Diagnosis and Treatment of Disorders of Defecation in Children

By DAVID R. FLEISHER, M.D.

INTRODUCTION

Although 10 to 20 per cent of children referred for gastroenterologic consultation have disorders of defecation, comparatively little research has been accomplished in this area. This discussion is prompted by the need of pediatricians for usable con-

cepts in understanding and managing these disorders.

The cardinal features in considering the differential diagnosis are **soiling** and fecal **retention**. Both of these phenomena may be difficult to assess. The pediatrician must be wary of accepting any symptom descrip-

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tions at face value without historical or physical corroboration.

Objective evidence of soiling would be the deposition of feces in the underwear greater than one would expect in the passage of flatus or from insufficient wiping after bowel movements. One index of significant soiling is the presence of a persistent fecal odor. A child who soils at home but has never experienced ridicule by his peers or drawn attention from his teachers because of malodor probably does not soil at school.

Abdominal palpation is the most effective way of assessing retention. This is done with the patient supine, knees drawn up and abdominal muscles relaxed (Figure 1). Place the fingertips just lateral to the rectus muscles and gently press downward, attempting ballottement of a nontender, somewhat mobile mass extending upwards in the midline from deep in the pelvis anterior to the

sacrum. Some patients have a prominent L5 vertebra that might be mistaken for a midline mass. This mass will not be movable and will not extend down into the pelvis.

THE PHYSIOLOGY OF DEFECATION AND FECAL CONTINENCE

Effective management requires clear working concepts of the anatomy and physiology of the rectum, anal canal, internal and external anal sphincters, and pelvic floor musculature (Figure 2).¹

The Apparatus

Sensory aspects. The rectal mucosa is insensitive to tactile stimuli. Entrance of stool or gas distends the rectal lumen, causing an increase in the mechanical tension within its wall. This is felt as pelvic fullness.

The anoderm consists of stratified squamous epithelium densely innervated by receptors for touch, pain and temperature, pressure, and friction.

The urge to defecate has both visceral sensory and somatic sensory components. The **visceral sensory** component involves afferent nerves within the autonomic plexi that are excited by changes in mechanical tension within the rectal wall. Tension is heightened by passive stretching or active contraction of the smooth muscle of the gut wall.² When stretching is sudden or vigorous or when contractions are intense or "spastic," the sensations of abdominal or pelvic fullness can become intensely painful.

The **somatic sensory** component involves afferent fibers that transmit sensory impulses from the anoderm to the central nervous system via the pudendal nerves. They permit awareness of stool in the anal canal and allow a distinction between solid stool and flatus. Imminent defecation

Figure 1. Assessing the presence of fecal retention by abdominal palpation.

is perceived when stool comes into contact with the anal lining or when a foreign body is present in the anal canal.

Motor aspects. Fecal continence results from resistance to outflow created by two muscle groups: the smooth muscle of the internal anal sphincter and the striated muscles of the pelvic floor and external anal sphincter.

The internal anal sphincter is the thickened terminal portion of the rectal wall. Distention of the rectal wall causes reflex relaxation of the internal anal sphincter of about 25 seconds' duration. This rectosphincteric reflex is important for the apprecia-

tion of impending defecation; the arrival of additional feces into the rectum causes reflex relaxation of the internal anal sphincter, which then allows descent of stool into contact with the upper end of the anoderm and thereby prompts awareness of imminent defecation.

The external anal sphincter, levator ani, and other muscles of the pelvic floor are striated, somatically innervated, and subject to voluntary control via the motor fibers of the pudendal and fourth sacral nerves. The external anal sphincter and pelvic floor musculature function in unison. The levator ani muscles, particularly their puborectalis portions, provide

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Figure 2. Functional anatomy of the organs of defecation and fecal continence (diagrammatic representation).

the most important component of the mechanism of fecal continence. The colon leaves the pelvis through an elliptical opening in the pelvic floor at the level of the rectoanal junction. Under resting conditions, the postural tone of the levator ani keeps the canal shut by lateral compression.³ The zone at which compression is most pronounced corresponds to the rectoanal mucosal junction and the level of the puborectalis muscles.

Voluntary contraction of the pelvic floor pulls the rectoanal junction upward towards the pubis, pulling the anus inward, lengthening the anal canal, and pressing the sides of the anal canal into more firm apposition. The simultaneous contraction of the external anal sphincter adds to the closing of the anal canal. But its importance in preserving rectal continence is less than that of the puborectalis.

Although the pelvic floor and external anal sphincter muscles can be voluntarily contracted and relaxed, they are also activated reflexly with more or less conscious awareness. They reflexly contract above resting tonus levels during activities that cause increased intra-abdominal pressure — e.g., sneezing, lifting, or a Valsalva maneuver. (The only instances in which a Valsalva maneuver is accompanied by relaxation of the pelvic floor are during defecation, micturition, and parturition.)

Reflex contraction occurs when a noxious stimulus is applied to the perianal skin or with intrusion of a foreign body into the anus.⁴ In passing a proctoscope, resistance is usually encountered when the tip of the scope reaches the level of the puborectalis muscles. This is due to reflex pelvic floor contraction and can be overcome by asking the cooperative patient to bear down as though he were passing stool; this relaxes the

levator ani sufficiently to allow passage of the proctoscope into the rectum.

Vigorous contraction of the gluteal muscles causes simultaneous contraction of the pelvic floor.¹ This functional relationship between gluteal and perineal muscle groups pertains to the phenomenon of "retentive posturing." This is a characteristic symptom in patients who, as they experience an intense urge to defecate, struggle to preserve continence by intensely contracting their glutei.

Another aspect of perineal muscular activity important to the understanding and management of functional fecal retention (and perhaps some types of dystocia, dyspareunia, and proctalgiias) is the relationship between pelvic floor tonus and emotions. Anecdotal evidence of the reactivity of the pelvic floor to stress was provided during an interview with a parent who was a military pilot. He told of a phenomenon that was generally recognized by crew members as they flew out of the danger zone at the end of a combat mission. They would become aware of extraordinary muscular tension felt in their buttocks and would consciously relax these muscles.

Classic experiments⁵⁻⁷ have demonstrated the responsiveness of the gastrointestinal tract to emotional stimuli. In an analogous experiment,⁸ a sensor was placed on the perineum to monitor contraction and relaxation of the pelvic floor. The experimental subject was fully awake and could be engaged in conversation. The experiment revealed that (1) reproducible contractions of the pelvic floor occurred when the investigator's conversation aroused feelings of anxiety or surprise, and (2) the experimental subject was quite unaware of the fluctuations in pelvic

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Dr. Fleisher is Associate Clinical Professor of Pediatrics, Division of Gastroenterology, U.C.L.A. School of Medicine, and is on the attending staffs of U.C.L.A. Hospital, Cedars of Lebanon Hospital, and Children's Hospital of Los Angeles.

Figure 3. Diagrammatic representation of the sequence of events during defecation, fecal continence, and chronic fecal retention.

floor tone as they were occurring.

These findings suggest that a patient's emotional state is important to the way in which he will experience the urge to defecate and the manner in which he will respond to the urge.

Summary of the Sequence of Events During Defecation, Fecal Continence, and Chronic Fecal Retention

A schematic representation of these events is presented in Figure 3.^{1,3,9}

A. The rectum is empty. No sensation of fullness is appreciated. The internal anal sphincter is closed. The resting tonus of the levator ani holds the sides of the anal canal in apposition, keeping it closed.

B. Stool enters the rectum. If it distends the rectal wall, some degree of pelvic fullness will be appreciated.

C. Distention of the rectal wall causes transient reflex relaxation of

the internal sphincter. This allows stool to come into contact with the anoderm, stimulating the tactile receptors and causing conscious awareness of the imminent passage of stool.

D. In order to preserve continence, the levator ani is contracted. This shifts the feces cephalad.

E. If the stool remains in this higher position after the levator ani muscles are relaxed, it will no longer be in contact with the rectoanal junction and the tactile component of the defecatory urge will no longer be felt. Smooth-muscle accommodation lessens tension within the rectal wall and diminishes the sensation of pelvic fullness.

F. The act of defecation involves complete relaxation of the levators; this opens the anal canal to intrarectal contents and pressure. The accompanying Valsalva maneuver increases intrarectal pressure, propel-

ling stool down the short, wide anal canal.

G. An "automatic" contraction of the pelvic floor may occur when stool is passing through the canal and is no longer in contact with the anorectal junction. This propels the fecal bolus outwards.

H. If a patient responds to the fecal urge by repeatedly withholding ("C" to "D"), an increasingly large fecal mass will accumulate in the rectum. It becomes less easily passed and more difficult to shift away from contact with the anoderm. Rectosigmoid congestion becomes more uncomfortable. As the puborectalis muscles fatigue, anal closure becomes less competent and uncontrollable leakage of more liquid stool results in **retentive fecal soiling**. The patient resorts to **retentive posturing**, attempting to preserve continence by intensely contracting the gluteal and pelvic floor muscles.

Acquiring Control Over Elimination

In order to understand aberrant patterns of toileting, it is first necessary to appreciate the skills inherent in mature control and the process by which they are acquired.

A young infant has no difficulty passing stools because he makes no attempt to exercise control over this function.

By contrast, a five-year-old child is able to perceive the urge to defecate, suppress the impulse to pass stool immediately, disengage from play, find a bathroom, ensure his privacy, unfasten his clothes, climb upon the commode, initiate passage of stool, recognize when he is done, dismount, clean himself, refasten his clothes, unbolt the door, and emerge successfully to resume play.¹⁰ This ordinary, taken-for-granted behavior is the result of developmental skills that take years to master.

What is "toilet training"? It is not

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Toileting changes from
an act done to gain
parental approval to
something done for
self-approval and comfort

the teaching of a young child how to defecate. These skills can only be learned by oneself. The parents' role is to facilitate this learning.¹¹

Acquiring these skills begins, perhaps, at about a year of age, when the baby may begin to appreciate the negative value attributed to feces by observing the parents' facial expressions during diaper changes. Later, the parents begin acquainting the toddler with the potty chair and suggest that he pass his excreta into it. The child begins to be aware of the fecal urge and connects it with the potty chair and his parents' requests. He discovers his ability to exercise control over his pelvic floor. In time, he will let his parents know that he needs to defecate. This is apt to be after the fact. Nevertheless, it is an important step on the road towards autonomous control.

Such progress is only likely on a "good day" — i.e., when the emotional tone of life is pleasant and calm. It is not likely on days when mother is upset or when the baby is emotionally or physically uncomfortable.

With time, the child's ability to perceive the urge to defecate and his skill at temporarily withholding stool improve. He might rush to his mother saying he has to "go potty," this time with a few moments to spare so that he may be taken there in time. Gradually, his experience with his bottom and his parents leads to fewer accidents.

Eventually, he is able to incorporate the expectation that he will pass stool only into the commode as one of his own demands upon himself. Toileting changes from an act done to gain parental approval to something done for self-approval and comfort. He thus acquires autonomy, and toileting becomes a private, hardly-thought-about activity.

DISORDERS OF DEFECACTION IN CHILDHOOD

Fecal Soiling Without Fecal Retention

Organic. Diarrheal conditions, such as ulcerative colitis, predispose to accidental fecal soiling. The pelvic floor and external anal sphincter will be contracted maximally by someone attempting to preserve continence during intense fecal urgency. Accidents often occur because these muscles fatigue with a minute of continuous voluntary contraction above their level of resting tonus.^{1,3}

Patients with diseases of the cerebral cortex or spinal cord pathways mediating cerebral inhibition of autonomic motor neurons to the colon will experience fecal urgency¹ and may accidentally soil.

Defects in the motor or sensory components of the internal anal sphincter, pelvic floor muscles, or anus may result in soiling. For example, patients who have had abdominoperineal pull-through procedures for high imperforate anus⁹ or Hirschsprung's disease may, for several reasons, have difficulty preserving continence. The colon may not have been brought through the puborectalis sling, and the continence-preserving action of this muscle will have been lost because of the abnormal anatomic relationship. The puborectalis muscle or its motor nerves may have been damaged. A sensory defect is created when colonic epithelium extends all the way through the neo-anus (in which case, the anus appears more like a stoma). The neo-anus will lack tactile sensibility. Impending passage of feces may not be appreciated until it contacts the outside skin, too late for puborectalis contraction to shift it upward to preserve continence.

Other organic factors to be considered include impaired continence due to loss of reservoir capacity fol-

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of emotional upset**

lowing extensive resection of the colorectum, diarrhea due to partial colonic obstruction resulting from stenosis of the anastomosis, and acquired colitis following preoperative obstruction or ischemic damage secondary to surgical manipulation of the remaining colon.¹²

Functional. Functional, nonretentive fecal soiling occurs in children who have no diarrheal disorder, no massive accumulation of stool, and normal sensorimotor function of the anorectum and pelvic floor. Nevertheless, they defecate in their clothes or in some other inappropriate manner.

Anthony¹⁰ has differentiated "undercontrolled" and "overcontrolled" subgroups.

The "undercontrolled" child has never acquired socially appropriate control and has grown from infancy to later childhood still soiling. This type of soiler is perhaps better referred to as "poorly socialized." He is typically a messy child living in a messy, disorganized family characterized by loose parental control. Both the child and his parents may display casual attitudes concerning fecal soilage. The child has little capacity for feeling disgust or shame. The causes of the soiling behavior lie less in the area of psychologic conflict than in the area of social pathology of the child-rearing environment. Parents are not apt to seek help for the soiling unless circumstances compel them to do so.

Management, when practicable, should include social-work efforts at helping parents place more consistent limits and demands on the child to help him master the skills necessary for appropriate control over his elimination.

The "overcontrolled" patient is a clean child of a family in which cleanliness is highly valued and habit

training has been scrupulous. The child may seem to have a casual attitude regarding his soilage, but he has an exaggerated capacity to feel disgust or shame. His parents are intolerant of his soiling and avidly seek medical help.

Fecal soiling in the "overcontrolled" group of nonretentive soilers is symptomatic of significant emotional upset. Management should be aimed at evaluation and treatment of the psychological difficulties. Such disturbances may be mild or severe. Some relatively healthy children require long courses of psychotherapy for the symptom to remit. Neither the existence of the soiling nor the duration of psychotherapy necessary to alleviate it is an index of the severity of the underlying psychopathology.

Chronic Fecal Retention With or Without Fecal Soiling

Organic

1. Hirschsprung's disease.¹³⁻¹⁵ The typical older child with massive fecal retention due to aganglionosis of the rectum presents with a history of delayed passage of meconium in the newborn nursery. If the patient survives infancy without intractable diarrhea and growth lag and is fortunate enough to avoid the development of enterocolitis, he will go on through childhood suffering abdominal bloating and cramps. He may never experience the normal urge to defecate because stool will seldom be in contact with the anoderm. There will be no retentive posturing. The patient will not be able to pass enormous stools spontaneously. There will be no "overflow" soiling, although mineral oil in large amounts may leak from the rectum. Milk of magnesia or other agents that cause water to remain in the colon lumen will promote further gut distention

and third-spacing without the benefit of aiding evacuation.¹⁶

Barium enema will typically demonstrate a transition zone at the junction of the widened proximal colon and narrow aganglionic segment. Diagnosis is aided by several other radiologic signs,¹⁷ as well as suction biopsy of the rectal mucosa,¹⁸ full-thickness biopsy of the rectal wall, and rectosphincteric reflexography.^{19,20}

2. The intestinal pseudo-obstruction syndrome.²¹ This is a recently described rare disorder in which there is progressively severe motility failure of the bowel. The illness presents during childhood with abdominal bloating and failure to pass stools for long intervals. No characteristic abnormality of the myenteric plexus, smooth-muscle layers, or intestinal vasculature has been identified. Definitive treatment is not available.

3. Endocrine, metabolic, and pharmacologic causes of chronic fecal retention. Chronic constipation occurs in hypothyroid and in hypercalcemic patients. Other features of these disorders are usually apparent; constipation, per se, is a secondary diagnostic and therapeutic consideration.

Patients are often unaware of the constipating effects of codeine-containing analgesics. The long-term use of phenothiazines or benztropine mesylate (Cogentin®) contributes to slower colonic activity. Lead poisoning can also retard colonic emptying.

4. Diseases of intestinal smooth muscle; skeletal muscle defects of the abdominal wall. Scleroderma affects the small and large bowel. Chronic fecal retention and a pseudo-obstruction-like picture may supervene. Other features of the disease usually become obvious before symptoms of fecal retention occur.

Patients with neurologic or myo-

pathic weakness of the diaphragm and abdominal musculature may retain stool because of their inability to effect a vigorous Valsalva maneuver.

5. Anal or rectal stenosis. Acquired strictures or narrowing of the rectum or anus is another cause of fecal retention. Stricture may be a late complication of imperforate anus repair. A frozen pelvis secondary to neoplasm or pelvic abscess can also obstruct colonic outflow. The ureters may also be obstructed, and the possibility of a silent obstructive uropathy should be considered.

Congenital anal stenosis is extremely rare, if one excludes children with ectopic anus and imperforate anus with rectoperineal fistula from this category. Digital rectal examination may demonstrate narrowness of the anal canal in normal infants. However, the degree of narrowness is determined by the vigor with which the patient contracts his levator ani muscles during the examination. The diagnosis of congenital anal stenosis is untenable in patients who pass stools of normal caliber. Courses of anal dilatation in infants who seem to have dyschezia will usually do more harm than good and should not be prescribed in the absence of an unequivocal congenital anomaly.

Functional. Children with the syndrome of functional fecal retention feel alarm when they perceive the fecal urge. They tighten their pelvic floor intensely to retain stool until the urge goes away. Their facility of defecation has been lost or perhaps never fully mastered.

Clinical description: Symptoms leading to chronic functional fecal retention may begin in early infancy. Parents become concerned because their baby seems to have to strain in order to pass bowel movements.

Symptoms leading to chronic functional fecal retention may begin in early infancy

They fear obstruction or other damage. Suppositories, an enema, or other rectal intervention may be used to induce a bowel movement. The next time the infant seems uncomfortable, it is more readily attributed to intestinal malfunction, and rectal intervention is repeated. With successive episodes, the baby is perceived as needing special help in order to pass stool, and the manipulations become routine. It is particularly unfortunate if this occurs during the period in which the child needs to be allowed to learn control of his eliminative functions for himself. His motivation for learning self-control gives way to a feeling of being assaulted as his parents take over the responsibility for regulating his bowels. The child responds to the urge to defecate by immediately tightening

his muscles. As retained feces accumulate, enemas, suppositories, and stimulant laxatives lose their effectiveness.

Eventually, the clinical picture becomes apparent. Large fecal masses are palpable abdominally. After a week or two of retention, the patient develops frequent abdominal pain, is reluctant to eat, becomes irritable, and avoids play. As the urge to defecate becomes more frequent, overflow soiling and retentive posturing recur more often. Several days of increasing discomfort culminate in the very distressful passage of a gigantic stool. After passing the stool, the child is dramatically relieved of discomfort. His mood, playfulness, and appetite immediately return to normal. Retentive posturing and overflow soiling temporarily stop.

The child is likely to have experienced the crisis of passing an enormous stool as if it were a nightmare. The process of reaccumulation repeats itself. Many children with chronic fecal retention experience a cyclic pattern of symptoms. Each cycle takes one to several weeks and culminates in the passage of another enormous stool.

In time, the child becomes overwhelmed by his loss of control. He attempts to deny the existence of the problem. He "couldn't care less" and seems unaware of when he soils. He may hide the soiled underwear quite clumsily in inappropriate places. The child's soiling, refusal to use the toilet, and apparent lack of interest cause great vexation in the family. Of all the accidents that might trouble a child, fecal soiling is the one that evokes the most intense deprecation from peers and parents and is the most damaging to self-esteem.

Table 1 lists the diagnostic features of the functional fecal retention syndrome.

Pathogenetic factors: This condition

continued

TABLE 1

CLINICAL FEATURES OF THE FUNCTIONAL FECAL RETENTION SYNDROME IN CHILDREN

1. Passage of enormous stools at intervals of one or more weeks
2. Obstruction of the commode by such stools
3. Symptoms of increasing fecal accumulation:
 - a. Retentive posturing
 - b. Uncontrollable "overflow" soiling
 - c. Irritability and decreased playfulness
 - d. Abdominal pains
 - e. Anorexia
4. Dramatic disappearance of the symptoms of increased accumulation after evacuation of an enormous stool
5. Behavior indicative of patients' irrational efforts at coping with soiling:
 - a. Apparent nonchalant attitude regarding soiling
 - b. Lack of awareness of soilage
 - c. Hiding of soiled underclothes

almost never results from a single cause. It develops as a result of the coincidence of several causes and predisposing factors. They may include (1) the child's constitutional stool pattern, (2) the infant's temperament, (3) painful lesions in the anal region, (4) the child's developmental stage, (5) the parents' fears and concepts concerning their child's symptoms, (6) the "empathy gap," and (7) the quality of the parent-child relationship. The condition is best managed when each patient's problem is assessed in terms of these potential contributing factors.

Individuals and families tend towards their own characteristic stool patterns. Some infants and children pass stools at "regular" intervals, others sporadically. Some tend to pass soft stools, others firm. Some pass stool several times a day, others several times a month. Those who normally pass infrequent, firm stools are apt to have more discomfort.

Infants' temperaments vary widely.^{23,24} Intense babies perceive stimuli more acutely and respond more vigorously than easy babies. The more intense babies tend to be fussy, and such fussiness may be inaccurately interpreted as difficulty with bowel movements. The distress is wearing on the parents, who try to comfort the infant by some form of rectal intervention. Any subsequent quieting is taken to mean that the baby needed such intervention. It is more readily resorted to the next time the baby seems fussy for no other apparent reason. Such a vicious cycle is sometimes a major factor in the establishment and perpetuation of functional dyschezia in infants and toddlers.

Some children with functional disorders of elimination (probably a minority) have neurodevelopmental dysfunction.²⁴ The use of analeptic

medication should be considered after neurologic and psychologic evaluation. Any improvement achieved as a result of lessened hyperactivity, distractibility, and learning and behavior problems will improve the child's emotional state in general and his ability to overcome his disorder of elimination in particular.

Lesions such as superficial anal fissures or perianal dermatitis will cause pain on defecation and promote withholding of stool. Although this alone seldom results in chronic functional fecal retention, it is the most important single factor in some cases.

A key factor to consider in the pathogenesis of the functional fecal retention syndrome is the child's developmental stage. A two- or three-year-old child's ability to use intellectual thought processes is very limited. Anthony¹⁰ extends Piaget's observations on young children's animistic view of the world to their attitudes towards their own feces and control of defecation. This view changes during early school years to the notion that feces inside the body are alive but feces outside the body are not or that feces that "control themselves" are alive whereas feces controlled by the child are not. It is not until children are 10 or 11 years old that they begin to develop a more biologically accurate concept of the nature of feces. A young child who is generally anxious because of intra-family stress or has anxiety associated with toileting because of his parents' overbearing style of toilet training may have great difficulty passing feces on or off the toilet. Typical descriptions are of a tense child who willingly sits on the commode, makes intense Valsalva maneuvers, but, at the same time, holds his buttocks tightly together with his legs

Some families tend
to interpret symptoms
as resulting from
intestinal contamination

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Perhaps the most important factor is the parent-child relationship

extended; or a child who has begun to pass stool with considerable effort may, just as he begins to have some success, panic and revert to a frantic effort at retaining it. One need not be a psychologist to appreciate the child's fears of "the hidden, inner world which is threatened or threatening." And as Anthony points out, the more disturbed the child, the more frightening these immature concepts will be.

The child's developmental level will similarly affect his response to physical discomfort in the perineal region. The pain of a superficial fissure might cause little more than annoying discomfort to an older child. But its effects on a three-year-old may be much more upsetting.

Cultural and experiential influences affect the focus a family may have on bowel functioning. Some families tend to interpret such symptoms as fever, headache, and abdominal pain as resulting from intestinal contamination. The laxative is the first home remedy applied for minor illnesses. These families tend to be excessively involved with their child's bowel function.

The "empathy gap" refers to one of the most common difficulties pediatricians and parents have in trying to help a child with a functional disorder of defecation. Perceptual-motor skills, once mastered, seem "simple" and "automatic." Parents and older siblings learned to control their own elimination during a time they cannot consciously remember. The soiling, refusal to use the toilet, noncompliance with the parents' reasonable requests, and apparent carelessness are likely to cause great anger in the parents unless they are helped to understand how the child must feel to be out of control.

Perhaps the most important factor in the pathogenesis of the functional

fecal retention syndrome is the quality of the parent-child relationship. A child learns control by a process that is essentially cooperative. It is neither overly demanding nor unduly lax and inconsistent.

Call et al.²⁵ found three characteristic difficulties in the parent-child relationships of children with fecal retention. The first was the lack of a sense of comfort and security that allows the child to communicate with his parents and the parent to sense the communication, understanding it, and respond in a helpful way. Such circumstances as marital conflict, financial straits, frequent moving, and parental grief over loss of a grandparent interfere with the parent's ability to be patient and helpful to the child. It has often been stated that the pediatric patient is not the child but, rather, the child-and-

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**Parents must be able
to appreciate the child's
toilet training as
a developmental process**

parents. One cannot do well unless the other does well, too.

A second type of disturbance in the parent-child relationship that contributes to fecal withholding has to do with the parent who is excessively preoccupied with the child's anal and bowel functions. Parents acquire such distorted attitudes about bowel function during their own upbringing. The pediatrician should restrain his impulse to criticize or radically change these deeply felt attitudes because the parent may become quite defensive. Instead, the pediatrician should elicit the reasons given by the parent for excessive concern and involvement. A nonjudgmental, reflective discussion of the realistic need for the parent's concern is likely to be less threatening and more productive.

The third characteristic difficulty is psychologically traumatic experiences with toileting. Parents usually try the gamut of manipulations aimed at inducing their child to function acceptably. These range from patient, loving indulgence to severe punishments. Parents' rageful tirades and use of force, enemas, or other rectal intervention are always stressful. The more anxious and the younger the child, the more likely these experiences will be traumatic and contribute to his inability to manage his own process of elimination.

Management of the functional fecal retention syndrome: Neither the pediatrician, the parents, nor any medicine, diet, or toileting ritual can "cure" the child's functional fecal retention. He cures himself as he becomes able to grapple with the emotional and physical distress associated with defecation.

No two children are alike. Each child proceeds at his or her own pace. Progress is often irregular and

marked by periods of improvement, worsening, stasis, and crisis.

The role of the pediatrician is threefold: (1) he helps remove the factors that contribute to the child's loss of control; (2) he guides efforts aimed at helping the child evacuate large accumulations of stool; and (3) he remains accessible to the child and his family to review progress, evaluate problems as they arise, and provide encouragement until the disorder has been overcome.

Several aspects of management are applicable to most cases:

1. *Parents need some understanding of the physiology of defecation, fecal continence, and the process of overflow soilage.* The cyclic pattern of symptoms needs to be explained in terms of the anatomy and sensorimotor physiology of the rectum, anus, and pelvic floor. It is useful to use a diagram while explaining the pattern in language the family understands. Parents need to understand how the fear of anal pain or anxiety will affect the activity of the pelvic floor.

2. *Parents need to be able to appreciate their child's toilet training as a developmental process rather than merely as an externally applied training procedure.* Since adults cannot remember their own struggles toward mastering control, it is helpful to point out that what is "simple" for themselves may be quite difficult for their youngster. Learning control requires repeated attempts made at opportune times. It should not be rushed.

3. *Another empathetic gap needs bridging.* Parents almost invariably become angry when their child refuses to pass stool while he is uncomfortable because of his retention. Parents become frustrated and angry when their child repeatedly soils and hides soiled underwear in inappropriate places. Moreover, he does this

continued

**Most rectal bleeding
results from superficial
fissures that develop
during the passage
of enormous stools**

while appearing entirely casual or disinterested.

Parents can be helped to react with less anger if they see the symptoms as indications of their child's underlying desperation and loss of control. Lecturing a child with fecal retention on the "reasonableness" of his passing stool will not alleviate his panic any more than using intellectual persuasion will help a phobic person behave rationally with any degree of comfort. Once such empathy is achieved, parents become less anger-prone, less guilty of angry excesses, and better able to facilitate their child's progress.

Parents need to appreciate how overwhelming it is for a child to experience rectal intervention. Most parents who have tried to administer enemas are quite troubled by their child's recalcitrance and disturbed by the force necessary to administer them. But it is also acutely distressing for a parent to watch his child's discomfort knowing that emptying the rectum will offer immediate relief. Parents must be helped to understand that rectal intervention will, in the long run, make the child's assuming control of the problem more remote.

4. Parents need to know that, although retention of stool for days or weeks may cause marked discomfort, there is little danger of its causing serious damage to the child's body. Organic complications of chronic fecal retention are relatively uncommon. Obstructive uropathy and urinary tract infections are potentially serious complications of chronic fecal retention from any cause,²⁶⁻²⁸ but they are uncommon. The best protection against serious urinary tract damage is for the child to have a pediatrician who provides continuity of care, is alert to the possibility, and will perform appropriate diagnostic

urinary tract studies during the course of management of the disorder of defecation.

Stercoral* ulceration causing significant rectal hemorrhage is another potential complication. It has occurred only once during my 10 years of pediatric gastroenterologic practice. Most rectal bleeding results from superficial fissures that develop during the passage of enormous stools. Although such bleeding may be frightening to the child and his parents, one can honestly reassure them that it almost never results in significant blood loss.

Many common fears have little or no scientific or clinical basis. They should be elicited from the parents so that they may be assuaged.

The colon of a child with functional fecal retention will not rupture if it accumulates too much stool.

A systemic toxic state will not result from "backup" of waste substances. Retention does not directly cause headache.

Although episodic abdominal cramping may become severe, even to the point of vomiting, colonic obstruction of a surgical nature will not occur, no matter how much stool has accumulated, provided there is no aganglionosis or acquired stenosis.

A dilated rectosigmoid does not prevent effective defecation. The main impediment to the passage of stool is the retentive action of the pelvic floor, not failure of the propulsive motility of the rectal wall.

Parents may fear that the temporary anorexia that occurs during the days preceeding massive evacuation will damage their child's nutritional status. This is not true.

5. *Parents need guidelines for re-*

* Stercoral: Having the nature of, consisting of, or containing feces.

sponding to their child's symptomatic behavior.

Parents may unwittingly react as though soiling were a vice rather than a symptom. Passing bowel movements and staying clean are thought of as a virtue. The child's eliminative functions take on a false purpose — namely, a means of pleasing or displeasing the parents rather than merely something one does by oneself in order to be comfortable.

Parents ask if they should "try to ignore" their child's symptoms. How should they react when he comes to the dinner table having an offensive odor? Trying to ignore this is artificial and cannot be maintained for long. The child senses his parents' strained tolerance and wonders when tempers will finally give way to a torrent of anger. A more reasonable response would be to inform the child that he has an unacceptable odor. He should clean himself and return to the table because the family would enjoy his presence. This response identifies the soiling as "bad," not the child. It reaffirms the importance and dignity of the child even though he has very unpleasant and unacceptable symptoms.

What if the child needs help in cleaning himself? Some children are rather "helpless" at this task. A kind of angry ritual may become established between an irritated parent and a passively provocative child. Even though the child's ineptitude may irritate the parent, it nevertheless persists because it serves as a means of communication in a strained parent-child relationship.

Parents should feel that cleaning and avoidance of soilage are the child's private responsibility.

If the child refuses to clean himself and stays away from dinner, it is regrettable but not punishable. If he tries to clean himself but has real

difficulties doing an effective job, he can call on his parents for help. This help should be offered willingly but sparingly. It should not "take over" the job, pushing the child's responsibility and control aside.

How should parents respond when their child complains of abdominal pain and looks dreadfully uncomfortable? It is important for parents to remember that although discomfort is real and may be acute, it is not dangerous. It is appropriate for them to be fully sympathetic with the child and, at the same time, reaffirm their belief that the child will feel better after he has passed stool. It may be acutely uncomfortable for him to do so, but it is safe to try as hard as he can. Again, the parents' confidence must be genuine, not affected, in order for it to be supportive to their child.

If parents become frightened during an acute episode of physical discomfort, they must have access to their pediatrician. He can either verify the safety of what they are concerned about or intervene medically. If parents believe their pediatrician to be inaccessible, they will panic, take matters into their own hands by forcefully administering an enema, and thereby abort the opportunity of allowing the child to overcome the retentive crisis on his own. It takes courage for parents to watch their child suffer and refrain from intervening, knowing that only by working through the crisis by himself will the child make progress in overcoming his problem. The pediatrician must be available when their courage weakens. This is as important as any other component in the management of the disorder.

Parents are often afraid to allow their soiling child to go to school because of the derision and embarrassment they fear he will receive

continued

Parents may unwittingly react as though soiling were a vice rather than a symptom

and the damage it will do to his self-esteem. However, a child's self-esteem derives from his parent's belief in his value as a human being. If that is secure, even in the face of his disorder of defecation, peer-group derision can have only limited adverse effects.

A soiling child may respond to his parents' demands that he improve his performance of toileting functions by not complying or by being even messier. He may stop soiling when he wants to please his parents and soil more when he is angry at them. But this use of his dysfunction will not work with his peers. They owe him no love and accept no responsibility for his well-being. His peer group will either accept him or reject him. If he wants acceptance, he had better not let anyone become aware of his embarrassing difficulty. He will thus feel motivated to keep clean for his own purposes, not those of his parents in their desire to have a cleaner, less troublesome child.

In practice, one frequently finds that a child who has uncontrollable soiling at home will, in some way, keep everyone at school from becoming aware of it. The appropriate counseling for parents who fear that the child will be abused at school should be to insist that the child go to school. The social difficulties that soiling may cause might be painful for him. But these remain his responsibility. Parents and pediatrician remain his sympathetic allies. The disorder of defecation cannot be allowed to compound the child's difficulty by keeping him from going to school.

Children with functional fecal retention are often acutely distressed during bowel movements. Parents interpret this as intense physical pain. Most of the time, a major component of the distress is acute panic rather than anal pain. It is helpful for

continued

A child who has uncontrollable soiling at home will, in some way, keep everyone at school from being aware of it

If force is required to administer the laxative, it will probably do more harm than good

parents to realize this because it makes them more able to provide their child with what he really needs most at that moment: encouragement and reassurance, rather than a pain medication or some form of salve or suppository.

6. Nevertheless, the passage of a large, firm stool may cause anal pain that will frighten the child further. Appropriate orally administered laxatives, if given long enough in effective amounts, almost always result in evacuation of even the largest accumulations. Enemas are rarely, if ever, necessary.

A combination of a lubricant (such as mineral oil) and an agent such as milk of magnesia or dioctyl sodium sulfosuccinate ameliorates both components of the mechanical problem.

Preparations containing stimulant cathartics (cascara sagrada, senna, danthron, phenolphthalein, bisacodyl, and castor oil) are best avoided; they will either be ineffective or cause intense (and frightening) abdominal cramps.

Being in control is the key issue for children with functional fecal retention. They recover if their control and bodily integrity are respected and preserved. Forcing medicine down such a child may be as damaging to his sense of being in control as a forceably administered enema. If force is required to administer the laxative, it will probably do more harm than good.

Whatever the preparation used, laxatives are merely adjuncts in helping with the mechanical aspects of the problem.²⁹ They should not be viewed as a means of inducing bowel movements. Rather, their purpose is to make it more comfortable for the child to pass stool. Didactic recommendations of a specific laxative and dosage regimen (similar to recommendations for the use of an antibi-

otic) imply that the laxative is a curative agent and that the patient need only take the proper dose and simply wait for it to "work." Nothing could be further from the truth for children with the chronic functional fecal retention syndrome.

One of the most dramatic cases in my experience was that of a four-year-old girl who refused all medication. She passed stools at successive intervals of six weeks, six weeks, and eight weeks. She evacuated entirely on her own each time and thereafter resolved her disorder, without medicinal help, when she achieved readiness.

Since patient acceptance is the overriding consideration in choosing laxatives, a variety of preparations might be employed. These include plain mineral oil; flavored mineral oil (Agoral® without phenolphthalein; Kondremul® without cascara or phenolphthalein); plain milk of magnesia; flavored milk of magnesia; mint-flavored, chewable milk-of-magnesia tablets; an emulsion of milk of magnesia and mineral oil (flavored Haley's M-O®); and a miscible, tasteless combination of mineral oil and dioctyl sodium sulfosuccinate (Milkinol®). I have found it safe to administer up to four times the recommended adult doses of these preparations to otherwise healthy children with massive functional fecal retention. The time of day that a laxative is given should be optimal for acceptance and convenience. Interference with absorption of fat-soluble vitamins is insignificant. Lipoid pneumonia is extremely unlikely, provided the child is not forced to swallow mineral oil.

The pediatrician should explain to the child the nature of the mechanical problem of passing stool in terms that the child can understand. He should explain just how the laxative

will help the child with this problem.

An orally administered laxative in effective doses will increase fecal soiling. The child who struggles against soiling may become increasingly anxious as the soiling becomes less controllable while he is taking laxatives. Therefore, it is important for the child to know beforehand that soiling will temporarily increase but that the laxative will help him evacuate the large accumulation, removing the primary cause of soiling.

It is crucially important to reduce the dose of laxative to a tablespoonful a day or less as soon as the large fecal mass has been evacuated. Otherwise, uncontrollable fecal soiling due to leakage of mineral oil will persist. The benefit that should have resulted from his courageous and successful efforts will not be realized.

Many children and parents have difficulty with high doses of laxative during the week, when the child is expected to go to school. It is useful, in such instances, to defer giving laxatives until the weekend, when the child will be home. A school child with massive accumulation might begin taking a laxative on Friday afternoon at a dosage of 4 to 8 tablespoonfuls per day. Uncontrollable soiling will increase promptly. The fecal mass should be passed by Sunday afternoon. If it is not, the laxative dosage should be reduced to perhaps 1 tablespoonful per day, given after school or dinner. If an enormous stool is not passed during the week, another round of high-dose laxative administration should be tried during the next weekend or whenever it is convenient to do so. Sooner or later, the child will pass the stool and, if this occurs primarily by his own efforts, it will be a valuable learning experience that will prove useful the next time a retentive crisis occurs.

It is often hard to tell over the phone whether the child is overflow soiling because he still has significant retention or whether he is soiling because he is empty but is leaking laxative. In the former instance, more laxative is necessary; in the latter, it is appropriate to cut back or even discontinue the laxative until signs and symptoms of reaccumulation occur. A brief visit to the office for a "belly check" can clarify the issue. If the fecal mass is still palpable, laxative administration should continue. If it is not, the laxative should be discontinued until the child's retentive status is more apparent.

7. Easing the parents' burden. Parents of children with chronic functional fecal retention syndrome suffer, too. It is useful to elicit what, specifically, parents find most intolerable about their child's soiling. Common-sense measures can then be taken to help parents avoid frustration and punitive responses.

For example, the mother says she has "had it" with finding feces-laden undershorts in the laundry, on the closet floor, or in the clean-underwear drawer. Surprisingly often, no reasonable alternative has been provided the child for disposal of his soiled clothes. Suggest that a large supply of underwear be purchased so that the child can change into clean shorts without worry of running out. Suggest that a covered pail with some bleach water in it be placed in an appropriate, inconspicuous place and that the child put his soiled underwear into it. If handling soiled underwear is intolerable, provide a pair of easy-to-put-on, long rubber gloves for this purpose, to be kept nearby. The child should take care of his laundry as much as possible.

If the father has "had it" with clogged toilets, stash a supply of wire

If the fecal mass is still palpable, laxative administration should continue

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coat hangers under the bathroom sink and expect the child to use one to break up the enormous stool so that it will be flushed away rather than causing the toilet to overflow. The child should have some way of disposing of the instrument without attracting attention.

If the toilet repeatedly becomes obstructed because the child places the better part of a roll of toilet paper in it after trying to clean his extensively soiled bottom, provide a stack of cheap washcloths and some cleansing lotion for him to use. The soiled washcloths can be tossed into the pail along with the soiled underwear for laundering.

Try to discern issues other than toileting that arouse conflict between parents and child. Some issues concern necessary limits and expectations placed on the child — e.g., school attendance, physical safety, and a reasonable bedtime. The issue of eating, on the other hand, is less important and might best be de-emphasized. Parents often assume that their child's problem results from "poor eating habits" or that it can be remedied by foods he may dislike. There is no evidence that dietary factors cause or alleviate functional fecal retention. Compelling a child to eat is experienced as intrusive over-control of a bodily function. Mealtime should be a pleasant experience for all.

8. *The most common pattern of recovery* entails repeated cycles of retention, each one culminating in a *retentive crisis* and evacuation. Each time a child is allowed the opportunity of overcoming an episode of retention on his own, he learns and becomes less frightened and more skillful.

Some patients recover almost immediately. Others may take years. Some recover but relapse later during periods of heightened emotional dis-

There is no evidence that dietary factors cause or alleviate functional fecal retention

tress. A successful recovery, however, makes any future relapse easier to overcome. Some patients change their functional symptoms from stool withholding to nonretentive fecal soiling.

The pediatrician whose patient progresses slowly should not become discouraged. Management should not be viewed against the standard of many conventional pediatric disorders. Disorders of elimination are more complex and require greater clinical skill. A sensitive, patient, flexible, nonjudgmental pediatrician who has good rapport with the child and his parents, remains accessible, and provides continuity of care offers an asset to the family of inestimable value.

9. *Pediatric management of the feelings-and-attitudes aspects of disorders of defecation.* By conventional pediatric concepts, the causes of symptoms are either physical or psychologic; fecal soiling is supposed to be due either to a disease or to an emotional disturbance.

In reality, there is no purely physical or purely psychologic illness.³⁰ Living presents everyone with numerous problems and challenges. In general, improvement in one problem area makes coping with all the other problems a bit easier. Worsening in any one area makes coping with the others more difficult. With some patients, emotional problems are the overridingly important factors. In many others, there is no serious emotional disturbance. Once symptoms develop, however, conflict between parents and child always ensues and contributes to the perpetuation of the disorder.

To be helpful, the pediatrician should try to learn about the parents' and child's life situation, their major areas of distress, and their weaknesses and strengths in coping with

these burdens. The healthier, less burdened families will need little more than a clear diagnosis, an understanding of the mechanisms by which symptoms are produced, and understanding of their child's point of view. They need patience and courage to allow their child time to master his difficulties and wisdom to know how to guide and support him during his struggle to recover.

10. *Indications for psychiatric consultation.* The more emotionally troubled families and children will not do as well. The child will show no desire to rid himself of his symptoms. The family will not be able to adopt more tolerant, facilitative attitudes.

Such a course may mean that the disorder stems from a more serious underlying emotional disorder. Psychiatric help could be the only means towards improvement.

"Could be" does not necessarily mean "shall be." Telling such a family to seek psychiatric help might, instead, result in noncompliance and damaged rapport.

A productive psychiatric referral that avoids such disruption is most likely when four prerequisites are met: 1. Parents must be able to discern and feel troubled by a pattern of emotional distress in their child. They should be able to see evidence of upset in several areas of his life — e.g., poor school work or deportment, inability to enjoy friendships with peers, excessive fearfulness. Some parents of troubled children are in so much unrecognized emotional pain themselves that they cannot acknowledge their child's suffering. Or they may project a reproachful attitude onto their pediatrician, making it too difficult for them to acknowledge their child's emotional distress. Telling such parents to change their attitudes or implying that they are bad parents for not dis-

The pediatrician should try to learn about the parents' and child's life situation

cerning the obvious need for a psychiatrist only intensifies their avoidance of these issues. They distrust their pediatrician, who they feel has become an accuser rather than a helper. 2. Parents must be able to view referral to a mental health facility as a potentially useful step. Such a step is difficult for many families even though they are acutely troubled by their child's emotional distress. Psychiatry's chief relevance to general pediatrics is not the curing of deranged or psychotic children. Rather, it is most often useful in helping essentially normal families and children to overcome problems that threaten to derail the child's continued development. This statement implies that the sources of the child's current emotional difficulties may not be some dreadful mental illness but rather a difficulty of the kind that commonly occurs in normal children and can be kept from causing future trouble by timely, expert help. It is easier for many parents to accept psychiatric referral knowing that its purpose is for evaluation rather than treatment. The skillful psychiatrist will formulate his findings and recommendations based on the pathology he finds and the family's need for, and ability to benefit from, psychotherapy. 3. A competent child psychiatrist or other mental health facility must be available in the family's locality. The referral must be economically feasible. 4. The patient should not be "transferred" to the care of the psychiatrist. Families resent such referrals, since they may infer that the pediatrician views the disorder of defecation as "all in the head" and does not take it as seriously as "organic disease." Moreover, they are fearful that the possibility of organic disease will be neglected should it arise. The psychiatrist, on his part, needs free-

dom to work on the emotional issues without having to feel primarily responsible for the child's physical diagnosis and having to know the extent of his actual fecal retention, the dosage of his laxative, or whether the soiling is retentive or nonretentive. The pediatrician should provide this information to the family and the psychiatrist on an ongoing basis. Even if the child enters long-term, intensive psychotherapy, the pediatrician remains responsible for the diagnosis of all bodily symptoms, including those that may have a predominantly emotional cause.

Before a psychiatric consultation is sought, the pediatrician should make it clear that the purpose of the referral is not to "cure" the child's encopresis; it is for the purpose of getting a better understanding of the child's emotional distress. Progress in the

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It is easier for many parents to accept psychiatric referral knowing that its purpose is for evaluation

emotional area should enable the child to more effectively rid himself of his disorder of defecation as well as other areas of difficulty.

"Constipation": Its Various Meanings

The complaint of "constipation" is applied to at least three different conditions. Therapeutic failures occur because the term is accepted without sufficient discernment as to what the patient means by it.

Conditions to which the term "constipation" is applied are presented in Table 2.

Persons who pass firm, highly segmented stools a few times a week or less are often referred to as being constipated. They do not develop fecal retention or soiling. This stool pattern results from a tendency to exaggerated, nonpropulsive contraction of the distal colon and sigmoid.³¹ Patients with this type of constipation range in age from early infancy to the elderly. Firm, segmented stools are evidence of a normal variant of colon function, not a path-

ologic process. Treatment is usually not needed. Stool softeners, oral mineral oil, bran, or psyllium hydrophilic mucilloid may be helpful in cases of secondary anal irritation or fissures. Cathartics and enemas are unnecessary and intensify the existing tendency to colon spasm.

A second type of "constipation" occurs in patients who, for apparently constitutional reasons, pass large stools at intervals of a week or more. They do not develop progressive retention and do not have difficulty with soiling. This kind of constipation occurs at any age. It usually does not require treatment, except when it causes significant distress in children who have not yet fully mastered autonomous control of their eliminative functions. In such cases, the liberal use of orally administered lubricant or stool softener on a p.r.n. basis is indicated to prevent disruption of the child's developmental progress with toileting skills. Parents should be reassured that their child will not become de-

TABLE 2

CLASSIFICATION OF CONDITIONS TERMED "CONSTIPATION"

Type	Stools	Pathogenesis	Retention	Soiling	Age range	Management
SPASTIC COLON	pellet stools	hypertonic distal colon — heightened segmenting motility	none	none	all ages	seldom necessary; use p.o. stool softener and lubricant p.r.n. dyschezia and/or anal fissure
CONSTITUTIONALLY INFREQUENT B.M.s	large	?	not progressive	none	all ages	as above
CHRONIC FUNCTIONAL FECAL RETENTION SYNDROME	large	child responds to fecal urge by contraction of pelvic floor — retentive posturing	increasing accumulation	in time	preschool to teens	comprehensive

pendent on laxatives. The need for laxation in order to pass stool is neither "unnatural" nor permanent. The same degree of dyschezia would probably not even be mentioned by an older child.

The third condition to which the term "constipation" is applied is, of course, the chronic functional fecal retention syndrome. This requires comprehensive management beyond merely prescribing stool softeners or lubricants.

CONCLUSION

This discussion offers a diagnostic

schema for disorders of defecation in childhood. It identifies important pathogenetic factors and corresponding therapeutic measures useful in clinical management.

Much clinical research remains to be done in this long-neglected area. Clinical research and patient care will be more productive if the complexity of these conditions is recognized and if patients are approached holistically. □

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