A Classification of Disorders of Defecation in Infants and Children

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Disorders of defecation may be defined as inadequate evacuation of stool and/or age-inappropriate soiling in children caused by abnormalities in the anatomy or physiology of the anorectum and its sphincters, or by psychological or developmental impediments to normal toileting skills.

During the 45 years since the publication of a surgical treatment for Hirschprung's Disease,1 much more attention has been given to differentiating aganglionic from functional megacolon2 than other, less common disorders of defecation that nevertheless present to pediatric gastroenterologists for diagnosis and management. What follows is a diagnostic schema that may be used to categorize any disorder of defecation, assist in their differential diagnosis, and foster further inquiry into their nature. The schema is predicated on: (1) an understanding of the anatomy and sensorimotor physiology of the apparatus of defecation and fecal continence,3,4 (2) an understanding of child development and the way infants and children think about their eliminative functions and products;5,6 and (3) the perceptual-motor developmental process by which children acquire toileting skills.7,8 The classification of disorders of defecation presented in the Table 1 is based on the presence or absence of two phenomena: (1) a mass of retained stool; (2) soiling, ie, the passage of stool into clothing.9

Soiling in the Absence of Fecal Retention

Soiling without fecal retention may be organic or functional.10 Organic causes of nonretentive soiling include diarrheal diseases, eg, giardiasis. The pelvic floor muscles fatigue within a minute of continuous contraction greater than resting tone,11 after which the sphincter may be breached involuntarily. Patients may be incontinent of stool and/or urine because of damaged corticospinal pathways or cauda equina.12-16 Patients who have had pull-through procedures for congenital imperforate anus may have fecal incontinence because of malformed or damaged levator muscles, misplacement of the rectum through the levators and/or absence of tactile sensitivity in the newly created anal canal.17 Children having such sensorimotor defects may at times have episodes of fecal retention. However, evacuation of their fecal mass does not completely restore normal continence, as is the case in functional fecal retention.

Functional Nonretentive Soiling

Three functional, nonretentive soiling syndromes have been described. The most common is nonretentive fecal soiling in which the child smudges or passes full bowel movements into underclothes during waking hours. The signs and symptoms of retentive fecal soiling are absent18 (See Table 2). The soiling seems to be more or less voluntary, but impulsive, ie, not easily controlled without extraordinary vigilance and promptness by the child to prevent soiling before it happens. The impulse to soil often seems to be triggered by unconscious anger. The soiling is usually one of many irritating behaviors (eg, sloppiness, procrastination, inconsideration of others) that typically occur in the course of a parent/child relationship characterized by passive-aggression. Management consists of (1) avoidance of laxatives;19,20 (2) helping the parent acknowledge the soiling as a symptom of emotional upset rather than willful obnoxious behavior;21,22 (3) establishing a procedure for disposal of soiled underwear that lessens it as a cause of parental rage;23 and (4) helping the parents overcome resistance to a mental health referral.24,25

Spock and Bergen26 described children with delayed acquisition of toileting skills because of parental ambivalence resulting in the parents' failure to make clear to their child the importance of age-appropriate toileting. The parents were excessively fearful of causing emotional trauma to the child during conflict over requirements for more mature.
functioning. This syndrome occasionally presents to the pediatric gastroenterologist as a problem of fecal soiling.

The third problem in the development of toileting skills is exemplified by the pre-school or early school-age child who uses the toilet appropriately for urination, is not incontinent of stool, but insists on the use of a diaper for defecation. On feeling the urge to stool, he privately asks his mother for a diaper, promptly puts on it (often in the bathroom next to the toilet), and then asks his mother to dispose of the soiled diaper and put his clothes back on. The cause of this pattern seems to be overanxiousness in the child who is therefore reluctant to try something new, and prefers the old way that is familiar and risk-free. Unlike the syndrome described by Spock and Bergen, these parents are unequivocal about the goals of toileting. In fact, their efforts at getting the child to stool in the toilet become coercive and in the process, intensify the child’s anxiety and reluctance to use the toilet. Management consists of taking the pressure off of the child, allowing him to use his special way of defecating, and lessening whatever other causes of unnecessary anxiety exists in their relationship with their child. As soon as the child’s anxiety subsides, he does what he has understood and wanted to do all along: stool in the toilet.

Table 2. Clinical Features of Functional Fecal Retention

| Passage of enormous stools at intervals of a week or more |
| Obstruction of the toilet by the stools |
| Symptoms accrued with increasing fecal accumulation of retentive posturing |
| Soiling |
| Irritability |
| Decreased appetite |
| Abdominal pain |
| Dramatic disappearance of symptoms immediately after passage of the enormous stool |

Organic Diseases Causing Fecal Retention With or Without Soiling

This category includes motility disorders of the colon, such as Hirschsprung’s disease, chronic colonic pseudo-obstruction, and the intestinal neuropathy associated with multiple endocrine neoplasia III (MEN III).21-23 A pelvic tumor (eg, presacral teratoma, rhabdomyosarcoma) may prevent elimination of stool and urine. The tumor mass may mimic the presence of a fecal mass on abdominal palpation and rectal examination.24 Colonic inertia, the causes of which may be idiopathic, pharmacological, or endocrinological,25 results in fecal masses that may be present in regions of the colon other than the rectum. Conditions in which there are defects in the function of the abdominal wall causing impairment of the Valsalva maneuver may also promote fecal retention.

Functional Disorders Causing Fecal Retention

Functional fecal retention syndrome26 is the most common disorder of defecation in children; it amounts to 25% of all children referred to a pediatric gastroenterologist. If defecation is consistently comfortable, the child does it with a sense of accomplishment and control. However, if defecation is painful or frightening, (Table 3) the child may respond to the defecatory urge by withholding the “dangerous” stool until it “goes away” and no longer “wants to come out.”27

Table 3. Causes of Functional Fecal Retention

| Painful defecation28 |
| Sexual abuse25 |
| Staphylococcal perianal disease26 |
| Frightening personal experience29 |
| Frightening television experience30 |
| Reflex seizure disorder31 |
These responses result from the age-appropriate anistic attitudes regarding stool. In time, an enlarging fecal mass accumulates in the rectum as evidenced by bypass soiling and other signs and symptoms of persistent stool withholding. Predisposing factors include stools which abrade, fissure, or stretch the anus excessively during defecation. Maceration of the perianal skin caused by constant seepage of liquid stool often contributes to perianal pain, which reinforces stool withholding. Such lesions may be mistaken for primary lesions of sexual abuse involving anal penetration. For reasons which are as yet unclear, children with chronic fecal retention who have been sexually abused are among those most refractory to management.

Most children experience intrusion by others into their anorectum as a noxious event. If their resistance is countered by forceful coercion, it may result in emotional trauma. This is readily acknowledged in cases of sexual abuse, but is not as widely appreciated with respect to therapeutic regimes requiring the child’s submission to months or years of enemas or anal dilatations as, for example, after surgical repair of an imperforate anus. Such children often develop phobic attitudes concerning anything going into or coming out of their anorectum. They are also among patients most refractory to management of chronic fecal retention.

Fecal retention with soiling of recent onset, often beginning with a passage of blood on the stools, is not always secondary to anal fissure. It may result from primary perianal dermatitis due to Group A, beta hemolytic Streptococcus. Inspection of the anus reveals inflamed perianal skin. This can be distinguished from perianal dermatitis secondary to chronic fecal soiling and that resulting primarily from sexual abuse by history, throat culture, and culture of the lesion. One must request that the perianal swab be cultured for Group A Streptococcus lest it be processed for enteric pathogens only. The diagnosis is confirmed by a prompt response to management involving oral penicillin, a few days of topical antibiotic ointment, washes with a liquid cleanser containing hexachlorophene or other antibacterial agent, and the use of oral mineral oil sufficient to soften the stool to a pasty consistency.

Some young infants may grunt, turn purple, and fuss for several minutes or longer, after which they pass a normal, soft stool. Parents understandably presume that their baby’s defecation is painful and worry about organic obstruction of some kind. However, this behavior may result from the baby not yet having learned to coordinate pelvic floor relaxation with the Valsalva maneuver. The behavior is dramatic, but harmless and self-limited. Helping the baby with suppositories or enemas deprives him of the opportunity to learn this motor skill and may cause functional stool withholding as a complication of treatment. Explanation, effective reassurance, and the offer of continuity of care and accessibility by the physician optimizes the resolution of this symptom.

Lastly, there is a form of infantile masturbation that presents as stereotypic episodes of posturing with tightening of the thighs, intermittent, quiet grunting, irregular breathing, facial flushing, and diaphoresis. This behavior may be confused with retentive posturing. Lesions of the anus or vulva may predispose to this form of self-stimulation, and a history dyschezia may sometimes be elicited. In any case, stool withholding is not the cause of this behavior, and rectal intervention may make the behavior worse.

References
10. Fleisher DR: Recurrent Abdominal Pain Syndrome—management of the more difficult cases. Semin Gastrointest Dis

Conditions Which May Mimic Disorders of Defecation

Fecal soiling due to inadequate wiping or the passage of “spotted wind” should not be mistaken for disordered defecation.