

Role of the ostomy specialist clinician in ileal pouch anal anastomosis surgery

Providing education about this procedure can help restore patients to wellness.

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Restorative proctocolectomy with ileal pouch anal anastomosis (IPAA) is the gold standard for surgical treatment of ulcerative colitis (UC) or familial adenomatous polyposis (FAP). It's also done to treat colon and rectal cancers, such as those caused by Lynch syndrome (LS). IPAA allows the patient to maintain fecal continence and evacuate stool from the anus after colon and rectum removal. A temporary ileostomy may be part of the overall process, but there's no need for a permanent stoma. (See *Understanding ulcerative*

colitis, FAP, and Lynch syndrome.)

Contraindications for IPAA include:

- Crohn's disease, which can recur at any point along the GI tract
- incompetent anal sphincter tone (most common in older adults)
- diseases of the distal rectum or anal canal.

Preoperative education

You can help improve your patient's quality of life and health status by providing education about IPAA. When preparing the patient for surgery, explain the procedure and discuss how it will change GI tract anatomy. Because the patient is likely to have a stoma, describe what the stoma will look like, how to care for it, how to use pouches to contain stoma output, what lifestyle adjustments to expect, and psychological preparation.

Explain that by the 12th postoperative month, the patient's physical and psychological health, independence level, and general overall quality of life is likely to improve significantly over preoperative levels. By 3 years, quality of life scores most likely will match those of the healthy population in terms of physical health, independence, spirituality, and environment. Psychological health and social relationships scores also typically improve, although not quite to the extent as the healthy population.



Understanding ulcerative colitis, FAP, and Lynch syndrome

Restorative proctocolectomy with ileal pouch anal anastomosis may be used to treat ulcerative colitis (UC), familial adenomatous polyposis (FAP), and Lynch syndrome.

Ulcerative colitis

The cause of this inflammatory bowel disease remains unknown, but current research points to a possible combination of genetic, immunologic, and environmental factors (such as bacteria or viruses). The disease affects approximately 700,000 people in the United States. Surgery may be required in patients with fulminant colitis, toxic megacolon, dysplasia, cancer, or extraintestinal manifestations—or if other therapy fails.

To help you remember extraintestinal manifestations of UC, use the mnemonic *A Pie Sac*:

- A:** Aphthous ulcers
- P:** Pyoderma gangrenosum
- I:** Iritis
- E:** Erythema nodosum
- S:** Sclerosing cholangitis
- A:** Arthritis
- C:** Clubbing of fingers

FAP

FAP stems from an autosomal dominant-inherited gene mutation involving adenomatous polyposis coli, which cause hundreds to thousands of polyps in the GI tract. Polyps are most common in the colon (adenomas are colon polyps) and rectum, but they also can arise in the stomach and small bowel. A child of a parent with FAP has a 50% chance of inheriting the defective gene.

Once multiple precancerous polyps are detected, colectomy is the treatment of choice. FAP patients have a 90% chance of developing colorectal cancer by age 45. The National Comprehensive Cancer Network (NCCN) recommends people at risk for FAP start surveillance between ages 10 and 15, to include APC gene testing and annual flexible sigmoidoscopy or colonoscopy.

Lynch syndrome

People with Lynch syndrome (the preferred term for hereditary nonpolyposis colorectal cancer, an autosomal dominant-inherited genetic muta-

tion disorder) also may have polyps. The genetic mutation involves DNA mismatch repair genes.

Lynch syndrome is more common in the right colon, but also can develop in other sections of the GI tract, as well as the ovaries and endometrial lining of the uterus. NCCN recommends people with a family history of Lynch syndrome start surveillance between ages 20 and 25 (or 2 to 5 years before the age at diagnosis of the youngest affected family member, if younger than age 25). Evaluation should include testing for genetic abnormalities and colonoscopy every 1 to 2 years.



Patients may need help in understanding these various conditions.

Online resources may be helpful. Examples include [“What is Lynch syndrome^A”](#); [Familial adenomatous polyposis^B](#); and [“What is ulcerative colitis^C”](#). Of course, you should always first screen videos for accuracy before recommending them to patients.

Surgical technique

Proctocolectomy with IPAA can be done as a one-, two- or three-stage procedure. (See *Comparing types of proctocolectomies*).

Taking care to preserve the pelvic nerves, the surgeon creates a reservoir from 30 cm to 40 cm of distal ileum and connects it to the anal canal at or just above the dentate line (where columnar epithelium transitions to squamous epithelium). The most common pouch configuration is the two-limbed pouch, called the J-pouch.

Although two-stage surgery with a diverting loop ileostomy is the most com-

mon, a three-stage procedure is optimal for patients who are markedly debilitated by disease due to severe exacerbations, nutritional compromise, and high-dose steroid therapy. For those with indeterminate colitis and suspected Crohn’s disease, step one of the three-stage procedure allows for further testing before ileal pouch creation. The one-stage procedure without a diverting ileostomy is linked to increased risk of pouch leakage, pelvic infection, and subsequent pouch failure.

Proctocolectomy with IPAA may be performed through an open abdominal inci-

Comparing one-, two-, and three-stage proctocolectomies

One-stage procedure: proctocolectomy with ileal pouch creation and restoration of bowel continuity

Two-stage procedure:

Stage 1: proctocolectomy, ileal pouch creation, diverting loop ileostomy

Stage 2: radiologic evaluation of pouch healing, ileostomy closure, restoration of bowel continuity

Three-stage procedure:

Stage 1: colectomy, preservation of rectum or rectosigmoid stump, end ileostomy

Stage 2: proctectomy completion, ileal pouch creation, diverting loop ileostomy

Stage 3: radiologic evaluation of pouch healing, ileostomy closure, restoration of bowel continuity



Note: See an example of proctocolectomy surgery, access the video at "[Laparoscopic assisted restorative proctocolectomy with ileal j-pouch-anal anastomosis[®]](#)."

sion or a laparoscopic approach. Laparoscopic surgery takes an average of 80 minutes longer and requires more I.V. fluids. However, it's associated with shorter hospital stays, shorter time to ostomy closure, shorter operating-room times, shorter stays for ostomy reversal surgery, less adhesion formation, and lower infertility rates. The two methods don't differ in blood loss, need for postoperative opioids, return of bowel function, or hospital readmission rates. An open abdominal approach usually is done in patients with fulminant colitis or acute colitis complicated by colonic perforation or toxic megacolon.

Complications

During the first postoperative month, symptomatic portal-vein thrombosis occurs in up to 6% of patients; asymptomatic clots may arise in up to 40%. The cause is unknown but may relate to traction on the superior mesenteric vein when the small bowel moves down into

the pelvis in patients with systemic inflammation from ulcerative colitis. Signs and symptoms may mimic those of an acute abdomen, including nausea, vomiting, fever, abdominal distention, and pain. Computed tomography is used to identify thrombi. Treatment involves 3 to 6 months of anticoagulation.

Postoperative management after ileostomy creation

Initially, your main role is to provide education about ileostomy self-care. Teach your patient how to apply, empty, and replace the ostomy pouch. (See *Providing education to the new ostomate*.)

After surgery, high stool output from the diverting ileostomy is a common problem. Although definitions of high output differ somewhat, I tell patients that high output means more than 1,200 mL in 24 hours. This condition is most common within the first 2 to 3 postoperative weeks and usually resolves.

Readmission for dehydration typically occurs during the second postop week. To help prevent dehydration, instruct patients to drink eight to ten 8-oz glasses of fluid daily, preferably avoiding fruit juice, soft drinks containing sugar, caffeinated drinks, and alcohol.

Measuring stool output

Advise the patient to keep track of how much stool he or she is passing in 24 hours. I usually advise patients to empty the pouch when it's one-third to one-half full, four to six times daily. This equates to about 1,200 mL of output. If the pouch requires more frequent emptying, the patient needs to quantify the output further.

I've found some discharged patients don't comply with measuring stool output using a urinal or "potty hat." So I give patients a photograph of three pouches containing colored water in quantities of 100 mL, 200 mL, and 300 mL. This helps them visually judge how much output is in the

Understanding potential complications

Ileoanal pouch surgery can cause various complications.

Pouchitis, an acute inflammation of the ileoanal pouch, can lead to diarrhea, urgency, fever, malaise, lethargy, and abdominal pain. Most experts believe it stems from an imbalance of intestinal bacteria within the pouch. Incidence is 20% in the first year, 40% in the first decade, and 70% in the second decade. A 2010 systematic review of the literature found that the probiotic VSL#3, a cocktail of eight different strains of intestinal bacterial, helped prevent pouchitis. For treatment of acute pouchitis, ciprofloxacin was

more effective than metronidazole, although both are considered mainstays of therapy.

Topical steroids, such as budesonide, can be given by enema to reduce inflammation during the acute stage. If pouchitis doesn't respond to therapy, the patient should be screened for cytomegalovirus and *Clostridium difficile*. Cytomegalovirus is treated with an antiviral drug, such as ganciclovir; *C. difficile*, with vancomycin.

About 15% of ileoanal pouch patients develop a **pouch-anal stricture**, typically 6 to 9 months after surgery. Usual causes include cuff abscess

leading to dense scarring, mesenteric tension, and partial anastomotic separation. Signs and symptoms of stricture include tenesmus (uncomfortable frequency and urgency, with a feeling of incomplete evacuation) and watery stools. Patients can be taught to dilate the stricture using Hegar stainless steel dilators or their own gloved and lubricated finger, starting with the smallest finger. Adequate dilation is achieved when the anal opening allows insertion of the index finger up to the interphalangeal joint. Refractory strictures require surgical intervention.

pouch. Antidiarrheal medications, such as loperamide, can be titrated to keep output within the normal range.

About 6 weeks after surgery, instruct the patient to practice pelvic floor muscle exercises three times daily, if the surgeon approves. This strengthens the muscles needed for fecal continence once the stoma is closed.

Postoperative management after ileostomy closure

After ileostomy closure, patients with an ileoanal pouch must begin training their new reservoir—a process that can take up to a year. Initially, they may have up to 20 small bowel movements daily and may need to get out of bed multiple times at night to pass stool. Eventually, this decreases to six bowel movements in 24 hours, including overnight. At 1 year postop, about 95% of patients who've had ileoanal pouch surgery report being very satisfied with their decision. For the remaining 5%, long-term functional results are poor.

To slowly increase pouch holding capacity, teach patients not to respond to

every urge to move the bowels. Initially, advise them to wait 5 minutes after sitting on the toilet before responding. When that's accomplished, tell them to increase the wait time by another 5 minutes, and then 10 minutes, and to continue increasing it in this manner. Also advise them to begin to move further and further away from the toilet during wait time. The goal is to gain confidence in the ability to withhold stool and avoid accidents.

Complications of ileal pouch surgery include pouchitis; pouch-anal anastomotic strictures; small-bowel obstruction; and intra-abdominal, peri-pouch, and anastomotic cuff abscesses. (See *Understanding potential complications*.)

Perianal skin care

Stool leakage is common at first, along with trouble differentiating between flatus and stool. Teach patients how to perform meticulous perianal skin care. Tell them to wash the area thoroughly at least once daily using a pH-balanced skin cleanser and warm water. To clean up after each bowel movement, advise them to use al-

Providing education to the new ostomate



Be sure to cover the following points when providing patient education:

- how to purchase ostomy supplies
- signs and symptoms of dehydration
- adequate fluid intake to prevent dehydration
- appropriate food choices to promote healing and prevent food blockage
- what to do if a food blockage occurs
- how to recognize and treat peristomal skin complications, such as irritant contact and allergic dermatitis
- stomal complications, such as prolapse or ischemia
- decreased absorption of sustained-release medications
- how to prevent peristomal hernia
- appropriate clothing choices
- appropriate recreational pursuits
- how to maintain intimate and sexual relationships
- when and how to contact the surgeon and ostomy clinician.

cohol-free moist wipes, which are less abrasive than toilet paper.

Encourage patients to protect perianal skin by applying an ointment containing petrolatum, dimethicone, or zinc oxide after each bowel movement. Alternatively, they may use an alcohol-free liquid skin-barrier film wipe once daily. Aloe vera gel is an effective treatment for skin irritation, providing antimicrobial action, reducing pain, and shortening healing times. Depending on leakage amounts, advise patients to protect underclothes with a panty

liner or incontinence-containment product. Encourage them to continue regular pelvic floor muscle exercises, as strong muscles are crucial for preventing leakage.

Dietary guidelines

Advise patients to eat a low-fiber diet for about 4 weeks after ostomy closure, until bowel swelling resolves. Then instruct them to start increasing fiber intake until stools become firmer. Inform them that foods that can contribute to anal irritation include spicy foods and foods high in insoluble fiber, such as stringy fruits and vegetables (oranges, coleslaw, celery, corn, nuts, popcorn, coconut, and Chinese vegetables). Teach patients that stool with a thicker consistency is less likely to leak. (See *Foods that thicken stool*.)

When stool is thin and frequent, urge patients to eat potassium-rich foods, such as meat, banana, apricots, tomatoes, milk, and potatoes. Tell them they may need to add salt to their food to replace potassium and sodium lost through diarrhea and other fluid losses.

Explain that foods and beverages high in sugar or caffeine can worsen diarrhea. Tell patients to limit fruit juice, caffeinated tea and coffee, honey, candy, sugary and caffeinated soft drinks, chocolate, and baked goods high in sugar.

Teach patients to add 1 tsp of soluble fiber, such as psyllium husks (Metamucil), to 1 cup of fluid one or more times per day, titrated to maintain a more solid stool consistency. To prevent dehydration, encourage them to continue to drink eight to ten 8-oz cups of fluid daily.

For patients who continue to have large quantities of thin stool, recommend an anti-diarrheal medication, such as loperamide (Imodium), if the surgeon permits. Instruct them to start with one 2-mg dose 30 minutes before breakfast, lunch, and dinner and another dose at bedtime. If this isn't effective, tell them they may double the dose, not to exceed 16 mg per 24 hours.

Know that some patients will have to stay on this medication for a long time.

You can improve patient outcomes

As the ostomy specialist clinician, your role is to assist patients along the continuum from illness to health. Providing thorough patient education throughout this process is crucial to helping them achieve their ultimate goal of wellness. ■

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Foods that thicken stool



Tell patients that the following foods make stool firmer and less frequent:

- Applesauce
- Bananas
- Boiled white rice
- Cheese
- Crackers
- Creamy peanut butter
- Pretzels
- Tapioca pudding
- White pasta
- White potatoes

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Online Resources

- <https://www.youtube.com/watch?v=zDXS0QBGoKY>
- <https://www.youtube.com/watch?v=F6ppqLRGneE>
- <https://www.youtube.com/watch?v=JMApMBY0CfQ>
- <https://www.youtube.com/watch?v=rEYzh8VKqEE>