Short- and Long-term Complications of Colectomy

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The vast majority of partial colon resections are well tolerated by patients and aside from a transient increase in stool frequency, this procedure is associated with minor physiologic consequence. A more significant response is initiated with removal of the entire colon. This outline will, therefore, briefly review the short- and long-term complications of total colectomy. Most of these are directly linked to reconstruction with ileal pouch—anal anastomosis to restore normal continence. The management of patients with an end ileostomy alone is intentionally omitted.

In terms of perioperative management of patients for colon surgery, a mechanical preparation is done in the vast majority of patients consisting of a combination of oral laxatives and/or enemas. In the United States, less than 50% of mechanical bowel preparation is done at home, whereas in most European countries, the vast majority is performed in the hospital. In regards to the method of colectomy, open laparotomy is still the most frequent technique. Laparoscopy is gaining greater momentum worldwide with the greatest frequency in France at about 28%. The conversion rate from laparoscopy to laparotomy for colon resection is about 31% overall. The time period from first bowel movement and eating normally is roughly 3 to 4 days following colon resection and average length of stays following surgery is about 7 days in the United States versus 10 to 13 days in Europe.

The colon is primarily an organ for water and salt absorption. The adult colon is presented with 1 to 2 L/day of liquid stool. This volume is presented to the right colon and by the time the stool has reached the rectum, contains only about 120 mL of liquid. Water absorption is coupled with salt absorption as the colon absorbs both sodium and potassium. Total colectomy is, therefore, associated with a much greater tendency for dehydration and hypotension. As well as a greater frequency of dehydration and a more liquid stool consistency.

Following total abdominal colectomy, which is most frequently performed for either ulcerative colitis or familial adenomatous polyposis, there are 2 general techniques for reconstruction of the gastrointestinal tract using an ileal pouch. The first is a double staple technique whereby the rectum is transected with a stapling device just above the levator musculature and a second stapled anastomosis is done transanally to the ileal pouch. The theoretical downside of this technique is the retention of a small amount of rectal mucosa. This tissue may be predisposed to the development of cancer and/or cuff inflammation. The other and perhaps older technique is a mucosectomy whereby the lining of the rectum is excised leaving the outer muscular cuff intact. This is the conduit through which an ileal pouch is then pulled through and sewn in place by hand suturing technique. There are several different pouches constructed out of the ileum with either 2, 3, or 4 limbs and are called the J, S, or W pouch, respectively. Overall there is no greater stool frequency or incidence of pouchitis or significant complications when comparing the various types of pouches. The downside of the mucosectomy technique is a longer operative time and a subtle reduced resting anal sphincter tone. The physiologic consequences of this are not well-documented. There have been documented islands of retained mucosa following mucosectomy, but the functional significance is not established.

Early complications associated with ileal pouch anal reconstructive surgery include anastomotic leak that occurs at about 1%. Stricture occurs at a relative frequency of 11% and can be located at either the anastomosis, the pouch itself, or the afferent limb of the pouch. Most anastomotic strictures can be dilated in the postoperative period and more severe strictures may require a V-Y advancement procedure. Pouch sinuses are essentially blind tracts running usually from the anastomosis alongside the pouch. This finding may suggest Crohn disease and pouchography or magnetic resonance imaging is useful to confirm the diagnosis. Pelvic sepsis and abscesses within the pouch occur in about 5% to 20% of patients following ileal pouch anal anastomosis. Thirty percent of these patients will ultimately have complete pouch failure, with 3% mortality. Risk factors for pelvic
Pouchitis represents an idiopathic inflammation of the pouch that occurs as high as 60% of patients with ulcerative colitis. This may likely represent a genetic predisposition because pouchitis is relatively rare in patients with familial adenomatous polyposis. The majority of patients respond to a single course of antibiotics. About 40% of patients have a single episode of pouchitis with about a 60% rate of recurrence. Five to 10% of patients have chronic pouchitis with a smaller percentage of these proceeding to refractory pouchitis. The risk factors for pouchitis include extensive and/or severe ulcerative colitis, the presence of backwash ileitis, extraintestinal manifestations of ulcerative colitis, primary sclerosing cholangitis, positive paranuclear anti-neutrophilic cytoplasmic antibody serology, nonsteroidal anti-inflammatory drug use, and younger age at time of colectomy. The clinical characteristics of pouchitis are best mapped using clinical pouchitis score indices. These include increased stool frequency, bleeding per rectum, fecal urgency with abdominal cramps, and fever. Pouchoscopy is recommended for diagnosis of pouchitis and criteria for endoscopic evidence of pouchitis include polymorph infiltration within crypts and surface epithelium, superficial ulceration, chronic lymphocytic infiltration, and various degrees of villous atrophy. Other endoscopic findings include a presence of edema, granularity, friability, loss of vascular pattern, mucosal exudates, and ulceration. It is important with pouchoscopy to look for other causes of these symptoms include the presence of Crohn disease, viral infections such as cytomegalovirus, technical problems with the pouch to include afferent or efferent limb obstructions or other technical problems with the pouch, ischemia of the pouch, or cuff inflammation of retained rectal mucosa. The treatment of pouchitis is most frequently addressed with a course of either ciprofloxacin or metronidazole. The vast majority of patients respond to this single antibiotic course. If there is recurrence and/or lack of response, chronic antibiotic would be continued and consideration should be given for probiotics. With continued pouch inflammation, additional therapies include oral or topical steroid followed by other anti-inflammatory drugs followed by immunosuppressive drugs. If all else fails, the pouch may need to be removed.

The long-term functional outcome and quality of life after ileal pouch surgery is generally quite good. Several indices of quality of life, quality of health, and energy level are much improved after surgery in patients with ulcerative colitis. Other features such as bodily pain, general health, vitality, social functioning, emotional, and mental health are all similar to noncolectomy patients in the long run. Overall, a total abdominal colectomy with construction of an ileal reservoir is associated with not an insignificant frequency of complications. However, these procedures provide an improved quality of life in patients with ulcerative colitis and near completely eradicates the risk of colonic neoplasia with patients with familial adenomatous polyposis. Understanding the risks and long-term problems associated with these procedures is paramount to proper patient counseling and patient selection.

BIBLIOGRAPHY
