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Surgical management of severe constipation due to slow transit and obstructed defecation syndrome

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A B S T R A C T

Chronic constipation is a common frustrating condition. It is classified according to symptoms, physical exam, and diagnostic testing into three categories: slow colonic transit, obstructed defecation, and a combination of these two entities. Each category has different treatment algorithms, but medical therapy including dietary changes and biofeedback training (for obstructed defecation) should always be tried first. If appropriate medical therapy fails, several surgical options could be considered, though data regarding their efficacy is mixed.

Introduction

Chronic constipation is a debilitating symptom of various diseases, and its impact on quality of life cannot be underestimated. It affects more than 30% of patients in the general population,[1–4] and its incidence increases further in the elderly,[5–7] especially in the elderly women.[6] While many patients may report occasional bouts of constipation, chronic constipation is defined by having 12 weeks of symptoms in the last 6 months, including at least two or more of the following symptoms: straining at defecation on at least 25% of defecations, lumpy or hard stools in at least 25% of defecations, sensation of incomplete evacuation for at least 25% of defecations, sensation of anorectal obstruction/blockage for at least 25% of defecations, manual maneuvers to facilitate at least 25% of defecations (e.g., digital evacuation and support of the pelvic floor), and fewer than three defecations per week (Table).[8]

According to its etiology, constipation can be divided into either primary or secondary. Secondary constipation is a symptom of certain medical diseases such as endocrine disorders (e.g., hypothyroidism) and drug side effects (e.g., anticholigergics). This form of constipation is reversible once the pre-disposing condition is addressed. Primary constipation, on the other hand, is a chronic disorder that at this point can only be managed medically or surgically to be alleviated, as we struggle due to a limited overall understanding of its underlying etiology.

Chronic constipation, as understood today, is loosely categorized as slow transit constipation (STC), and normal transit constipation (NTC) due to irritable bowel syndrome-C and obstructed defecation syndrome (ODS).[9] Approximately 50% of patients suffer from outlet dysfunction[10–12] and 13% from STC.[13] The rates of each type of chronic constipation vary based on different sampling criteria of investigators,[14,15] but generally it is thought that a good percentile of patients may also suffer from constipation that combines both STC and ODS,[13,16–19] or IBS-C and ODS. Many of these patients are also suffering from several coexisting psychological disorders, especially depression or anxiety.[20] This mixture of physical and psychological disability makes the overall clinical management of these patients even more complex. This management must always include a multidisciplinary effort that should include a good gastroenterologist, a motivated primary care physician, a physical therapist, a psychologist/psychiatrist and–as a last resort–a surgeon. Thus, while this article will be focusing on the diagnosis and treatment of surgically treatable chronic constipation (slow transit and ODS), it is important to understand that none of these patients should ever be offered surgery without an adequate trial of non surgical therapy by experts, especially in the setting of coexisting IBS-C or a psychiatric disorder.

Diagnostic evaluation

A careful history should always be obtained to determine the age of onset, previous obstetric surgery, and the presence of a

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Table
Rome III criteria for constipation.

Rome III criteria for constipation
Two or more of the following for 12 weeks in the last 6 months: (1) Straining at defecation on at least 1/4 of occasions (2) Sensation of incomplete evacuation on at least 1/4 of occasions (3) Manually maneuvers to facilitate at least 25% of defecation (4) Sensation of anorectal obstruction/blockage at least 25% of defecation (5) Stools that are lumpy/hard on at least 1/4 of occasions (6) Fewer than three bowel movements a week

neurological disease and prescribed medication. The next step is blood tests and clinical evaluation of the patient which can further identify idiopathic constipation,[21,22] and exclude competing pathology such as anal or distal rectal cancer—especially if alarming symptoms (anemia, fatigue, and loss of weight) coexist. A perineal inspection while straining on the commode can identify anatomical abnormalities such as pelvic organ or rectal prolapse, patulous anus,[23] scars, and prolapsing hemorrhoids, while a digital examination can give information on the quantity and quality of stool and also can detect failure of the external anal sphincter to relax while the patient strains to defecate.

In absence of alarm symptoms, such as new onset of symptoms at 50 years or older, unintentional weight loss, nocturnal diarrhea, anemia, bloody stools, family history of colon cancer, celiac disease, or IBD, patients can be initiated on an empiric therapy of fiber therapy—especially if their symptoms appear consistent with IBS-C.[24] However, if routine medical therapy fails, further diagnostic testing should be considered to further determine the etiology of constipation, and this should start with a colonoscopy.

Once colonoscopy establishes a normal colon, further testing to determine etiology of constipation should be based on symptoms. Patients suspected to have slow transit constipation will report long intervals between bowel movements, bloating, and abdominal distension. The diagnosis of STC, when suspected, is fairly simple. It can be made via the Sitz Marker Study, where patients are asked to swallow a gelatin capsule containing 24 radio-opaque markers while avoiding intake of laxatives or stimulants of any kind. 7 days following marker ingestion, a KUB is obtained. The colonic transit time is considered abnormal if more than 30% of the radio-opaque markers remain in the colon on the seventh day.[25] Accumulation of markers in the right and transverse colon suggests SCT, whereas accumulation in the left colon suggests ODS and/or SCT with concomitant ODS.

Patients with suspected outlet dysfunction (obstructed defecation syndrome) will present reporting incomplete and/or painful evacuation, excessive straining and passage of hard stools and some need to insert a finger into the vagina or rectum in order to assist defecation (i.e., splinting). These patients usually have a normal colonic transit time, but passage through the recto sigmoid segment could be delayed on a transit study.[26] Obstructed defecation syndrome in itself is also a multi-factorial catchphrase of numerous disease entities, and further testing can help differentiate functional and anatomical causes. This testing includes anorectal manometry, balloon expulsion testing, electromyography, and defecography. Manometry measures the pressures in the anal canal. It can detect anorectal motor dysfunction, impaired anal relaxation, paradoxical anal contraction, or both.[27] Manometry can also help exclude short segment Hirschsprung's disease, which would classically demonstrate the absence of internal anal sphincter relaxation and an abnormal RAIR reflex. Balloon expulsion is performed using a flexible catheter with a latex balloon on its tip that is inserted into the rectum and then inflated with 50–100 ml of water. Inability of the patient to expel the balloon after 1 min is suggestive of outlet obstruction,[28,29] although it does not provide enough information as to the mechanism of the obstruction.[30] Electromyography records the electrical activity of muscles using needle or sponge electrodes. In this case the external anal sphincter and the puborectalis muscle are examined and a possible failure of one or both of them to relax during defecation can be the cause of obstructed defecation.[31] In defecography, barium is used to stimulate the rectum and then plain X-rays are taken under fluoroscopy while the patient is at rest, with voluntary anal contraction and during defecation.[32] With this test we are able to diagnose "hidden pathology" of the pelvic floor such as internal intussusception, enterocele, sigmoidocele, rectocele, and hidden rectal prolapsed.[33] We can also measure the anorectal angle at rest and during defecation. Failure of the anorectal angle to widen may lead to obstructed defecation and can be caused by failure of the puborectalis muscle to relax.[34]

Surgical treatment

After evaluations guided by history, physical exam, and testing as above, the clinician should be able to classify the patients presenting with primary constipation into one of the following groups. It should be noted that they are not mutually exclusive and overlap is common. Accurate classification is important, as it will dictate management strategy.

(1) Normal transit constipation with normal colonic transit and defecation; some patients will have symptoms of IBS: these patients will require a gastroenterologist who should help fine tune their medical regimen.
(2) Slow transit constipation: these patients may be candidates for surgery when medical therapy fails.
(3) Defecatory disorder (anismus/dyssenergy/ODS): these patients may be candidates for surgery when medical therapy fails.
(4) Combination of (2) and (3); clinical observations suggest patients will have feature of IBS: these patients may be candidates for surgery when medical therapy fails.

Management of slow transit constipation

Once the diagnosis of slow transit constipation is established and other secondary causes are ruled out, the patient is educated and advised to increase their daily fiber intake. However, dietary changes have not shown much result and can indeed make things worse.[35] If this approach fails the next step is to add a laxative. Bulk-forming laxatives are preferred initially as they increase stool bulk, they maintain stool water content and they do not cause electrolyte disturbances. If the patient does not improve then stimulant laxatives, saline laxatives, osmotic agents or chloride channel activators can be used.[36,37] If the medical approach fails then surgical treatment should be considered. Patients underwent either a total colectomy with ileorectal anastomosis or subtotal colectomy with cecorectal anastomosis. In general, both these procedures seem to improve symptoms of patients with slow transit constipation,[38–45] although there are reports that a subtotal colectomy may offer better outcomes for patients.[46,47] Despite the improvement in bowel movements, patients often report poor quality of life after these procedures and experience symptoms such as abdominal pain and bloating, diarrhea, and recurrent constipation.[48–51] This underlies the importance of withholding surgery as an option of last resort.

Even more caution should be used in patients presenting with a combination of both obstructed defecation syndrome and slow