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Obstructed Defecation



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Key Concepts

- Obstructed defecation syndrome is characterized by excessive straining at stool, incomplete rectal evacuation, and perineal splinting.
- The primary treatment for patients with obstructed defecation is dietary management and pelvic floor physical therapy.
- The primary treatment of patients with overt pelvic prolapse and obstructed defecation is surgical repair of the prolapse.
- Symptoms of obstructed defecation are not as reliably relieved as overt prolapse by surgical repair.
- Ventral mesh rectopexy or stapled transanal rectal resection are alternative surgical procedures which may more reliably relieve obstructed defecation symptoms.
- Sacral nerve stimulation may be an alternative for patients with rectal hyposensitivity and obstructed defecation failing non-operative management

Introduction

Pelvic floor disorders are a frequent source of morbidity in the developed world [1]. This is a much more common problem for women and almost one quarter of women in the USA will complain of at least one pelvic floor disorder in their lifetime. The incidence increases with age, parity, and obesity. Demand for pelvic floor services is expected to grow at twice the population rate in the future [2–4]. Suffice it to say that all of the medical specialties will frequently manage patients with pelvic floor complaints however colorectal surgeons will assume a disproportionate share of the diagnosis and management of patients with persistent or refractory symptoms of pelvic floor dysfunction.

Pelvic floor disorders typically present with overt pelvic organ prolapse and/or functional disorders of bowel or bladder evacuation. In the USA, 16 % and 9 % of women, respec-

tively, will experience bladder or bowel incontinence. Pelvic organ prolapse affects 3 % of women [2]. Approximately 12–27 % of adults will seek care for constipation related complaints in their lifetime and over \$1 billion is spent annually on constipation related goods and services [5]. Typically, constipation in association with pelvic floor disorders is manifested as obstructed defecation. Obstructed defecation syndrome is a well-defined symptom complex consisting of excessive straining at stool, need for perineal splinting, and incomplete rectal evacuation [6–8]. Not uncommonly, different manifestations of constipation co-exist, hence, global hindgut and pelvic evaluation is required for those treating this complicated group of patients [9–12].

This chapter will focus on disordered bowel evacuation in general and specifically on obstructed defecation syndrome. A review will be undertaken of the clinicopathologic features and clinical evaluation of the disorder, its frequent association with other manifestations of pelvic floor dysfunction and the outcomes of medical and surgical therapy for the disorder.

Etiology of Constipation

Lower gastrointestinal function involves the formation of stool, its transit through the hindgut and its subsequent expulsion from the body. As anyone involved in the care of the constipated patient knows, this is a complex and coordinated process and failure at any of the various points in the algorithm will result in constipation related complaints.

Unfortunately, constipated patients rarely present with a defined etiology of their constipation but instead will use various adjectives to describe their clinical situation. It is important that the patient be given the opportunity to clearly describe their symptom complex in their own words as our descriptors for defecatory dysfunction typically have different meanings for different people. Typically, symptom complexes are unique and dependent upon where in the process of

TABLE 59-1. Etiology of constipation

Lifestyle	
	Inadequate fluid/fiber intake
	Sedentary
Iatrogenic	
	Narcotics
	Psychotropics/antidepressants
	Antihypertensive/diuretics
	Chronic laxative abuse
Medical conditions	
	Psychiatric disorders
	Neurologic injury/degeneration
	Hypothyroidism
	Hyperparathyroidism
	Diabetes mellitus
	Renal insufficiency
Intrinsic colonic dysfunction	
	Benign/malignant obstruction
	Hirschsprung's disease
	Scleroderma
Functional bowel disorders	
	Colonic inertia
	Irritable bowel syndrome, constipation predominant
	Pelvic floor dysfunction

hindgut function failure occurs. Hence, a good and detailed history of the complaints and physical examination is frequently diagnostic and drives further testing and treatment options.

A wealth of different factors may affect lower gastrointestinal function (Table 59-1) and give rise to symptoms of constipation. A detailed history focuses on onset and duration of symptoms, stool frequency and consistency, dietary fiber and fluid intake, and associated medical and surgical history and medication usage. A history of physical, sexual or psychological abuse, or dysfunction is not infrequently associated with constipation related complaints and should be explored [13, 14]. A bowel diary can be particularly helpful to objectify the patient's complaints if not clear based upon their subjective description. Physical examination should focus on abdominal findings such as distension, pain, or mass lesion. Anorectal and pelvic examination should focus on normal anorectal and genital anatomy and evidence of occult or overt pelvic prolapse. Patients should undergo endoscopic evaluation of the lower gastrointestinal tract as a matter of routine when evaluating new complaints centered on a change in bowel habits.

Functional Bowel Disorders

Over half of patients referred for specialty evaluation and care have functional bowel disorders [15]. The three main types are colonic inertia (slow transit constipation), constipation predominant irritable bowel syndrome (normal transit constipation),

and obstructed defecation syndrome. Historical symptom description is usually diagnostic. Differentiation of the disorders or in patients exhibiting features of more than one etiology can be further evaluated with colon transit study (Sitz mark study; Figure 59-1) and pelvic floor testing [13].

Colonic inertia or slow transit constipation is characterized by infrequent (<1/week) bowel movements and cathartic dependence. Typically, patients will also describe significant symptoms of nausea, bloating, and fullness that do not necessarily improve with defecation. Many patients will deny the feeling of rectal fullness and need to stool. The diagnosis is established with colon transit study revealing elevated segmental and global colonic transit.

Constipation predominate irritable bowel syndrome or normal transit constipation is defined by the Rome criteria listed in Table 59-2. Most patients will have irregular bowel movements both in terms of consistency and frequency. Abdominal pain is a frequent co-morbid complaint that frequently improves with bowel evacuation. Colon transit evaluation frequently reveals normal segmental and global transit times.

Obstructed defecation is defined in Table 59-3. Typically it is characterized by the constant sense of rectal fullness and



FIGURE 59-1. Sitz mark study. The radiograph demonstrates Sitz markers scattered throughout the abdomen and pelvis.

TABLE 59-2. Rome III criteria

Abdominal pain associated with
Improved with defecation
Change in stool frequency
Change in stool consistency
Altered stool frequency or consistency
Altered stool passage
Subjective bloating or distension

TABLE 59-3. Obstructed defecation syndrome criteria

Any of the following >25 % of the time
Painful, excessive straining
Incomplete or fragmented evacuation
Perineal splinting

painful excessive straining at stool. Patients also describe a sense of incomplete evacuation and fragmented bowel habits. Patients will often manually support or compress the perineum (splinting) during defecation. Patients also tend to defecate frequently, unlike the other functional disorders, and their symptoms tend to be relatively refractory to cathartic therapy. Fecal pseudo incontinence is also a frequent complaint due to the inability to completely evacuate the rectum. Colon transit study typically reveals elevated global transit times with delay only in the recto sigmoid region.

Defecation Mechanics

The act of rectal evacuation is a complex and coordinated action requiring the interplay of several anatomic and functional factors for successful completion (Figure 59-2). Rectal filling with stool induces distension of the rectum and the sense of need to evacuate. The rectal contents are sampled by transiently relaxing the internal sphincter and contracting the external sphincter, the so-called recto-anal inhibitory reflex, allowing discrimination of rectal contents. When answering the call to stool we assume a sitting or squatting position, which increases the intra-rectal and intra-abdominal pressure. We then relax the levator ani, specifically the puborectalis muscle, and anal sphincter complex and defecation ensues.

Any disturbance in this process be it pelvic floor anatomic abnormalities, disorders of anorectal sensation, and/or disorganized pelvic floor musculature will result in symptoms that we associate with obstructed defecation syndrome.

Evaluation of Obstructed Defecation

Endoscopy

Obstructed defecation syndrome can be mimicked by many intrinsic obstructive disorders of the anorectum and pelvis,

hence, a careful physical examination and endoscopic examination of the anorectum is imperative. Cross sectional imaging can be valuable in cases where extra-luminal obstructive pathology is suspected.

Colon Transit Study

Colon transit study is helpful in differentiating types of functional constipation when the history is unclear or disorders co-exist [13]. The study involves ingestion of radio-opaque markers followed by a series of radiographs over several days documenting the transit time through the hindgut. This is performed while withholding cathartics and pro-motility agents. The most objective interpretation is the Metcalf technique that quantifies the total and segmental transit times through the right, left, and rectosigmoid colon, respectively. Unfortunately, the technique is not standardized and difficult to reproduce across pelvic floor centers [16].

Balloon Expulsion Study

The balloon expulsion study can be a useful adjunct to the other testing modalities to evaluate obstructed defecation. It involves the placement of a fluid filled balloon within the rectum and then the timed expulsion of the balloon from the rectal vault. Chiaroni et al. found that an expulsion time in excess of 2 min revealed good correlation of findings from anorectal manometry and electromyography in constipated patients [17].

Anorectal Manometry

Anorectal manometry is helpful in evaluating the patient with obstructed defecation (Figure 59-3). The most important information gleaned is the rectal sensory thresholds depicted by the first sensation of rectal fullness, the urge to defecate, and the maximal tolerable volume, which may denote rectal hyposensitivity. Additional information obtained is the presence of the recto-anal inhibitory reflex denoting appropriate anorectal innervation, excluding the diagnosis of short segment Hirschsprung's disease, and mean resting and squeeze pressures which may be associated with non-relaxation of the pelvic floor [18, 19].

Anorectal Electromyography

Anorectal electromyography is primarily useful for the evaluation of patients with obstructed defecation. It senses electrical activity in the pelvic floor musculature during rest, squeeze, and push, and can be useful to identify patients with paradoxical contraction of the puborectalis. Patients with abnormal electromyography should undergo confirmatory testing with dynamic defecography [18, 19].

Defecation mechanics
 Rectal filling/distension → rectoanal inhibitory reflex → defecation response →
 sit/squat increasing intra-rectal and abdominal pressure → levator ani relaxation →
 strain → increased intra-rectal/abdominal pressure → defecation

FIGURE 59-2. Defecation mechanics.

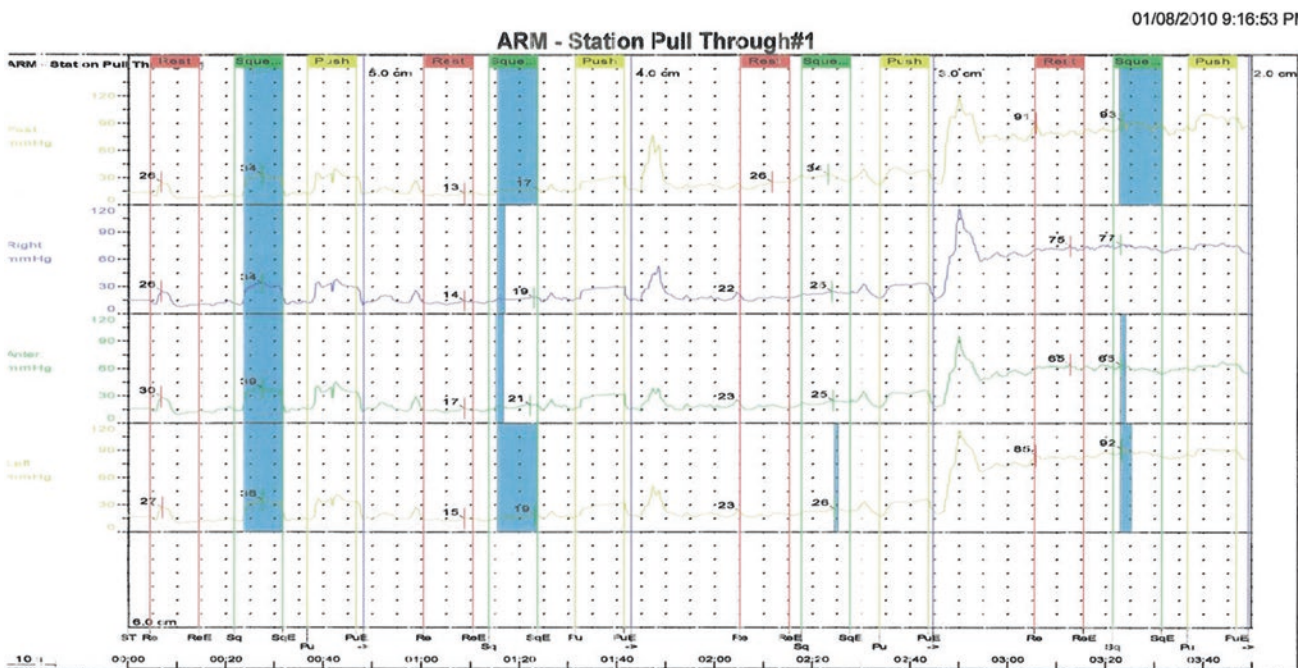


FIGURE 59-3. Sample of an anorectal manometry.

Defecography

Defecography is a particularly useful technique for the precise evaluation of the functional anatomy of the pelvic floor [13, 15, 20]. Defecography is performed with patient in the squatting position using a lateral fluoroscopic view as the patient expels a barium paste from the rectum (Figure 59-4). Further anatomic definition can be obtained by having the patient ingest oral contrast to opacify the small bowel, placement of contrast material within the vagina and bladder, and injection of water-soluble contrast material into the peritoneal cavity.

Magnetic resonance defecography and 3D ultrasonography have also been described as alternatives to traditional fluoroscopic defecography that obviates the need for radiation exposure and may improve the anatomic detail of the images obtained although quality comparative studies of the techniques are lacking [21–26].

Interpretation of Test Results

No one pelvic floor test is entirely diagnostic of pelvic floor dysfunction and a high degree of variability of test results both in terms of anatomy and function in symptomatic and

healthy asymptomatic patients can be seen. This makes interpretation of results of pelvic floor tests challenging and determination of abnormal test results need to be made in conjunction with the history and physical examination findings of each particular patient [27, 28].

Etiology and Treatment of Obstructed Defecation

In evaluating and treating the patient with obstructed defecation multiple different and often co-existent etiologies and multiple different and often co-existent symptom complexes are present. Patients will also often present with significant existential anxiety regarding their symptoms. The most important first step is patient and careful listening and validation of the impact that these symptoms have on the patient’s quality of life. Reassurance that, while the symptoms are quite obtrusive and debilitating, there is no significant underlying health or life threat, will allay many of the patient’s fears. Keeping that in mind also informs treatment decisions. Our goal in treating these problems should be to provide as much

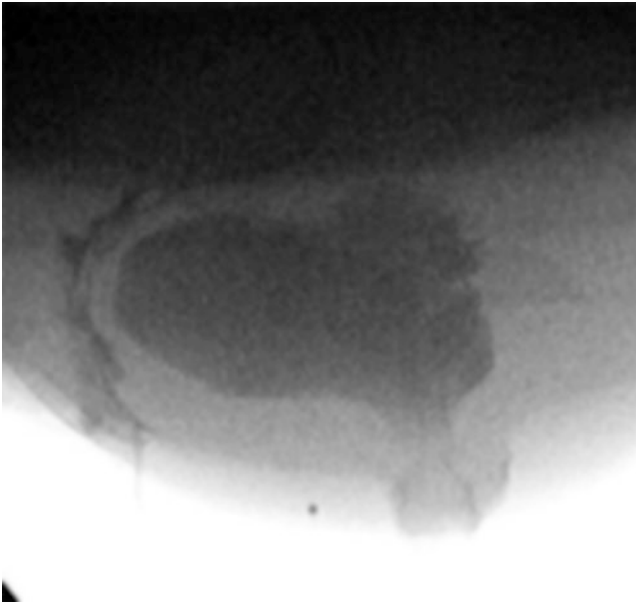


FIGURE 59-4. Defecography. This defecography demonstrates a large rectocele.

symptom relief as possible while exposing the patient to the least amount of risk and secondary treatment related side effects as possible.

With that in mind obstructed defecation as an isolated condition is primarily treated non-operatively. Traditional approaches have been to insure adequate hydration and fiber intake, modest daily physical activity, and pelvic floor physical therapy retraining [29–32].

Hydration/Lifestyle Modification

Recommended goals for daily hydration are 1–2 L/day of non-caffeinated fluids. This is typically in combination with increased fiber intake and daily exercise. As a stand-alone therapy, not surprisingly, increased hydration alone does not result in a change in bowel consistency or frequency [33]. Modest daily exercise has been shown to stimulate colonic motility and increase bowel frequency [34].

Fiber Intake

Recommended dietary fiber goals are 30–40 g/day of either soluble or insoluble fiber. Better outcomes are associated with increased hydration (>2 L/day). Quality studies documenting the efficacy of this approach are lacking and its use is primarily supported by small case series [35, 36]. Cathartic therapy, either stimulant or osmotic in nature, while important for certain etiologies of constipation is typically ineffective in management of obstructed defecation [37].

Pelvic Floor Physical Therapy Retraining

Pelvic floor physical therapy retraining is an essential component of comprehensive pelvic floor management. It is a more apt term to describe the comprehensive and complex bowel, bladder and pelvic floor treatment than the traditional term biofeedback. Biofeedback alone uses operant conditioning to reinforce positive behavior, thereby retraining the pelvic floor to optimize function. While widely used, techniques are not standardized and optimum techniques, frequency of encounters, and duration of therapy are unknown [38]. In many cases, a several week cycle (4–6 weeks with transition to a home program) of multiple pelvic floor exercises combined with a transanal probe (either electromyography or intra-rectal pressure monitor) displaying visual feedback to monitor pelvic floor activity during the squeeze-relax-push cycle is used. Pelvic floor physical therapy retraining uses, in addition to biofeedback, patient education on appropriate dietary management, proper defecation mechanics, and psychologic support of the patient as they learn techniques to manage their symptoms. The treatment sessions are typically performed by nurses or physical therapists with advanced training and interest in pelvic floor disorders. Outcomes can be very dependent on the affect and patience of the therapist and patient acceptance of this technique. Several studies in the last decade have demonstrated a therapeutic effect in patients with obstructed defecation [39–42]. Despite the lack of reproducible standardized techniques, it is a relatively inexpensive treatment option that has no treatment related risks or side effects satisfying our goals of obstructed defecation syndrome treatment.

Pelvic Organ Prolapse

Patients with pelvic organ prolapse present with prolapse symptoms, which is a sense of rectal or vaginal tissue protrusion, and/or functional obstruction of the rectum. Patients with isolated prolapse symptoms are usually reliably and durably improved with repair. It is important to keep in mind, however, that response of the functional rectal obstruction to repair of the anatomic prolapse is not as reliable, hence, it is important that surgeons and patients understand this and that their expectations for improvement are realistic [43, 44].

Rectal Prolapse: Overt

Patients with rectal procidentia typically present with rectal tissue protrusion with Valsalva or gravity that spontaneously reduces or requires manual reduction. Patients also frequently describe a mucous discharge and frequent bleeding, fecal incontinence, and obstructed defecation. Repair can be accomplished with either a trans-abdominal or perineal approach dependent upon patient age, medical co-morbidities,

prior surgery, body habitus, and performance status. Perineal procedures may be undertaken due to inability to tolerate an abdominal procedure at the cost of functional outcome and recurrence risk [45].

Abdominal rectopexy traditionally has been performed in healthy patients with good performance status. Laparoscopy and robotic technology have extended the indication in the elderly/frail population [46]. The procedure is conducted with posterior rectal mobilization and mesorectal fixation to the presacral fascia with or without mesh augmentation. A prominent side effect of this approach is persistence or worsening of obstructed defecation [47]. Sigmoid resection and preservation of the lateral rectal stalks have been associated with decreased postoperative obstructed defecation at the cost of increased surgical risk and elevated prolapse recurrence, respectively.

A newer alternative to posterior rectopexy is ventral mesh rectopexy [48]. This involves the anterior rectal mobilization and mesh fixation of the anterior rectum to the presacral fascia. Durable repair of the prolapse with this technique has been demonstrated and interestingly a lower incidence of persistent postoperative obstructed defecation is seen. This is also being explored as a treatment for obstructed defecation related to occult rectal prolapse. Most support for this technique comes from small, uncontrolled case series and objective and technical comparative results are lacking [49, 50]. See Chap. 60 for a complete overview of the treatment of rectal prolapse.

Rectal Prolapse: Occult

Occult or internal rectal prolapse is seen in patients presenting with isolated complaints of obstructed defecation or fecal incontinence. This is typically identified on defecography and complicating its association with obstructed defecation is the finding of radiographic internal prolapse in healthy, asymptomatic volunteers [51].

Initial treatment of this group of patients is non-operative with the techniques already described. Patients failing this approach with refractory, lifestyle-limiting symptoms can be considered for surgical intervention. It is important for patients and surgeons to recognize that inconsistent functional improvement is seen with surgical correction of the occult prolapse using the posterior rectopexy technique [44]. Ventral mesh rectopexy may become a valid option for this group of patients but objective studies documenting its efficacy are lacking at this time.

An alternative to posterior or ventral rectopexy for management of rectal intussusception is stapled transanal rectal resection (STARR). This may also be considered for some patients with rectoceles and refractory symptoms of obstructed defecation who have failed non-operative treatment. This approach uses a specialized transluminal gastrointestinal circular stapling device to resect the redundant anterior and posterior rectal walls, thereby reducing rectal volume and improving rectal sensitivity [52]. Results have been overall positive in terms of initial relief of the symptoms

of obstructed defecation, though appreciable operative morbidity (up to 36 %) and long-term functional consequences including fecal urgency and incontinence, bleeding, rectovaginal fistula, persistent or recurrent obstructive defecation, and pelvic sepsis have all been described [53–57]. The difficulty in determining which patients would benefit from the STARR procedure along with the possible morbidity that can occur from the circular “anastomosis” have dampened the enthusiasm for this procedure.

Rectocele

Rectoceles arise from loss of anterior rectal support due to disruption of the rectovaginal fascia. This is typically related to traumatic disruption from prior obstetric trauma or simple age related decline in fascial integrity. Rectoceles are identified in up to 80 % of the adult population, the majority of which are asymptomatic and do not require treatment [58]. Symptomatic rectoceles come to clinical attention owing to overt vaginal prolapse and/or functional rectal obstruction (Figure 59-5). Associated symptoms may include anorectal or vaginal pain and sexual dysfunction. A detailed history and physical examination to define the presenting symptoms and its impact on quality of life is important. Clearly defining the problems most important to the patient and setting realistic expectations for medical and surgical treatment of this problem is critically important [2].

Patients whose primary complaint is posterior vaginal wall prolapse may be offered surgical reconstruction with the expectation of durable relief of their prolapse symptoms. Rectoceles can be repaired via the transvaginal (will be discussed in Chap. 63), transrectal, and transperineal approaches with or without levatoroplasty. The operative morbidity, risk of recurrence, vaginal anatomic distortion, and a significant risk of dyspareunia should not be underestimated and should be thoroughly discussed with the patient prior to surgery [59–61].

Many colorectal surgeons favor a transanal approach to repair of low rectoceles. Patients are typically placed in the prone position. A curvilinear incision is made over the poste-

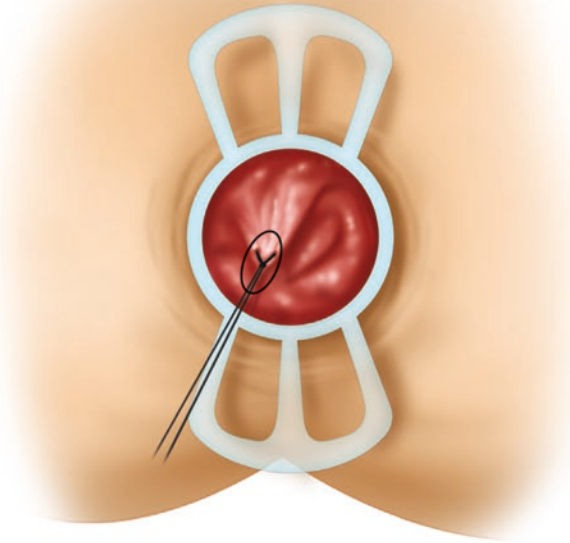


FIGURE 59-5. Rectocele.

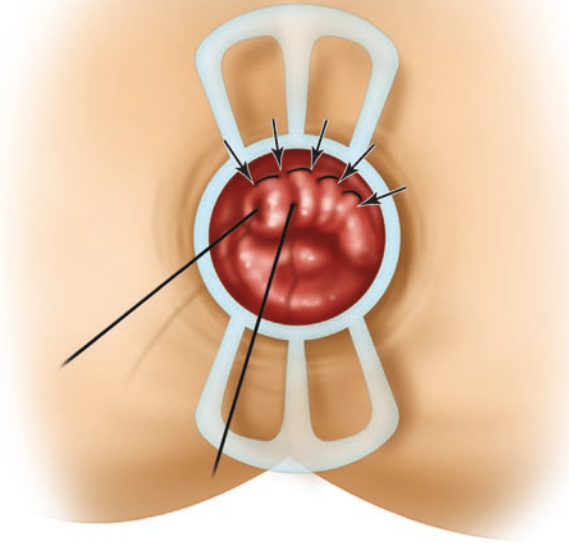
rior rectal mucosa just 1–2 cm distal to the distal edge of the rectocele. Prepping the vagina and using the index finger in the vagina to outline the rectocele edges is helpful. The mucosa is dissected off the rectocele until it is 1–2 cm cephalad to the proximal rectocele edge. Then the cephalad edge is sutured to the caudad edge with simple or figure of eight

absorbable sutures (2-0 polyglycolic acid). Confirmation of the complete obliteration of the rectocele is confirmed with the finger in the vagina to palpate the closure. The mucosa is then advanced down and re-approximated with the distal cut edge. Alternatively, this can be performed with the use of a stapler to remove the redundant tissue (Figure 59-6).

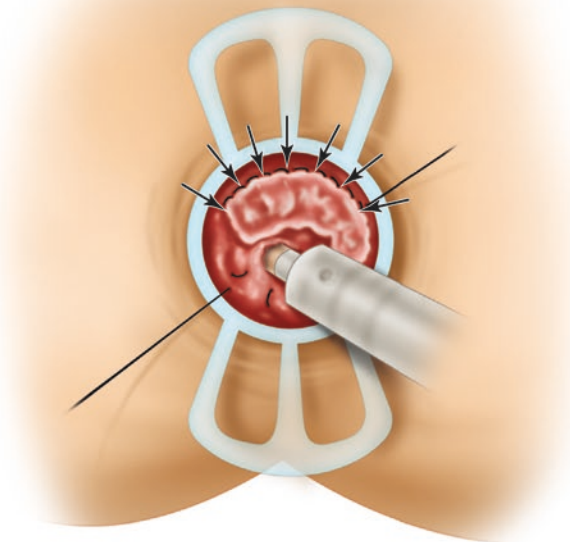
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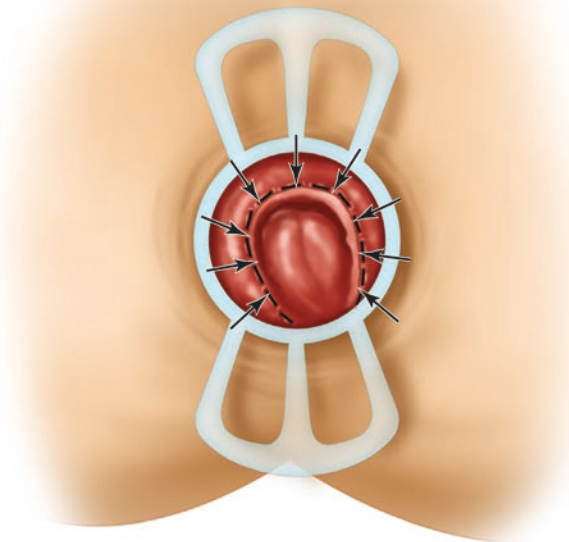


FIGURE 59-6. Transanal rectocele repair and mucosectomy (with a circular stapler). (a) The apex of the rectocele is identified and pulled down through a stitch (circle). (b) A running horizontal suture is placed through the base of the rectocele (arrows). (c) The

exceeded prolapsed mucosa and the muscular layer were excised, keeping an opened wound with the edges joined by the previous manual suture (arrows). The pursestring suture is tied around the stapler's center rod. (d) The remaining stapled suture line (arrows).

In an attempt to lessen operative risk, improve recurrence rates, and lessen postoperative sexual dysfunction surgeons have utilized mesh based rectovaginal septal reconstruction. The technique remains controversial but most studies reveal no advantage in the use of mesh over native tissue repairs for posterior compartment defects. In light of this and in conjunction with the morbidity of mesh related complications leading to significant litigation, the technique has not been widely adopted. The clinical situation where mesh may be particularly advantageous is in cases of recurrent prolapse or patients at high risk of primary failure but only after carefully weighing the risks and careful discussion with the patient [62, 63].

Patients whose primary complaint is obstructed defecation in association with a rectocele are less reliably managed with surgical reconstruction [64–66]. These patients should be offered a trial of non-operative therapy as already discussed prior to consideration of surgical intervention. For patients failing non-operative therapy and who have significant lifestyle altering symptoms, all of the aforementioned rectocele repair techniques have been used with varying success and durability. It is very important that the patient have realistic expectations for improvement prior to undergoing surgical reconstruction.

Enterocele with or without Vaginal Vault Prolapse

Enterocele and vaginal vault prolapse may exist in isolation of each other, but are co-existent in the majority of cases. Patients present with complaints of vaginal prolapse and symptoms of obstructed defecation. Chronic pelvic and low back pain may also be present and is typically worse throughout the day while upright and relieved with recumbency. Dyspareunia is also a frequent complaint. As with other pelvic floor disorders, careful history and physical examination is essential. If an enterocele is clinically suspected, confirmation with defecography is usually definitive identifying the small bowel descending into the rectovaginal space (Figure 59-7). A less common finding is a sigmoidocele where a redundant sigmoid colon fixated at the rectosigmoid junction fills the rectovaginal space.

For symptomatic patients with a confirmed enterocele, sigmoidocele, or vaginal vault prolapse, intervention is appropriate. Again, anatomic prolapse symptoms are much more reliably repaired than are the functional bowel consequences of the disorder. Patients with primarily obstructed defecation, as the presenting symptom should be offered a trial of non-operative therapy prior to surgical intervention.

The surgical approach can be either trans-abdominal or transvaginal, and is often determined by overall patient performance status. For healthy patients with good performance

status, an abdominal approach offers a more durable and functionally better repair. The gold standard is abdominal sacral colpopexy with either prosthetic or biologic mesh support. A number of plication procedures of the pouch of Douglas have been described to manage the enterocele and may be concomitantly performed [67]. Sigmoidoceles are most commonly addressed with an anterior resection. With surgeons increasingly facile with advanced laparoscopic or robotic techniques, this procedure has become less invasive [68, 69]. Multi-compartment prolapse is common and concomitant repair should be undertaken [70]. See Chap. 63 for additional information.

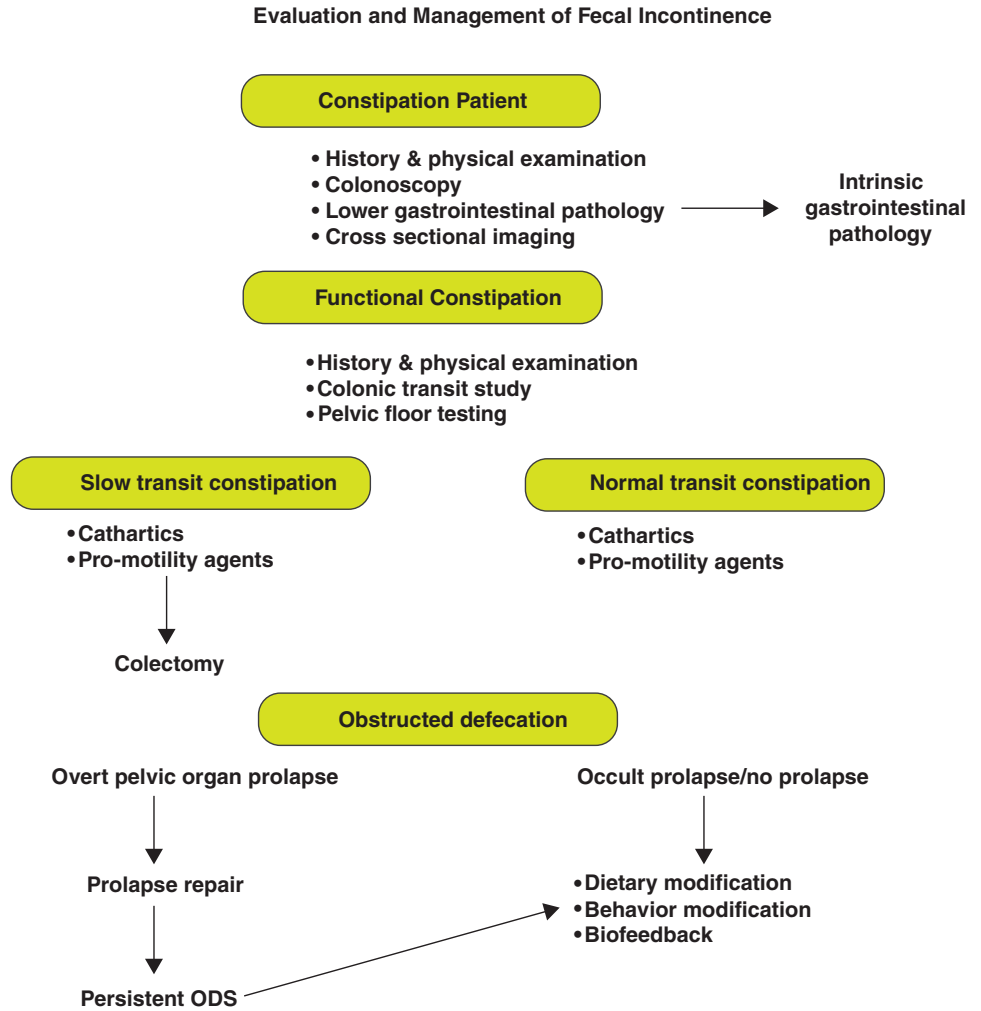
Patients with poor performance status or patients with relative contra-indications for abdominal surgery are considered for a transvaginal approach. Traditionally, the transvaginal approach has used sacrospinous ligament fixation to support the vaginal apex concomitant with high ligation of the enterocele sac [71]. For patients without any desire to preserve sexual function, a vaginal obliterative procedure, colpocleisis, is an attractive approach for its relative ease and safety [72]. For those patients who are inappropriate surgical candidates or who desire non-operative relief of their symptoms a pessary may be entertained [73].

Non-Anatomic Causes of Obstructed Defecation

Several different non-anatomic anorectal functional and pelvic support issues may negatively affect defecatory function and give rise to obstructed defecation. Another term frequently used to describe this complex is dyssynergic defecation but this term probably is better used interchangeably with obstructed defecation syndrome rather than as a descriptor of patients with obstructed defecation not associated with underlying pelvic prolapse. Paradoxical puborectalis contraction, rectal hyposensitivity often in conjunction with mega rectum, and abnormal perineal descent are often contributors to obstructed defecation syndrome.

Paradoxical puborectalis occurs when the levator ani is inappropriately contracted during initiation of defecation. In normal defecation, the levator ani is relaxed thereby straightening the anorectal angle, shifting the rectum posteriorly, and allowing comfortable bowel movement. When the puborectalis is inappropriately contracted the anorectal angle becomes more acute and rectal outlet obstruction ensues inhibiting rectal evacuation. Diagnosis is suggested by physical examination. Having the patient strain during digital rectal examination, the puborectalis is felt to contract against the examining finger. Confirmatory testing with a combination of anorectal electromyography and defecography is diagnostic. Conservative treatment with dietary modification and biofeedback results in improvement in 40–60 % of patients [74, 75].

FIGURE 59-7. Algorithm for evaluation and management of functional constipation.



Rectal hyposensitivity is often seen concomitant with mega rectum. This is seen frequently in patients with neurologic or psychiatric impairment. However it is important to consider that a patient with megarectum could have short segment Hirschsprung’s disease or a non-relaxing pelvic floor and these types of problems must be actively ruled out. Symptomatically, these patients present with typical obstructed defecation symptoms and may (or may not) have recurrent episodes of fecal impaction. Diagnosis is confirmed with defecography and anorectal manometry. Treatment is challenging and in conjunction with dietary and behavioral therapy, rectal stimulation with suppository, or enema therapy can be helpful. A technique being explored in clinical trials for this difficult group of patients failing non-operative therapy is sacral nerve stimulation. Most studies published have grouped all forms of constipation together and have not clearly defined the etiology of refractory constipation. Overall results have been disappointing on an intent

to treat basis but for the subgroup of patients that do benefit the results have been striking [76–78]. Knowles et al. in a randomized prospective double blind trial specifically treating patients with refractory obstructed defecation related to rectal hyposensitivity showed excellent results in terms of normalization of rectal sensation, ease of defecation, and improved Wexner scores in 10/13 patients. Eleven patients went on to permanent implant with nine patients have durable improvement at almost 2 years of follow-up [79].

Abnormal perineal descent results from loss of pelvic floor fascial integrity. Physical examination suggests the diagnosis when a pelvic floor bellows phenomenon is seen during straining. Defecography is diagnostic when descent greater than 2 cm past the static pelvic floor is seen. Treatment remains conservative with dietary manipulation and biofeedback. Unfortunately, treatment outcomes are relatively poor with less than 30 % experiencing major symptomatic improvement.

Fecal Diversion

As a last resort for patients with debilitating and refractory symptoms of obstructed defecation, fecal diversion may be considered. A very detailed and careful discussion clearly delineating the risks, benefits, and expected outcome of this therapy should be undertaken.

Algorithm for Evaluation and Management of Functional Constipation

An algorithm for evaluation and management of functional constipation is shown in Figure 59-7. Probably the single most important test to obtain is a good history and physical examination taken by a patient and empathetic surgeon. Further hindgut and pelvic floor functional testing is driven by the working diagnosis obtained in the initial encounter.

For patients with slow transit and normal transit constipation the initial treatment is non-operative with cathartic and pro-motility agents. Patients with slow transit constipation



FIGURE 59-8. MR defecography demonstrating a cystocele, intussusception, and enterocele. Notice the small bowel loops extending down to the pelvic floor.

refractory to medical therapy may benefit from total colectomy but patients with normal transit constipation do not (Figure 59-8). A more detailed discussion of these disorders is undertaken in other sections of this text (see Chap. 58).

In patients with obstructed defecation, the most important first step is identifying whether patients have co-existing overt pelvic organ prolapse. For patient with overt pelvic prolapse, surgical correction of the prolapse is the first step, recognizing that the functional rectal outlet obstruction may or may not improve. For patients with isolated symptoms of obstructed defecation or persistent symptoms after pelvic prolapse repair, the initial treatment is non-operative with dietary and behavioral modification. Pelvic floor physical therapy retraining, while non-standardized, can be particularly effective. Recognizing the importance of the therapist in terms of their patience and empathy is critical to a successful biofeedback program.

For patients with refractory symptoms of obstructed defecation and significant lifestyle limitations due to the disorder, surgical intervention can be entertained. It is critically important that a detailed discussion of the goals, risks, and expected outcome of treatment be documented such that patient and surgeon expectations for improvement are realistic. In choosing an operative approach it is also important that we expose the patient to the least amount of risk and secondary treatment related side effects for this benign condition.

Conclusion

Patients with functional constipation are a challenging population that requires patient and empathetic care. The symptoms of this disorder are quite obtrusive and a major impediment to quality of life. A careful and methodical approach to evaluation and management of this group of patients can often result in major improvements. Considerable ongoing research, however, is still required to define the best practices and surgical techniques that may result in further functional benefits.

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