

Functional Anorectal Disorders

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This report defines criteria for diagnosing functional anorectal disorders (ie, fecal incontinence, anorectal pain, and disorders of defecation). *Functional fecal incontinence* is defined as the uncontrolled passage of fecal material recurring for ≥ 3 months in an individual with a developmental age of ≥ 4 years that is associated with: (1) abnormal functioning of normally innervated and structurally intact muscles, and/or (2) no or minor abnormalities of sphincter structure and/or innervation insufficient to explain fecal incontinence, and/or (3) normal or disordered bowel habits (ie, fecal retention or diarrhea), and/or (4) psychological causes. However, conditions wherein structural and/or neurogenic abnormalities explain the symptom, or are part of a generalized process (eg, diabetic neuropathy) are not included within functional fecal incontinence. Functional fecal incontinence is a common, but underrecognized symptom, which is equally prevalent in men and women, and can often cause considerable distress. The clinical features are useful for guiding diagnostic testing and therapy. Functional anorectal pain syndromes include proctalgia fugax (fleeting pain) and chronic proctalgia; chronic proctalgia may be subdivided into levator ani syndrome and unspecified anorectal pain, which are defined by arbitrary clinical criteria. Functional defecation disorders are characterized by 2 or more symptoms of constipation, with ≥ 2 of the following features during defecation: impaired evacuation, inappropriate contraction of the pelvic floor muscles, and inadequate propulsive forces. Functional disorders of defecation may be amenable to pelvic floor retraining by biofeedback therapy (such as dyssynergic defecation).

Consistent with the other disorders encompassed in this supplement, the anorectal disorders are defined by specific symptoms, and in one instance (functional disorders of defecation), also by abnormal diagnostic tests. Our concepts of the pathophysiology of anorectal disorders continue to evolve with an increasing array of sophisticated tools that can characterize anorectal structure and function.¹ These assessments may reveal disturbances of anorectal structure and/or function in patients who were hitherto considered to have an “idiopathic” or “functional” disorder. Likewise, the distinction between “organic” and “functional” anorectal disorders may be difficult to make in individual patients because (1) the causal relationship between structural abnormalities and

anorectal function or bowel symptoms may be unclear because such abnormalities (eg, small anal sphincter defects, rectoceles) are often observed in asymptomatic subjects. (2) Organic lesions are influenced by behavioral adaptations. For example, repeated straining to defecate may contribute to rectal prolapse or pudendal nerve injury. (3) Patients may have several structural or functional disturbances, each of which may contribute to but cannot solely explain symptoms. For example, diarrhea may lead to fecal incontinence in patients with previously asymptomatic sphincter weakness.

The functional anorectal disorders are defined primarily on the basis of symptoms (Table 1).² Because patients may not accurately recall bowel symptoms,³ reliability of symptom reports can be improved by prospectively obtained symptom diaries.

This report and the associated recommendations are based on a review of the world literature by investigators with longstanding interest in anorectal disorders. The diagnostic criteria include a minimum duration of symptoms so as to avoid the inclusion of self-limited conditions.

Table 1. Functional Gastrointestinal Disorders

F. Functional anorectal disorders
F1. Functional fecal incontinence
F2. Functional anorectal pain
F2a. Chronic proctalgia
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F3. Functional defecation disorders
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F1. Functional Fecal Incontinence

Fecal incontinence (FI) is defined as uncontrolled passage of fecal material recurring for ≥ 3 months. Leakage of flatus alone should not be characterized as FI, partly because it is difficult to define when passage of flatus is abnormal. FI should not be considered a medical problem earlier than age

Abbreviations used in this paper: EMG, electromyography; FI, fecal incontinence.

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4 years. FI can also be associated with organic disorders (eg, dementia, multiple sclerosis, Crohn's disease).

Epidemiology

FI is a common problem with a prevalence ranging from 2.2%–15% in the community, and up to 46% in nursing homes.⁴ Differences in prevalence rates among studies may be explained by variation in survey methods, definitions of FI, and age distribution of populations surveyed. In a recent community survey of adults aged 40 years and older in the UK, 1.4% reported major FI and 0.7% had major FI with bowel symptoms that had an impact on quality of life.⁵ Despite this impact, patients may not disclose the symptom to their physician unless they are asked about it, partly out of embarrassment. Age, gender, physical limitations, and general health are risk factors for FI in the community. Other identified risk factors include diarrhea and rectal urgency.⁶ Among the elderly, cognitive and mobility impairment, diarrhea, and fecal retention are significant risk factors for functional FI.^{7,8} The extent to which other risk factors (eg, obstetric or iatrogenic anal sphincter trauma) contribute to FI in the community is unclear.

F1. Diagnostic Criteria* for Functional Fecal Incontinence

1. Recurrent uncontrolled passage of fecal material in an individual with a developmental age of at least 4 years and 1 or more of the following:
 - a. Abnormal functioning of normally innervated and structurally intact muscles
 - b. Minor abnormalities of sphincter structure and/or innervation; and/or
 - c. Normal or disordered bowel habits (fecal retention or diarrhea); and/or
 - d. Psychological causes
- AND
2. Exclusion of all of the following:
 - a. Abnormal innervation caused by lesion(s) within the brain (eg, dementia), spinal cord or sacral nerve roots or mixed lesions (eg, multiple sclerosis), or as part of a generalized peripheral or autonomic neuropathy (eg, owing to diabetes)
 - b. Anal sphincter abnormalities associated with a multisystem disease (eg, scleroderma)
 - c. Structural or neurogenic abnormalities believed to be the major or primary cause of FI

*Criteria fulfilled for the last 3 months

Rationale for Changes in Diagnostic Criteria

The spectrum of “functional” FI is broader compared to the Rome II criteria because

1. The relationship of structural disturbances (eg, anal sphincter defects visualized by imaging) to FI is often unclear because even asymptomatic women may have small anal sphincter defects. Therefore, structural abnormalities are not necessarily inconsistent with the diagnosis of functional FI.
2. Limitations of testing hinder a precise assessment of certain dysfunctions (eg, pudendal neuropathy). Anal sphincter electromyography (EMG), the only accurate technique for assessing indirectly for a pudendal neuropathy, is not widely available. The revised criteria recognize that many patients with anal sphincter weakness may exhibit evidence of denervation/reinnervation changes. Such patients are included within the category of functional FI, provided they do not have a generalized disease process (eg, diabetes with peripheral neuropathy) that can cause a pudendal neuropathy
3. The demonstration of mild anal sphincter denervation/reinnervation changes does not prove causality of FI, especially in the presence of coexistent small sphincter defects.

Clinical Evaluation

Organic causes of FI (eg, diabetes with peripheral neuropathy, scleroderma, neurologic disorders) are generally identified by detailed clinical evaluation.

A comprehensive clinical assessment is useful to elucidate the etiology and pathophysiology of FI, evaluate severity of incontinence, establish rapport with the patient, and guide testing and treatment. The history should characterize the type and frequency of FI, bowel patterns, awareness of the desire to defecate prior to FI, and identify risk factors for anorectal injury. Staining, soiling, and seepage reflect the nature and severity of FI.⁵ Soiling indicates more leakage than staining of underwear; soiling can be specified further, namely, of underwear, outer clothing, or furnishings/bedding. *Seepage* refers to leakage of small amounts of stool. Symptoms also provide clues to the pathophysiology of FI. Incontinence for solid stool suggests more severe sphincter weakness than does liquid stool alone. Urge incontinence (ie, an exaggerated sensation of the desire to defecate before leakage) is associated with reduced squeeze pressures and squeeze duration,^{9,10} reduced rectal capacity, and increased perception of rectal balloon distention.¹¹ In contrast, passive incontinence (ie, incontinence without awareness of the desire to defecate) is associated with lower resting pressures.⁹ The severity of FI and its impact on quality of life can be summarized by specialized scales.¹²

The rectum should be examined before enemas or laxatives are given. In patients with FI, the rectal examination may disclose stool impaction in patients with fecal retention, gaping of the external anal sphincter in patients with neurologic or traumatic sphincter involvement, weak contraction of the external sphincter and puborectalis to voluntary command, and/or dyssynergia during simulated evacuation (discussed in the section on category F3 disorders).¹³

Diagnostic testing. Diagnostic testing is tailored to the patient's age, probable etiologic factors, symptom severity, impact on quality of life, and response to conservative medical management.

Endoscopic assessment of the rectosigmoid mucosa, with biopsies if necessary, should be considered in patients who have diarrhea or a recent change in bowel habit; a colonoscopy may be desirable in certain circumstances (eg, if the differential diagnosis includes colon cancer or age appropriate colon cancer screening).

Manometry assesses continence and defecatory mechanisms by determining the (1) resting anal pressure; (2) amplitude and duration of the squeeze response; (3) recto-anal inhibitory reflex; (4) threshold volume of rectal distention required to elicit the first sensation of distention, a sustained feeling of urgency to defecate, and the pain threshold or maximum tolerable volume; and (5) recto-anal pressure changes during attempted defecation (see below). The methods for conducting and analyzing anorectal manometry are detailed elsewhere.¹⁴

Anal endosonography identifies anal sphincter thinning and defects,¹⁵ which are often clinically unrecognized¹⁶ and may be amenable to surgical repair. Endosonography reliably identifies anatomic defects or thinning of the internal sphincter.¹⁷ Interpretation of external sphincter images is much more subjective, operator dependent, and confounded by normal anatomic variations of the external sphincter.¹⁸

Defecography records anorectal anatomy and pelvic floor motion at rest, and during coughing, squeezing, and straining to expel barium from the rectum. Methods for testing and interpretation are incompletely standardized,¹⁹ and some findings (eg, pelvic floor prolapse and rectoceles) are relatively common in asymptomatic older women. Defecography is useful only for selected patients with FI, namely, to identify or confirm rectal prolapse, excessive perineal descent, a significant rectocele, an enterocele, or internal rectal intussusception, particularly prior to surgery.

Pelvic magnetic resonance imaging (MRI) is the only imaging modality that can visualize both anal sphincter anatomy and global pelvic floor motion in real time without radiation exposure.¹¹ Endosonography is the first choice for anal sphincter imaging in FI, because it is widely available, reasonably accurate for identifying in-

ternal and external sphincter abnormalities, and less costly than MRI. Endoanal MRI may be useful for identifying external sphincter atrophy,¹¹ particularly prior to surgical repair of external sphincter defects.

Pudendal nerve terminal motor latencies are of questionable utility for identifying a pudendal neuropathy; an American Gastroenterological Association technical review recommended that pudendal nerve terminal motor latencies should not be used for evaluating patients with FI.¹⁹ Needle EMG can identify myogenic, neurogenic, or mixed (neurogenic and myogenic) injury affecting the external anal sphincter, and is recommended when there is a clinical suspicion of a proximal neurogenic lesion, that is, involving the sacral roots, conus, or cauda. Surface EMG is used as a biofeedback signal for pelvic floor retraining of the external anal sphincter in FI.²⁰

Physiologic Factors

Fecal continence is maintained by anatomic factors (the pelvic barrier, rectal curvatures, and transverse rectal folds), recto-anal sensation, rectal compliance and fecal consistency, and delivery to the rectum. Decreased anal resting pressure may be associated with structural or functional disturbances (defects and/or thinning) of the internal sphincter. External anal sphincter weakness may result from sphincter damage, neuropathy, myopathy, or reduced corticospinal input. In addition to the anal sphincters, puborectalis function may also be impaired in FI.²¹

The importance of rectal compliance and/or sensation for maintaining continence is emphasized by the finding that sphincter pressures alone do not always distinguish continent from incontinent subjects. Reduced rectal sensation allows stool to leak through the anal canal before the external sphincter contracts.^{22,23} Decreased rectal sensitivity and increased rectal compliance may also contribute to fecal retention by decreasing the frequency and intensity of the urge (and hence the motivation) to defecate. Increased rectal perception in some patients with FI may be a marker of coexistent irritable bowel syndrome, or may be associated with reduced rectal compliance^{23,24} or reduced rectal capacity.¹¹ Therefore, FI is a heterogeneous disorder in which patients often exhibit >1 deficit.

Treatment

Management of functional FI should be tailored to clinical manifestations. Restoring normal bowel habits by antidiarrheal agents (eg, loperamide) for diarrhea, and laxatives and/or suppositories for constipation, is often the cornerstone to effectively managing incontinence. Although uncontrolled studies report improved continence in ~70% of patients with FI after biofeedback therapy,²⁰ a controlled study reported similar symptom improvement (~50%) in incontinent patients random-

ized to standard medical/nursing care, that is, advice only, advice plus verbal instruction on sphincter exercises, hospital-based computer-assisted sphincter pressure biofeedback, or hospital biofeedback plus use of a home EMG biofeedback device.²⁵ Sacral nerve stimulation is an emerging option for FI; multicenter trials are in progress in the United States and will provide a clear view of the value of this technique.²⁶

F2. Functional Anorectal Pain

The 2 functional anorectal pain disorders (chronic proctalgia and proctalgia fugax) are distinguished on the basis of duration, frequency, and characteristic quality of pain. It is necessary to exclude other causes of anorectal pain such as ischemia, fissures, and inflammation. The prevalence of anorectal pain in a sample of US householders was 6.6% and was more common in women.²⁷

F2a. Chronic Proctalgia

Chronic proctalgia is also called *levator ani syndrome*, *levator spasm*, *puborectalis syndrome*, *pyriformis syndrome*, or *pelvic tension myalgia*. This is described as a vague, dull ache or pressure sensation high in the rectum, often worse with sitting than with standing or lying down.

Chronic proctalgia may be further characterized into levator ani syndrome or unspecified anorectal pain based on digital rectal examination.

F2a. Diagnostic Criteria* for Chronic Proctalgia

Must include *all* of the following:

1. Chronic or recurrent rectal pain or aching
2. Episodes last at least 20 minutes
3. Exclusion of other causes of rectal pain such as ischemia, inflammatory bowel disease, cryptitis, intramuscular abscess and fissure, hemorrhoids, prostatitis, and coccygodynia

**Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.*

F2a1. Levator Ani Syndrome

Diagnostic Criterion

Symptom criteria for chronic proctalgia and tenderness during posterior traction on the puborectalis.

F2a2. Unspecified Functional Anorectal Pain

Diagnostic Criterion

Symptom criteria for chronic proctalgia but no tenderness during posterior traction on the puborectalis.

Rationale for Changes in Diagnostic Classification System

In the previous classification, patients who had the above symptoms were characterized as “highly likely” or “possible” levator ani syndrome based on presence or absence of tenderness during posterior traction on the puborectalis, respectively. This distinction is emphasized by modifying the nomenclature in the current version. It is recognized that symptoms present for <3 months that are otherwise consistent with the diagnosis may warrant clinical diagnosis and treatment, but for research studies, symptoms should be present for ≥3 months.

Clinical Evaluation

The diagnosis is based on the presence of characteristic symptoms and physical examination. During puborectalis palpation, tenderness may be predominantly left sided, and massage of this muscle generally elicits the characteristic discomfort. Evaluation often is necessary to exclude alternative diseases.

Physiologic and Psychological Factors

Levator ani syndrome is hypothesized to result from overly contracted pelvic floor muscles. The etiology is unknown. The pathophysiology of unspecified functional anorectal pain is also poorly understood. Some reports suggest that these disorders are associated with psychological distress, tension, and anxiety.²⁸

Treatment

Uncontrolled studies have evaluated a variety of treatments including electrogalvanic stimulation, biofeedback training, muscle relaxants, digital massage of the levator ani muscles, and sitz baths. A recent double-blind, placebo-controlled study showed no efficacy of intrasphincteric injection of botulinum toxin A in levator ani syndrome.²⁹ Surgery should be avoided.

F2b. Proctalgia Fugax

Proctalgia fugax is sudden, severe pain in the anal area lasting several seconds or minutes, and then disappearing completely. Attacks are infrequent, occurring <5 times per year in 51% of patients.³⁰

Community prevalence estimates range from 8%–18%, and are similar in men and women.²⁷ Proctalgia fugax can be associated with disability, but only 17%–20% report the symptoms to their physicians. Symptoms rarely begin before puberty.

F2b. Diagnostic Criteria* for Proctalgia Fugax

Must include *all* of the following:

1. Recurrent episodes of pain localized to the anus or lower rectum
2. Episodes last from seconds to minutes
3. There is no anorectal pain between episodes

**For research purposes, criteria must be fulfilled for 3 months; however, clinical diagnosis and evaluation may be made before 3 months*

Symptoms present for <3 months that are otherwise consistent with the diagnosis may warrant diagnosis and treatment in clinical practice. However, for research studies, symptoms should be present for ≥ 3 months.

Clinical Evaluation

Diagnosis is based on the presence of characteristic symptoms as described and exclusion of anorectal and pelvic pathophysiology. Certain urogenital abnormalities and chronic benign prostatitis may be mistaken for proctalgia fugax.

Physiologic and Psychological Factors

The short duration and sporadic, infrequent nature of this disorder has made the identification of pathophysiologic mechanisms difficult. Several studies suggest that abnormal smooth muscle contractions may be responsible for the pain.^{31,32} A familial form of proctalgia fugax was associated with hypertrophy of the internal anal sphincter.^{33,34} Attacks of proctalgia fugax are often precipitated by stressful life events or anxiety.³⁵ Psychological testing suggests that many patients are perfectionistic, anxious, and/or hypochondriacal.³⁶

Treatment

For most patients, episodes of pain are so brief and infrequent that reassurance and explanation suffice. Patients who have frequent symptoms may require treatment. A randomized, controlled trial showed that inhalation of salbutamol (a β -adrenergic agonist) was more effective than placebo for shortening the duration of episodes of proctalgia for those uncommon patients in whom episodes lasted ≥ 20 minutes.³⁷ According to Rome criteria, these patients could overlap with chronic proctalgia. Others have recommended the α agonist clonidine,³⁸ amyl nitrite, or nitroglycerine, but with little or no evidence to support their efficacy.

F3. Functional Defecation Disorders

Functional constipation is commonly classified as slow colonic transit or outlet delay, although many pa-

tients have neither and some fulfill criteria for both. Functional defecation disorders are characterized by paradoxical contraction or inadequate relaxation of the pelvic floor muscles during attempted defecation (dyssynergic defecation) or inadequate propulsive forces during attempted defecation (inadequate defecatory propulsion). *Dyssynergic defecation* is preferred to *pelvic floor dyssynergia* because many patients with dyssynergic defecation do not report sexual or urinary symptoms.³⁹

F3. Diagnostic Criteria* for Functional Defecation Disorders

1. The patient must satisfy diagnostic criteria for functional constipation**
2. During repeated attempts to defecate must have *at least 2* of the following:
 - a. Evidence of impaired evacuation, based on balloon expulsion test or imaging
 - b. Inappropriate contraction of the pelvic floor muscles (ie, anal sphincter or puborectalis) or less than 20% relaxation of basal resting sphincter pressure by manometry, imaging, or EMG
 - c. Inadequate propulsive forces assessed by manometry or imaging

**Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis*

**Diagnostic criteria for functional constipation:

1. Must include *two or more* of the following: (a) Straining during at least 25% of defecations, (b) Lumpy or hard stools at least 25% of defecations, (c) Sensation of incomplete evacuation at least 25% of defecations, (d) Sensation of anorectal obstruction/blockage at least 25% of defecations, (e) Manual maneuvers to facilitate at least 25% of defecations (eg, digital evacuation, support of the pelvic floor), (f) Fewer than three defecations per week
2. Loose stools are rarely present without the use of laxatives
3. There are insufficient criteria for IBS

Epidemiology

The prevalence of functional defecation disorders in the general population is unknown. At tertiary referral centers, the prevalence of dyssynergic defecation among patients with chronic constipation has ranged widely, from 20%–81%.^{40–42} The prevalence of dyssynergia may have been overestimated owing to the high false-positive rates seen in some studies.^{43,44} This may be a result, in part, of anxiety in which patients are unable to relax in the artificial and public laboratory setting. In 1 tertiary care center, the prevalence of dyssynergia was 3

times higher in women than men, but was similar in younger and older individuals.³⁹

F3a. Diagnostic Criteria for Dyssynergic Defecation

Inappropriate contraction of the pelvic floor or less than 20% relaxation of basal resting sphincter pressure with adequate propulsive forces during attempted defecation

F3b. Diagnostic Criteria for Inadequate Defecatory Propulsion

Inadequate propulsive forces with or without inappropriate contraction or less than 20% relaxation of the anal sphincter during attempted defecation

Rationale for Changes in Diagnostic Criteria

Similar to the previous Working Team Report, the criteria for functional defecation disorders require symptoms of constipation and abnormal diagnostic tests because symptoms alone do not consistently distinguish patients with from patients without functional defecation disorders. Although retaining diagnostic criteria for dyssynergia, the revised criteria acknowledge recent studies that suggest that inadequate propulsive forces may also cause functional defecation disorders.^{45,46} Four patterns of anal and rectal pressure changes have been recognized during attempted defecation.⁴⁷ A *normal pattern* is characterized by increased intrarectal pressure associated with relaxation of the anal sphincter. The *type I pattern* is characterized by both adequate propulsive forces (intrarectal pressure ≥ 45 mm Hg) and increased anal pressure. The *type III pattern* is characterized by increased intrarectal pressure (≥ 45 mm Hg) with absent or insufficient ($< 20\%$) relaxation of basal anal sphincter pressure. Both types I and III are defined as dyssynergic defecation. The type II pattern is characterized by inadequate propulsion (intrarectal pressure < 45 mm Hg) and insufficient relaxation or contraction of the anal sphincter.

A previous study measured rectal evacuation of barium, and expulsion of a balloon, corroborating the concept that impaired evacuation may result from inadequate rectal propulsive forces.⁴⁵ A combination of pelvic floor descent and evacuation time on defecography correctly predicted maximum intrarectal pressure in 74% of cases, and no constipated patient with both prolonged

evacuation and reduced pelvic floor descent on defecography could expel the balloon, because maximum intrarectal pressure was reduced in this group. Thus, it appears that there are patients who demonstrate a prolonged evacuation time, decreased pelvic floor descent, and decreased intrarectal pressures, which may result in a functional disorder of defecation.

Clinical Evaluation, Investigations, and Diagnostic Utility of Tests

The section on Functional Bowel Disorders deals with laboratory testing for organic causes of constipation. This section focuses on the evaluation for functional disorders of defecation. In the absence of alarm symptoms or a family history of colon cancer, anorectal testing is not necessary until patients have failed conservative treatment (eg, increased dietary fiber and liquids; elimination of medications with constipating side effects whenever possible). Osmotic or stimulant laxatives should be tried in patients who fail to respond to conservative management. Tegaserod should be tried in patients who fail laxatives. Physiologic studies are indicated if the response to laxatives and tegaserod is inadequate.

The rectal balloon expulsion test, performed by measuring the time required to expel a rectal balloon filled with water or air, is a useful, sensitive, and specific test for evacuation disorders.^{46,48,49} The balloon expulsion test is a useful screening test, but does not define the mechanism of disordered defecation nor does a normal balloon expulsion study always exclude a functional defecation disorder.⁴⁷ Additional research is needed to standardize this test that does not always correlate with other tests of rectal emptying such as defecography and surface EMG recordings of the anal sphincters.

During manometry, measurement of intrarectal and anal pressures at rest and during attempted defecation is useful for identifying functional defecation disorders. However, even asymptomatic subjects can have features of dyssynergic defecation by manometry.

Defecography can detect structural abnormalities (rectocele, enterocele, rectal prolapse) and assess functional parameters (anorectal angle at rest and during straining, perineal descent, anal diameter, indentation of the puborectalis, amount of rectal and rectocele emptying).^{50,51} The diagnostic value of defecography has been questioned primarily because normal ranges for quantified measures are inadequately defined and because some parameters such as the anorectal angle cannot be measured reliably because of variations in rectal contour. Magnetic resonance defecography provides an alternative approach to image anorectal motion and rectal evacua-

tion in real time without radiation exposure.⁵² Whether magnetic resonance defecography will add a new dimension to the morphologic and functional assessment of these patients merits appraisal.

Colonic transit can provide useful physiologic information in constipated patients who fail to respond to conservative treatment. By itself, the test is not diagnostic of slow transit constipation because (1) slow-transit constipation exists independent of, or may be caused by, functional defecation disorders; and (2) these 2 mechanisms for constipation cannot be reliably distinguished on the basis of symptoms. Colonic transit can be assessed by radiopaque markers or scintigraphy.^{53,54} Left-sided or generalized colonic transit delays have been observed in patients with functional defecation disorders.⁵⁵⁻⁵⁷

Based on results of recent studies, abnormal manometry and a rectal balloon expulsion testing suffice to diagnose a functional defecation disorder. If only one test is abnormal, further testing (eg, defecography) may be required.

Physiologic and Psychological Factors

Functional defecation disorders are probably acquired behavioral disorders because at least two thirds of patients learn to relax the external anal sphincter and puborectalis muscles appropriately when provided with biofeedback training. It has been speculated that pain associated with repeated attempts to defecate large, hard stools may lead to inadvertent anal sphincter contraction, to minimize discomfort during defecation. However, rectal discomfort is not more common in pelvic floor dysfunction compared to normal or slow-transit constipation.⁵⁷ Anxiety and/or psychological stress may also contribute to dyssynergic defecation by increasing skeletal muscle tension. Uncontrolled studies have reported sexual abuse in 22% of women with functional defecation disorders, and 40% of women with functional lower gut disorders, including functional defecation disorders.^{39,58}

Treatment

Functional defecation disorders are managed by pelvic floor training using (1) biofeedback techniques in which patients receive feedback on striated muscle activity recorded by anal or perianal EMG or pressure sensors⁵⁹⁻⁶²; or (2) simulated defecation in which the patient practices evacuating an artificial stool surrogate, perhaps combined with diaphragmatic muscle training.⁶² Controlled and uncontrolled studies suggest an overall success rate of 67% to 80% after pelvic floor retraining for functional defecation disorders.^{62,63} Other studies suggest that biofeedback therapy is more effective

than sham biofeedback,^{64,65} although in one study, it was no more effective than was placebo when assessed by patient satisfaction.⁶⁴

Directions for Future Research

1. Multicenter studies of the normal physiology of defecation and fecal continence in large groups of subjects stratified by age, gender, and (in women) by parity.
2. Studies to define the role if any, of rectal contraction and sensation in functional defecation disorders, to clarify the overlap between colonic motor dysfunction and functional defecation disorders, and the pathophysiology, natural history, and treatment outcomes of dyssynergic defecation versus inadequate defecatory propulsion.
3. A randomized, sham-controlled, blinded study of biofeedback treatment for dyssynergic and inadequate defecatory propulsion.
4. Studies to clarify the clinical features, psychologic characteristics, quality of life, and natural history of anorectal pain syndromes, namely, proctalgia fugax and levator ani syndrome. A randomized, blinded study comparing the effectiveness of electrogalvanic stimulation, biofeedback, and muscle relaxant drugs for the treatment of levator ani syndrome should be performed.
5. Studies comparing sacral nerve stimulation to sham treatment in functional FI, to clarify the effects of sacral nerve stimulation on anorectal functions, to identify patients who will respond to stimulation.
6. Studies to assess the utility of biofeedback therapy in incontinent patients who do not respond to conservative approaches.

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