Dyssynergic Defecation and Other Evacuation Disorders

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KEYWORDS

• Constipation • Dyssynergic defecation • Biofeedback therapy • Rectocele
• Levator ani syndrome

KEY POINTS

- Severe, refractory constipation is often due to dyssynergic defecation.
- A thorough digital rectal examination is key in the evaluation of constipated patients.
- No single diagnostic test is sufficient, and therefore, high-resolution anorectal manometry, balloon expulsion testing, and defecography should be used in combination to diagnose dyssynergic defecation.
- Biofeedback therapy is the mainstay of treatment of dyssynergic defecation and may be considered in patients with coexisting rectoceles, slow-transit constipation, and/or irritable bowel syndrome with constipation (IBS-C).
- Levator ani syndrome can be a debilitating cause of anorectal pain, and pelvic neuropathy may be a key pathophysiological disturbance.

INTRODUCTION

Constipation is a common condition that affects 12% to 19% of the worldwide population with a higher predilection for females (estimated ratio of 2.2:1 to males).[1] The prevalence of this condition increases with age and lower socioeconomic status. Constipation is the primary reason for 2.5 million physician office visits annually, and constipation-related emergency room visits and inpatient admissions are increasing in a younger cohort of patients.[2–4] Refractory constipation represents a significant burden to the health care system.[5,6] Constipation is defined by a constellation of symptoms including infrequent bowel movements, excessive straining, hard or lumpy stools, sensations of incomplete evacuation and mechanical obstruction, and/or the use of digital maneuvers for stool evacuation.[7,8] Chronic constipation, defined as symptoms lasting more than 3 months, has been categorized by Rome IV criteria into 4 broad subtypes; (1) functional constipation, (2) irritable bowel syndrome with

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constipation (IBS-C), (3) opioid-induced constipation, and (4) functional defecation disorders.[7] Constipation can also be classified as primary, which is due to colonic or anorectal dysfunction, or secondary, associated with intrinsic gastrointestinal (GI) pathology (ie, colonic strictures, malignancies, etc.), in the presence of other medical conditions (metabolic disturbances, thyroid disorders, diabetes mellitus, neuromyopathic disorders) or related to medication use (opioids, anticholinergic agents).[9] Dyssynergic defecation and rectal evacuation disorders are primary functional defecation disorders.

Constipated patients are frequently referred to GI specialists for symptoms refractory to lifestyle modifications and laxatives.[10] Dyssynergic defecation, defined as dyscoordination of rectoanal, abdominal, and pelvic floor muscles to facilitate defecation, is a major cause of refractory primary constipation.[11] Successful understanding of the diagnosis, evaluation, and management of dyssynergic defecation and other evacuation disorders will allow providers to effectively manage these patients. This review focuses on examining the definition, pathophysiology, evaluation, and treatment of dyssynergic defecation and other evacuation disorders.

ANATOMY

A comprehensive understanding of the pelvic floor neuromuscular anatomy is important for diagnosing and treating defecation disorders. The pelvic floor muscles are essential for defecation, sexual function, and micturition. The coccygeus and levator ani muscles combine to form a bowl-shaped pelvic diaphragm through which the rectum passes into the perineum to merge with the anal canal. The iliococcygeus, pubococcygeus, and puborectalis muscles comprise the levator ani complex. The puborectalis muscle forms a U-shaped sling, and its resting tone is responsible for maintaining the anorectal angle, and thus, continence. When the puborectalis relaxes, the anorectal angle straightens, facilitating defecation. The anal canal is composed of internal and external sphincters. The internal anal sphincter (IAS) provides 70% of the resting anal canal tone. The external anal sphincter (EAS) blends superiorly with the puborectalis muscle, and together these muscles maintain fecal continence. The IAS is composed of smooth muscle, whereas both the EAS and puborectalis are skeletal muscles under voluntary control and should relax during defecation attempts. Dyssynergic defecation results from dyscoordination of the rectoanal, abdominal, and pelvic floor muscles. Pelvic floor dysfunction can also result in incomplete rectal evacuation and pain.

The autonomic and somatic innervation of the hindgut and pelvic floor is unique from the rest of the GI tract, as shown in **Fig. 1**. Most of the GI tract receives parasympathetic innervation from the vagus nerve. Pelvic organs, such as the rectum, bladder, and uterus, are innervated by parasympathetic branches from pelvic splanchnic nerves originating from S2-S4 sacral nerves, which send projections through the inferior hypogastric plexus. Sympathetic innervation of the pelvic organs and hindgut originate from thoracolumbar splanchnic nerves T10-L2 coursing through the superior hypogastric plexus to meet the parasympathetic fibers at the inferior hypogastric plexus.

An intact pudendal nerve is crucial to pelvic floor function. The pudendal nerve is a mixed sensorimotor nerve that originates from unmyelinated, parasympathetic projections from Onuf nuclei emanating from sacral branches S2-S4 to innervate the perineal, EAS, and levator ani muscles (also shown in **Fig. 1**).[12] The course of the pudendal nerve can make it susceptible to injury. The sacral nerve roots converge to form the pudendal nerve just proximal to the sacrospinous ligament. The pudendal

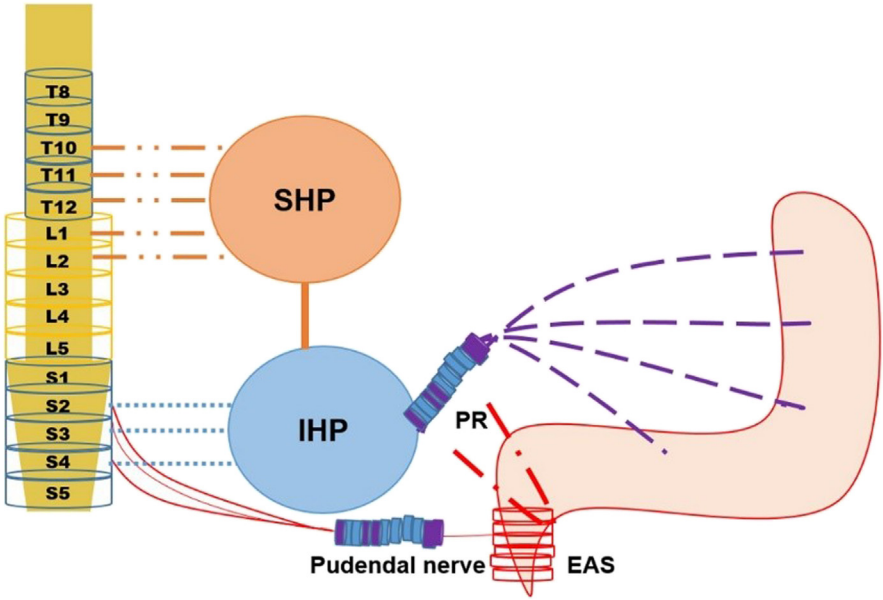

Fig. 1. Diagrammatic representation of sympathetic, parasympathetic, and somatic innervation of the hindgut and pelvic floor. The rectum and distal colon are innervated by parasympathetic branches from pelvic splanchnic nerves originating from S2-S4 sacral nerves, which send projections through the inferior hypogastric plexus (IHP). Sympathetic innervation of the pelvic organs and hindgut originate from thoracolumbar splanchnic nerves T10-L2 coursing through the superior hypogastric plexus (SHP) to meet the parasympathetic fibers at the IHP. The pudendal nerve is a mixed sensorimotor nerve that originates from unmyelinated, parasympathetic projections from Onuf nuclei emanating from sacral branches S2-S4 to innervate the perineal skeletal muscles, external anal sphincter (EAS), and levator ani. PB, puborectalis.

nerve passes between the pyriformis and coccygeus muscles out of the pelvis through the lower greater sciatic foramen and reenters the pelvis through the lesser sciatic foramen.[13] Upon reentering the pelvis, the pudendal nerve, artery, and vein are enveloped by the obturator internus muscle sheath along the ischiorectal fossa in the pudendal canal. Temporary or permanent damage to the pudendal nerve may occur from recurrent stretch injury in the setting of chronic straining during defecation, and abnormal perineal descent, or prolonged or difficult childbirth.[14–16] The perineal branch of the pudendal nerve innervating the EAS is susceptible to the most strain and stretch during perineal descent.[17] Patients with prolonged straining may develop pudendal neuropathy resulting in mixed constipation and fecal incontinence.

DYSSYNERGIC DEFECATION

Dyssynergic defecation is defined as dyscoordination of the rectoanal, abdominal, and pelvic floor muscles necessary for appropriate laxation; it can be characterized by inadequate anal relaxation, paradoxic anal contraction, or inadequate rectal propulsive forces.[18] Evidence suggesting dyssynergic defecation must be present on at least 2 of the 3 tests: balloon expulsion test (BET), anorectal manometry (ARM) or surface electromyography (EMG), and defecography or stool retention on colonic

transit study[7] (**Box 1**). Dyssynergic defecation is also often accompanied by altered rectal sensation and/or compliance.[19]

A thorough history and physical examination are essential components of the evaluation of individuals with constipation. It is important to rule out other secondary or coexisting causes via appropriate investigational testing. Prospective stool diaries, either paper or smartphone app based, and validated questionnaires such as the Patient Assessment of Constipation-Quality of Life (PAC-QOL), Patient Assessment of Constipation-Symptoms (PAC-SYM), and Fecal Incontinence and Constipation Assessment (FICA) scale, can also help qualify and quantify bowel patterns, particularly in patients who are neither forthcoming nor precise in their histories.[20–24] In a recent study, 84% of patients described excessive straining, 76% experienced a feeling of incomplete evacuation, and 74% had abdominal bloating.[25] However, these constipation-related symptoms seem to be better predictors of slow transit than pelvic dysfunction, making it difficult to diagnose dyssynergic defecation based on history alone.[26] Environmental and emotional stressors can decrease pain thresholds and perpetuate negative habits, and astute clinicians should explore these precipitating factors with their patients. In subjects with dyssynergic defecation, sexual abuse was reported by 22%.[25]

DIAGNOSTIC TESTING

Digital Rectal Examination

No single test is able to adequately define dyssynergic defecation; thus, diagnostic testing should begin with a detailed digital rectal examination (DRE) (**Fig. 2**).[27] The examiner should first inspect the perianal region and surrounding tissue looking for fissures, hemorrhoids, excoriations, or skin tags. Diminished or lack of perineal sensation and an abnormal anocutaneous reflex can indicate pudendal neuropathy. After the perianal inspection, a lubricated gloved index finger should be inserted into the rectum with the examiner assessing for the presence of stool, strictures, tenderness, or masses. Resting anal tone can also be measured. The patient should be instructed to squeeze, allowing for an assessment of initial and sustained pressures. Pelvic floor coordination can be tested by placing a hand on the abdomen and requesting that the patient bear down or attempt to defecate.[28] It is during this final maneuver that one can best assess rectoanal coordination with a sensitivity and specificity of 75% and

Box 1
Rome IV diagnostic criteria for dyssynergic defecation

1. The patient must satisfy diagnostic criteria for functional constipation and/or irritable bowel syndrome with constipation.[a]
2. During repeated attempts to defecate, there must be features of impaired evacuation, as demonstrated by 2 of the following 3 tests:[b]
   a. Abnormal balloon expulsion test
   b. Abnormal anorectal evacuation pattern with manometry or anal surface EMG
   c. Impaired rectal evacuation by imaging
3. Inappropriate contraction of the pelvic floor as measured with anal surface EMG or manometry with adequate propulsive forces during attempted defecation.[b]

[a]Criteria must be fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.

[b]These criteria are defined by age- and sex-appropriate normal values for each diagnostic technique.

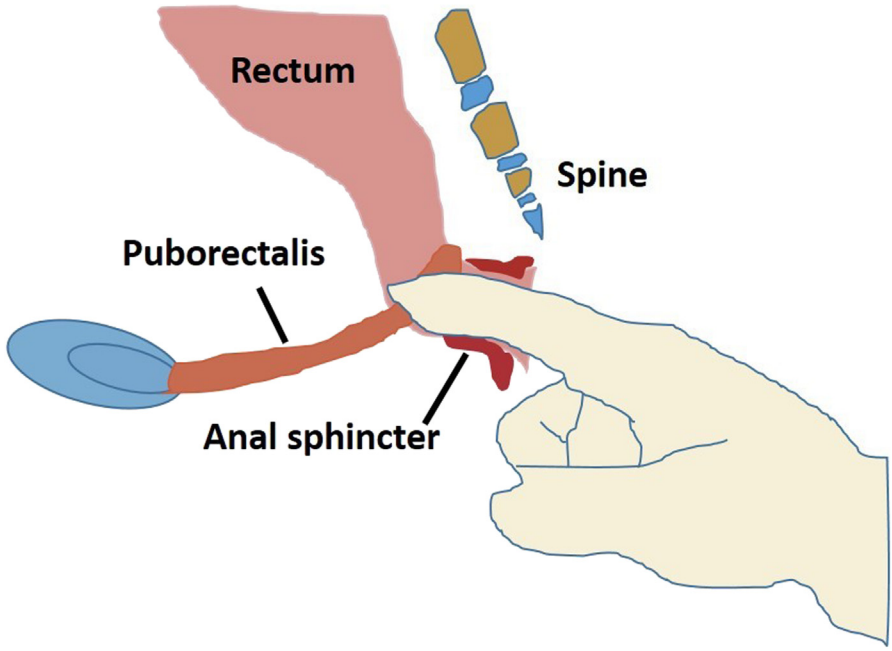

Fig. 2. DRE. The examiner must first inspect the perianal region and surrounding tissue to look for fissures, external hemorrhoids, or skin tags. Diminished or lack of perineal sensation and an abnormal anocutaneous reflex can indicate pudendal neuropathy. A lubricated gloved finger is inserted into the rectum after allowing the anal sphincter to accommodate; the examiner assesses for the presence of stool, stricture, tenderness, or mass and can evaluate the resting anal tone. When the patient is instructed to squeeze, the examiner can gauge the initial and sustained anal squeeze efforts. During the instructed bear down maneuvers with one of the examiner's hands resting on the abdomen, rectoanal coordination can be evaluated.

87%, respectively, for identifying dyssynergia in patients with constipation. A more detailed explanation of the DRE is provided in THE DIGITAL RECTAL EXAM: APPROPRIATE TECHNIQUES FOR THE EVALUATION OF CONSTIPATION AND FECAL INCONTINENCE," in this issue.

Anorectal Manometry

High-resolution ARM (HR-ARM) is useful to define anorectal physiology in patients with suspected defecatory disorders. There is a significant correlation (P>.001) between ARM and DRE in identifying patients with inability to relax anal sphincter, paradoxic anal contraction, increased resting tone, and absence of perineal descent.[27] The flexible HR-ARM catheter contains several circumferentially placed sensors that can simultaneously detect pressures longitudinally from the entire anal canal and distal rectum.[8] The spatial-temporal topography of HR-ARM allows for better anatomic and physiologic display than conventional waveforms, previously the gold standard.[29] A rigid 3D high-definition ARM probe is also available allowing for presentation of data in both 2-dimensional and 3-dimensional formats. Regardless of the probe used, anorectal pressures at rest, with squeeze, and during simulated evacuation can be measured. Four types of dyssynergic patterns have been described with manometric profiles as shown in **Fig. 3.**[30] The results of ARM can be influenced by external factors, including body positioning.[31] Therefore, providers need to be cognizant of the

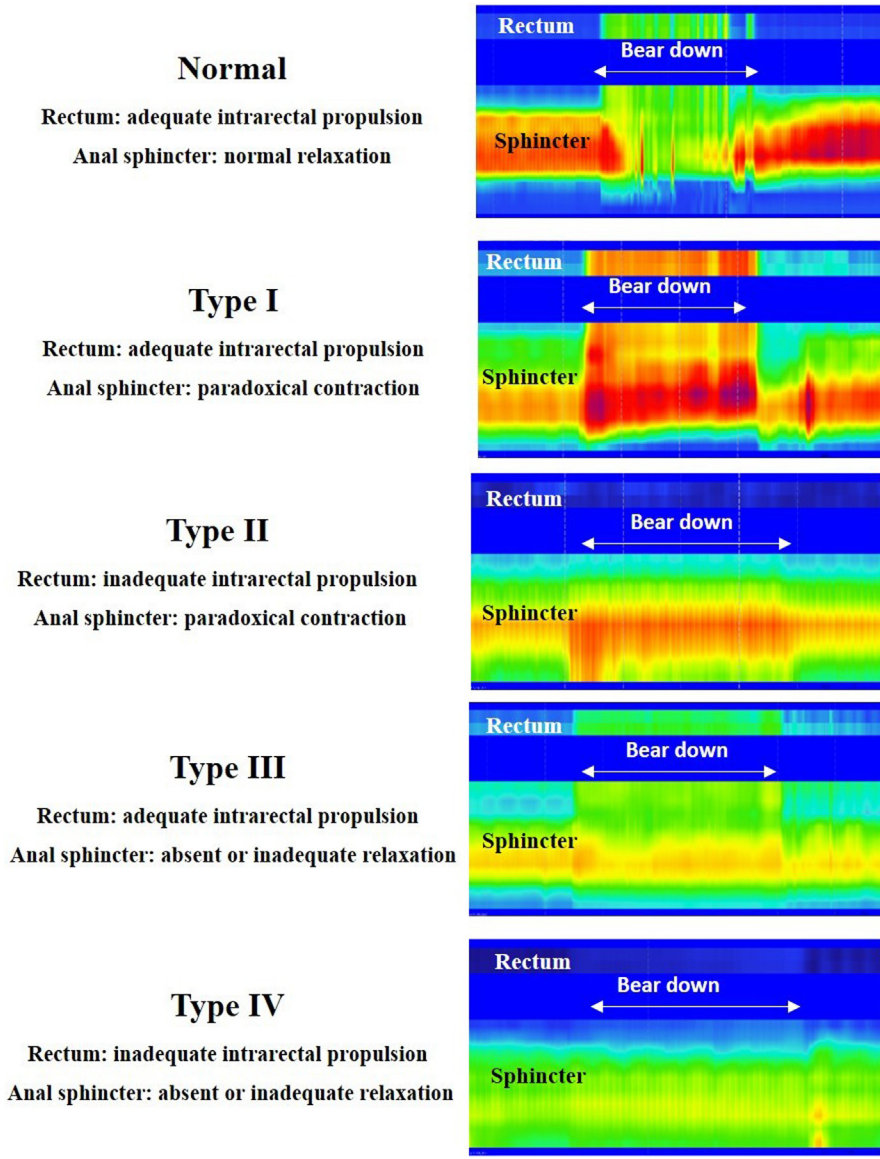

Fig. 3. Manometric subtypes of dyssynergic defecation.

potential for overdiagnosis of dyssynergic defecation when studies are only performed in the left lateral decubitus position.

ARM probes also have an attached balloon around the rectal sensors that can be inflated to assess rectal sensory function. Rectal sensation is evaluated in response to gradual intermittent balloon distension to identify initial, constant desire to defecate and maximum tolerable sensations. Rectal hyposensitivity has been associated with patients with spinal cord injury and fecal incontinence and is more common in patients with functional rather than structural defecatory disorders (ie, rectal prolapse, excessive perineal descent, or rectocele).[32] Severe rectal hyposensitivity may also be

associated with fecal seepage, especially in children and adolescents. Alternatively, rectal hypersensitivity is a hallmark of IBS-C.

Balloon Expulsion Test

BET is a simple, adjunctive test to ARM.[18] BET is most often performed when a balloon attached to a catheter is inserted into the rectum and filled with 50 mL warm water. The patient is then asked to sit on a commode and attempt to evacuate the balloon. A threshold of 1 minute is usually considered normal,[19] but there is considerable variation across clinical practice with some centers considering cutoffs of 2 or 3 minutes abnormal. When compared with ARM and defecography, BET has a high specificity and negative predictive value, but poor positive predictive value and a low sensitivity around 50% for dyssynergic defecation.[33]

Defecography

Defecography can be used to evaluate pelvic floor disorders including rectoceles, rectal prolapse, solitary rectal ulcer, descending perineum syndrome, and intussusception.[34] Barium defecography (evacuation proctography) involves instillation of radiopaque barium paste into the rectum. The anatomy and function of the pelvic floor is then fluoroscopically assessed as a patient attempts to defecate. Dynamic imaging is used to record the structural and functional changes of the anal canal and rectum. Magnetic resonance (MR) defecography also visualizes the anterior (bladder and urethra) and middle (vagina and uterus) pelvic structures in addition to the anorectum, which may allow for a more comprehensive evaluation of patients with multiorgan involvement or those who have previously undergone pelvic surgeries.[35] MR defecography has the advantage of using intrinsic soft tissue contrast, multiplanar imaging capability, and absence of ionizing radiation and is well tolerated by most patients.[36] A prospective comparative study, however, showed that barium proctography was more sensitive in detecting trapping rectoceles (75% versus 31%, $P<.001$) and intussusception (56% versus 35%, $P = .023$).[37] This observation was likely attributable to body position given that barium proctography is performed in the seated position, whereas MR defecography is performed in the semirecumbent position.

Biofeedback Therapy

Biofeedback therapy is the foundation of any treatment approach to dyssynergic defecation. An effective biofeedback therapy program should take into account patient symptoms, underlying pathophysiology, age, comorbid conditions, and patient expectations. Neuromuscular or biofeedback training is an instrument-based "operant-conditioning" technique that corrects the dyssynergia between abdominal, rectal, and anal muscles for coordinated evacuation and corrects impaired rectal sensation. Treatment efficacy ranges from 70% to 80% among randomized controlled trials (RCTs).[38] Biofeedback therapy is more effective than sham treatment, polyethylene glycol, or diazepam.[39,40] Long-term studies have shown that the efficacy of biofeedback therapy after completion of treatment is maintained for more than 2 years.[41,42] Home biofeedback therapy using handheld monitoring devices, which may increase access to care to patients with dyssynergic defecation, was recently found to be noninferior to office therapy with significantly lower median cost.[43]

The purpose of biofeedback therapy is to train patients to generate effective abdominal push efforts that are reflected on a visual monitor as increased intrarectal pressure synchronized with decreased anal sphincter pressure corresponding to relaxation to promote successful and complete defecation.[44] Three main phases of the biofeedback therapy for constipation, established as the Rao protocol, are shown

in Fig. 4.[45,46] The first phase involves patient evaluation and education. The therapist reviews the patient's stool diary, assesses the patient-reported symptoms using visual analog scales, and educates the patient on the purpose of anorectal function (ARM) testing, normal physiology of defecation, and pathology of dyssynergic defecation. The biofeedback therapy protocol and treatment goals are also reviewed, including instruction on diaphragmatic breathing exercises and timed toilet training. The second or active phase of biofeedback therapy involves both verbal feedback from the therapist and visual/auditory feedback from the visual monitor. While sitting on a commode with a manometry probe inserted into the rectum patients visualize the pressure changes of the rectum and anal canal with real-time feedback, as shown in Fig. 5.[44,47] The duration of training sessions lasts 30 to 60 minutes, approximately 1 to 2 weeks apart with a total of 4 to 6 sessions. The therapist should encourage the patient to practice training at home. In the third or reinforcement phase, follow-up biofeedback therapy sessions should occur at 6 weeks and 3, 6, and 12 months after completion of the active phase. Rectal sensory training can also be provided by intermittent, ramp rectal balloon inflation for patients with dyssynergia with impaired rectal sensation.[44]

Alternative treatment options for dyssynergic defecation include botulinum toxin injection, intrarectal diazepam, myectomy, or ileostomy. However, these treatments are associated with mixed results,[48,49] For example, injection of botulinum toxin into the anal sphincter may result in fecal incontinence.[50] In patients with other overlapping types of constipation, such as slow-transit constipation or IBS-C, appropriate pharmacologic treatments such as secretagogues or prokinetic serotonergic agents may be added.

Functional Anorectal Pain

Functional anorectal pain is subdivided into 3 diagnoses depending on the symptom duration and presence of anorectal tenderness. Patients with levator ani syndrome (LAS) experience ongoing anorectal pain with tenderness upon palpation of levator ani muscles. Patients with unspecified anorectal pain have persistent anorectal pain without tenderness of the levator ani muscles. With proctalgia fugax, patients endure brief episodes of pain lasting a few seconds to minutes with longer pain-free

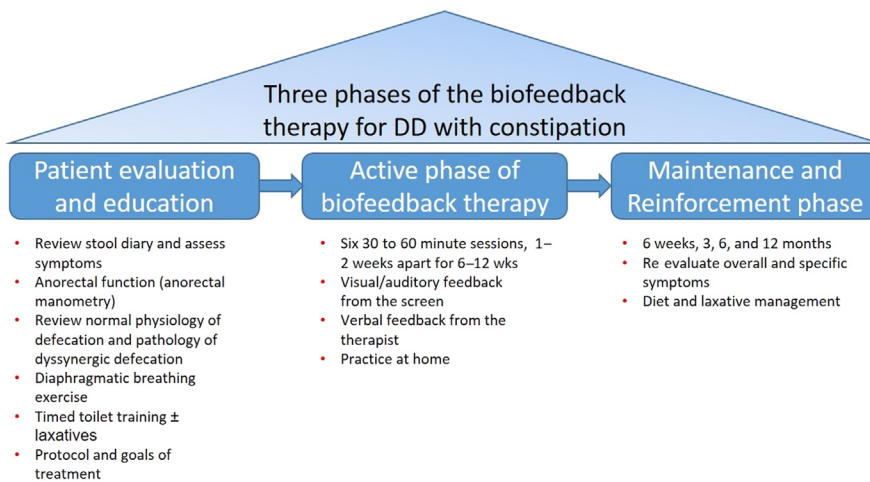

Fig. 4. Three phases of biofeedback therapy for dyssynergic defecation (DD).

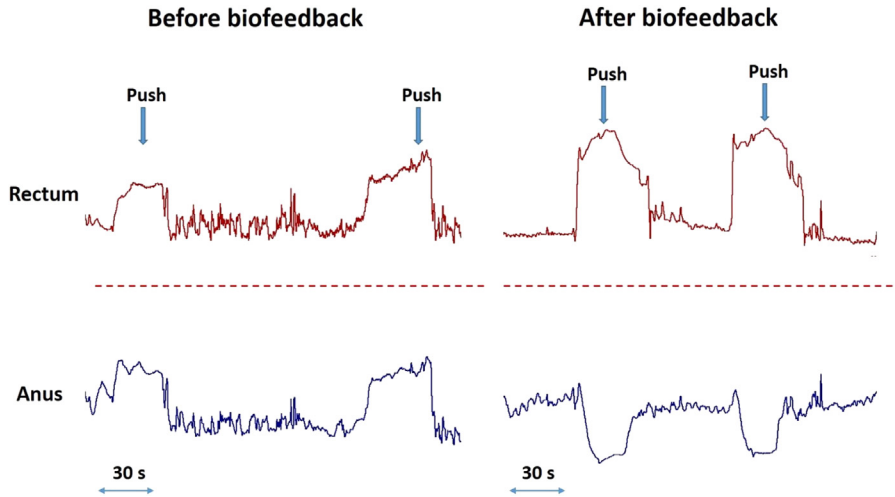

Fig. 5. Manometric changes observed during biofeedback therapy. This example of successful biofeedback therapy demonstrates a patient with type I dyssynergic defecation (*left*). After biofeedback therapy, the patient is able to maintain adequate rectal propulsion with relaxation of the anal sphincter (*right*).

intervals.[7,51] It is important to exclude structural or other organic causes of rectal pain. DRE and anoscopy allow examiners to rule out anal fissures, fistulas, and hemorrhoids. Flexible sigmoidoscopy can identify other causes including inflammatory bowel disease, intramuscular abscesses, and solitary rectal ulcers.

Levator Ani Syndrome

Chronic, recurrent rectal pain in patients with LAS usually lasts greater than 30 minutes.[7,51] On physical examination, tenderness occurs with traction on puborectalis muscle. In a US householder survey conducted to assess for functional GI disorders, 6.6% among 5430 participants were estimated to have LAS.[52]

Translumbosacral anorectal magnetic stimulation (TAMS), a novel noninvasive neurophysiological test, can be used to detect lumbosacral neuropathy that is present in patients with LAS. TAMS uses a magnetic coil placed on the skin in 4 regions over the lumbosacral plexi and single magnetic pulses measure the latencies of motor evoked potentials (MEP) of anal and rectal muscles. In a study of 251 patients with anorectal disorders, patients with LAS were found to have bilateral, prolonged lumboanal, sacroanal, and sacrorectal MEPs ($P<.02$), suggesting significant anorectal neuropathy.[53]

Comparative uncontrolled studies have shown that sitz baths, muscle relaxants, diathermy, tricyclic antidepressants, and sacral nerve stimulation may be helpful.[54] In a randomized controlled study comparing biofeedback therapy, electrogalvanic stimulation, and massage, biofeedback therapy was found to be superior with reduction of rectal pain lasting for 1 year after treatment.[55] Botulinum toxin injection has been ineffective in relieving anal pain.[56] Recently, a pilot open-label study demonstrated that translumbosacral neuromodulation therapy (TNT), a novel and noninvasive treatment similar to TAMS, but using repetitive magnetic stimulation (600–900 pulses each of 4 sites), significantly improved anorectal pain in patients with LAS.[57]

Proctalgia Fugax

Pain in proctalgia fugax locates to the rectum and is unrelated to defecation. Episodes of pain in patients with proctalgia fugax may last up to 30 minutes.[7,51] Proctalgia fugax is twice as common in females with a mean age of 51 years.[58] In two-thirds of cases, pain in proctalgia fugax is stabbing, cramping, or spasmlike.[59]

As episodes of pain in proctalgia fugax are brief and infrequent, no specific treatment recommendations are endorsed.[60] A conservative approach includes patient reassurance and warm sitz baths. If symptoms persist for greater than 3 months, topical treatments with glyceryl trinitrate (0.2%) or diltiazem (2%) may be considered. Salbutamol inhalation (200 μg), warm water enemas, clonidine (150 μg, twice a day), local anesthetic blocks, or botulinum toxin injection into the IAS have also been suggested.[61]

Rectocele

A rectocele is an outpouching of the rectal wall either anteriorly toward the vagina or posteriorly through the sacrum.[62] Small rectoceles (<2 cm) are common in healthy individuals.[62] Advanced age, vaginal deliveries, obesity, constipation, and previous pelvic surgeries, such as hemorrhoidectomy or episiotomy, are associated with rectoceles. Patients with rectoceles commonly present with symptoms similar to dyssynergic defecation. Approximately 9 of 10 patients with significant rectoceles have other associated defecatory conditions, such as intussusception, dyssynergic defecation, and abnormal perineal descent.[63]

Patients with rectoceles may experience constipation, fecal incontinence, or vaginal symptoms such as dyspareunia or anterior bulging, with "splinting" (digital manipulation of vaginal wall to allow passage of stool) used to reduce the latter anatomic variant. In such patients, a thorough physical examination includes a vaginal examination in addition to a DRE to assess rectocele length and width as well as to evaluate the perineal body.

HR-ARM and BET should be performed in patients with functional constipation and rectoceles who fail conservative management. If the results are equivocal, dynamic barium or MR defecography can quantify the size of the rectocele and identify other underlying anatomic abnormalities such as intussusception, solitary rectal ulcer syndrome, or descending perineum syndrome.

Initial treatment consists of conservative medical management, such as fiber, increased water consumption, and laxatives. Biofeedback therapy also provides relief in patients with both dyssynergic defecation and large rectoceles (greater than 2 cm).[64] Seventy percent of patients respond to medical management and biofeedback therapy.[65] Surgical repairs, most commonly posterior colporrhaphy or the STARR (stapled transanal rectal resection) procedure are considered for refractory, large rectoceles. Posterior colporrhaphy involves transvaginal repair of the rectovaginal septum. The addition of a biological or prosthetic graft to the repair has not been shown to afford further durability or significant benefits when compared with conventional surgery and is not recommended.[66] Several transanal surgical approaches have been tested aiming to resect redundant rectal mucosa resulting in obstructive defecatory symptoms.[66] The STARR procedure uses a stapler device for endorectal resection of the distal rectum in patients with obstructive defecatory symptoms attributable to rectocele or rectal intussusception. However, a high rate of symptom recurrence and decline in quality of life after the STARR procedure has been reported in long-term follow-up.[67]

Descending Perineum Syndrome

Descending perineum syndrome (DPS) is characterized by excessive perineal descent during straining with the perineum falling below the pubococcygeal line (a

line drawn from the coccyx to the pubic symphysis). Risk factors for DPS include female gender, age, multiple vaginal deliveries, and underlying rectocele. Repetitive straining can result in a weak pelvic floor and cause rectal ballooning into the anal canal. Symptoms include feelings of incomplete evacuation, straining or overt fecal incontinence.

Defecography is an essential test to diagnose DPS with MR defecography allowing better visualization of surrounding soft tissues of the pelvis. Counseling against excessive straining during defecation, medical management, and biofeedback therapy should be considered in cases of DPS to prevent further exacerbation. There is no consensus on the appropriate surgical treatment of DPS. In a small case series, 9 female patients underwent isolated retroanal levator plate myorrhaphy, which resulted in a mean reduction of perineal descent of 1.08 cm (extremes: 0–1.5). Further studies integrating defecography are needed to validate this surgical option.[68]

SUMMARY

Constipation is a common disorder with increasing prevalence and severity that impairs the quality of life for many patients. Laxative-refractory constipation is often due to underlying dyssynergic defecation. A diagnosis of dyssynergic defecation cannot be made by history alone. A thorough DRE is a key initial step in the evaluation of patients with constipation and anorectal symptoms. No single diagnostic test can define anorectal pathology, and therefore, HR-ARM, BET, and defecography should be considered in combination. Biofeedback therapy is the mainstay for treatment of dyssynergic defecation and may be considered in patients with rectoceles, slow-transit constipation, and IBS-C. Biofeedback therapy is safe, effective, and durable in the appropriate patient. Home biofeedback therapy should increase access to care for many patients. LAS can be a debilitating cause of anorectal pain, and lumbosacral neuropathy may be a key pathophysiological disturbance. TNT is an emerging treatment of LAS that targets lumbosacral neuropathy.

CLINICS CARE POINTS

- DRE should be performed in routine clinical practice for the evaluation of anorectal disorders. Digital palpation should be used to assess for tenderness, spasm, mass, or stricture and bear down to assess pelvic floor coordination, perineal descent, and rectal mucosal intussusception or prolapse.
- Dyssynergic defecation should be diagnosed by fulfilling criteria for functional constipation or IBS-C with the presence of at least 2 of 3 abnormal test results: BET, anorectal pressure profile by manometry or surface EMG, and/or defecography.
- Biofeedback therapy is the mainstay for treatment of dyssynergic defecation. Patient expectations, age, and comorbidities should be taken into account to ensure optimal participation, and referral to an experienced biofeedback therapist is essential to ensure successful treatment.
- Most patients with significant rectoceles have other associated conditions including intussusception, dyssynergic defecation, and abnormal perineal descent. Biofeedback therapy should be considered in patients with rectoceles before surgical referral.
- The presence, location, and duration of anorectal tenderness can be used to differentiate between the different causes of functional anorectal pain

AUTHOR CONTRIBUTIONS

A. Sharma was involved with the concept and design of the article; drafting of the article; critical revision of the article for important intellectual talent content, including figures and tables; and approved the final draft for submission. A. Herekar was involved with writing the article, developing figures and tables, and critical revision. Y. Yan was involved with writing the article and developing figures and tables. S.S.C. Rao was involved with critical revision of the article for important intellectual talent content, including figures and tables.

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DISCLOSURE

Dr. Sharma serves on advisory board of Takeda and Phathom Pharmaceuticals.

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