five patients experiences problems, the most common of which include bowel obstruction (frequently treated non-surgically), infection, anastomotic (or pouch) healing problems and steroid withdrawal symptoms. Blood loss or anemia, poor nutrition, age and previous surgery can increase your chance of post-operative problems.

Bleeding, infection, incontinence or inadequate reach between the pouch and the anal canal may cause the ileal reservoir to fail. Such occurrences are rare. Ulcerative colitis patients are at greatest risk for failure, as the steroid or immunosuppressive medications used to treat the condition can adversely affect healing. If the reservoir fails, a permanent ileostomy may be required. Everything will be done to recognize the early signs of such complications and treat them appropriately.

The following chart shows the percentages of postoperative and long-term complications for patients with ulcerative colitis and for patients with familial polyposis. You may wish to discuss these in more detail with the surgical staff.

**ULCERATIVE COLITIS**

<table>
<thead>
<tr>
<th></th>
<th>Postoperative</th>
<th>%</th>
<th>Long term (&gt;30 days)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small bowel obstruction</td>
<td>7.9</td>
<td></td>
<td>Small bowel obstruction</td>
<td>20.0</td>
</tr>
<tr>
<td>Prolonged ileus</td>
<td>7.9</td>
<td></td>
<td>Anastomotic problems</td>
<td>6.7</td>
</tr>
<tr>
<td>Steroid withdrawal symptoms</td>
<td>5.6</td>
<td></td>
<td>Incisional hernia</td>
<td>2.2</td>
</tr>
<tr>
<td>Anastomotic problems</td>
<td></td>
<td></td>
<td>(dehiscence, stricture)</td>
<td>12.3</td>
</tr>
<tr>
<td>Bleeding (anastomotic, other bleeding problems)</td>
<td>3.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound infection</td>
<td>3.4</td>
<td></td>
<td>Dehydration</td>
<td>3.4</td>
</tr>
<tr>
<td>Dehydration</td>
<td>3.4</td>
<td></td>
<td>Other</td>
<td>4.4</td>
</tr>
</tbody>
</table>

**FAMILIAL POLYPOSIS**

<table>
<thead>
<tr>
<th></th>
<th>Postoperative</th>
<th>%</th>
<th>Long term (&gt;30 days)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small bowel obstruction</td>
<td>5.0</td>
<td></td>
<td>Small bowel obstruction</td>
<td>10.0</td>
</tr>
<tr>
<td>Anastomotic problems</td>
<td>5.0</td>
<td></td>
<td>Dehydration</td>
<td>5.0</td>
</tr>
</tbody>
</table>

**PHYSICAL ACTIVITY AFTER SURGERY**

Certain activities such as driving or lifting may be restricted initially after surgery. With time, we encourage normal physical activity, including participation in sports.

**POUCHITIS**

Pouchitis, a non-specific inflammation of the ileal reservoir, can be a long-term problem for some patients. This usually occurs during the first two years after pouch reconstruction. Most patients with pouchitis have symptoms, including steadily increasing stool frequency that may be accompanied by incontinence, bleeding, fever and/or a feeling of urgency. Most cases can be treated with a short course of antibiotics.
Patients who undergo total abdominal colectomy and ileal pouch reconstruction for familial polyposis rarely, if ever, develop pouchitis. Of those who have ulcerative colitis, approximately 30 percent may experience at least one episode. Among patients experiencing pouchitis symptoms, 4–5 percent may have chronic symptoms that require repeated antibiotic treatment. Even in severe cases, pouchitis rarely requires pouch removal.

If you have any or all of these symptoms, notify your surgeon, primary physician or gastroenterologist immediately.

REFERENCES


