Surgical Management of Constipation

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ABSTRACT

For the select small number of constipated patients who cannot be managed medically, surgical options should be considered. Increases in our knowledge of colorectal physiology and experience have fostered improvements in evaluation and surgical management of patients. Currently, patients with refractory colonic inertia are offered total abdominal colectomy and ileorectal anastomosis. With proper selection of patients, the results have been excellent for resolving the frequency and quality of bowel movements. However, symptoms such as bloating and abdominal pain, which may be related to irritable bowel syndrome rather than the colonic inertia, may persist.

KEYWORDS: Constipation, colectomy, colonic inertia, abdominal pain

Objectives: Upon completion of this article, the reader should be familiar with surgical options to manage constipation.

As discussed in other articles in this issue, constipation is a major health problem. For the select small number of patients who cannot be managed medically, surgical options should be considered. Increases in our knowledge of colorectal physiology and experience have fostered improvements in evaluation and surgical management of patients. Constipated patients can be divided into those with colonic inertia, outlet obstruction, or both. The management of outlet obstruction is discussed by Dr. Ellis in another article in this issue. This article addresses the surgical management of colonic inertia.

INDICATIONS AND PATIENT EVALUATION

Colonic inertia is defined as the inability of the colon to modify stool to an acceptable consistency and move the stool from the cecum to the rectosigmoid area at least once every 3 days.¹ An orderly evaluation can confirm the diagnosis and aids in selection of patients who will benefit from surgical therapy.¹⁻³ The majority of patients

referred for surgery are female with a mean age of 40. The recommended and optional preoperative evaluations are summarized in Table 1. The evaluations in the recommended column suffice for most patients. If the history, examination, or initial evaluations suggest other potential problems, the additional studies in the optional column may be required. For example, if the history documents constipation since birth, anal manometry may be requested to determine the absence of an anorectal inhibitory reflex, suggestive of Hirschsprung's disease.

In the initial evaluation of constipation, the author prefers a barium enema rather than a colonoscopy. In addition to identifying any anatomic cause for constipation (obstructing neoplasm, volvulus, etc.), the films provide information on the diameter, length, and redundancy of the colon. Constipated patients are frequently difficult to cleanse prior to either examination, and it is safer to perform a barium enema with a suboptimal preparation than a colonoscopy. It is also difficult to perform a colonoscopy on patients with redundant tortuous colons and associated abdominal pain.

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Table 1 Patient Evaluation

Recommended	Optional
History	Anal manometry
Physical	Cine-defecography
Laboratory (hemoglobin, electrolytes, TSH, T ₄ , etc. if not previously obtained)	Small bowel transit study (breath hydrogen)
Anatomic study (barium enema or colonoscopy)	Gastric emptying
Transit study	Small bowel follow-through
Balloon expulsion test	

T₄, thyroxine; TSH, thyroid-stimulating hormone.

The transit study objectively confirms a slow colonic transit time.³ If a film is taken a few hours after ingestion (the author administers the capsules late Sunday evening and obtains the first abdominal x-ray early Monday morning), gastric and small bowel dysmotility can be excluded. This first film should show all markers in the colon. Additional abdominal films are obtained at day 3 (Wednesday) and 5 (Friday). If more than five markers remain in the colon on day 5, slow colonic transit is documented. Patients are asked to avoid laxatives during the transit study and to report any bowel movements to the examiner. Disappearance of the markers in the absence of a bowel movement suggests a credibility issue with the patient. Retention of the markers, just proximal to the rectum, may suggest an outlet obstruction. It is important for the surgeon to view the actual x-rays, as many less experienced radiologists do not give adequate reports (e.g., "markers in the colon").

The balloon expulsion test serves to confirm adequate rectal function and a normal test argues against outlet obstruction.⁴ The author uses a simplified test, which is easily performed during the initial or subsequent preoperative office visit (see page 70).⁴

Finally, as in any major operation, the risks and potential benefits must be evaluated for each individual patient. Both the surgeon and the patient must be

satisfied with the diagnosis of colonic inertia and understand the proposed procedure, its risks, and outcomes.

SURGICAL OPTIONS

Several procedures have been attempted to treat colonic inertia. These include segmental colectomy, subtotal colectomy with ileosigmoid or cecorectal anastomosis, and total abdominal colectomy with ileorectal anastomosis (TAC IRA). Segmental colectomy is appealing, but it is difficult to determine whether only part of the colon does not function properly rather than the entire colon. Transit studies have not been adequately specific or reproducible to document segmental dysmotility. Segmental and subtotal colectomy with ileosigmoid anastomosis frequently result in persistent or recurrent constipation, and up to 50% of patients who have undergone these procedures have required additional resectional surgery.^{5,6} A cecorectal anastomosis is not an operation performed frequently and has led to higher complication rates including cecal distention.^{5,7} Several studies (Table 2⁸⁻¹⁵) have demonstrated that TAC IRA is the procedure of choice for colonic inertia. The anastomosis is usually performed at the upper rectum (at or slightly above the sacral promontory). An anastomosis at this level is easier to perform and eliminates the risks associated with rectal mobilization. The upper rectum has a good supply, and its size does not limit the size of the anastomotic lumen.

In an extremely select group of patients with colonic inertia and rectal dysmotility, a restorative proctocolectomy may be considered. Another option is a proctocolectomy and continent ileostomy. Finally, poorer risk patients may be best served with an ileostomy, with or without a colectomy.

RESULTS

Bowel Function

The frequency of bowel movements following total colectomy varies from 0.5 to 6 bowel movements per

Table 2 Total Abdominal Colectomy and Ileorectal Anastomosis

Author	No.	Female (%)	Mean Age (yr)	Follow-up (yr)	Success (%)
Beck et al ⁸ 1989	14	100	41	1.2	100
Zenilman et al ⁹ 1989	12	100	35	2	100
Pemberton et al ⁶ 1991	38	84	40		100
Wexner et al ¹⁰ 1991	16	92	45	1.2	94
Mahendarajah et al ¹¹ 1994	9	100	38	1.3	88
Piccirillo et al ¹² 1995	54	78	49	2.2	94
Redman et al ¹³ 1995	34	92	43	7.5	90
Pikarsky et al ⁵ 2001	30	70	60	8.9	100
FitzHarris et al ¹⁴ 2003	75	97		3.9	95
Beck et al ¹⁵ 2004	40	95	42	3	95

day. Most patients average 1 to 3 movements per day. The frequency decreases with time because of intestinal adaptation.⁵ A summary of the recent published results with total abdominal colectomy and ileorectal anastomosis is presented in Table 2. Several aspects of these reports merit additional discussion. The relatively small numbers of patients reflect the select preoperative criteria most surgeons use for this therapeutic option. The vast majority of patients were young to middle-aged females. Although the follow-up was variable, TAC IRS had an overall success rate exceeding 90%. Varying criteria were used to measure "success." These included patients' opinions, bowel frequency, symptom relief, and measures of quality of life. A uniform measure has not been adopted.

Quality of Life

Several authors have documented the patients' quality of life after surgical management.^{14,16,17} FitzHarris and colleagues surveyed 75 patients who had undergone TAC IRA a mean of 3.9 years (range 0.5 to 9.6) prior to the survey.¹⁴ Using a 54-item validated questionnaire (Gastrointestinal Quality-of-Life Index), the authors found that 81% of the patients were at least somewhat pleased with their bowel frequency, but 41% cited abdominal pain, 21% incontinence, and 46% diarrhea at least some of the time. However, 93% stated that they would undergo subtotal colectomy again if given a second chance.

COMPLICATIONS

Morbidity after surgery includes several factors. The risks of colonic resection are related to anastomosis (leak, stricture), infections (wound and intra-abdominal abscess), bleeding, and the anesthesia required to accomplish the procedure. The mortality related to the colectomy in this group of relatively healthy patients has been less than 1%. Postoperative small bowel obstruction has been the most frequent complication after total abdominal colectomy. The reported incidence ranges from 8% to 44% with surgical intervention having been required in 41% to 100%.^{1,18} The etiology for obstruction has been adhesions resulting from the extensive colectomy and a proposed neuropathic disorder of the myenteric plexus affecting bowel motility.^{1,19} The recent use of antiadhesive agents such as Seprafilm[®] may reduce the incidence of this complication.

Postoperative functional results remain a major issue. Recurrent or persistent constipation has been reported in 0% to 33% of patients.¹⁴ A review of published reports for the past two decades identified a mean of 41% of patients with persistent abdominal pain.¹⁴ Bloating and symptoms related to irritable bowel remain common.

Diarrhea following colectomy is usually a short-term problem. However, in a few patients, the failure of intestinal adaptation can result in intractable diarrhea. The reported incidence of diarrhea has varied from 0% to 46%.¹⁴ During the adaptation phase, adjuvant measures such as fiber, motility agents (loperamide, diphenoxylate and atropine sulfate, or codeine), and binders (cholestyramine) may assist in reducing bowel frequency. Diarrhea that fails to resolve may necessitate conversion to an ileostomy or consideration of a revision to a pouch-rectal anastomosis. Postoperative incontinence has been reported in 0% to 52% of patients with a mean of 14%. The reported incidence of conversion to a permanent ileostomy has ranged from 0% to 28% with a mean of 5%.¹⁴

SUMMARY

For properly selected patients with colonic inertia and normal rectal function, total abdominal colectomy and ileorectal anastomosis can provide good results. However, patients and surgeons must be aware of the risks and potential outcomes.

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