



CONSULTATION WITH THE SPECIALIST

Encopresis: Assessment and Management

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Case Illustration

Jake is an 8-year-old boy who has had stains on his underwear for 2 years. The history includes the passage of meconium within his first day after birth and loose stools during his toddler years despite efforts to limit his juice intake. He was toilet trained for urine at 2½ years and for stool at 3 years; he has passed stools regularly into the toilet from 3 to 5 years of age.

When he started kindergarten, Jake's bowel habits became irregular. He began to withhold stool, so as not to defecate while at school or to interrupt his play. Presently, Jake has painful stools in the toilet once per week. Smears are found in his underwear most days, and sometimes small, hard balls of stool are found on the floor. He hides his underwear frequently, and siblings tease him because of his odor. Jake complains of frequent stomachaches and has a poor appetite.

His parents yell at him daily, telling him to go to the bathroom, but he says he doesn't "have to go." His parents say they "don't understand how he can walk around with BMs in his pants all day" and that "it just isn't normal." Jake avoids eye contact, appearing sad while his history is reviewed.

Chart examination confirms that Jake was a healthy term infant who had no medical diagnoses or surgeries. His growth parameters remain along the 75th percentile for age. He is receiving no medications and takes no over-the-counter or alternative treatments. In kindergarten and first grade, teachers reported a high activity level and distractibility, and in first grade, his reading progressed slowly. Findings on physical examination, including a detailed neurologic examination, are normal. Firm stool is palpated in his left lower

quadrant, and bits of loose stool are noted perianally in association with stained underwear. Abdominal radiography shows a large amount of granular stool dilating the rectum and extending to the distal colon.

Definition

Jake's story is typical of a child who has constipation and encopresis. Encopresis is defined as repeated passage of stool into inappropriate places by a child who is older than 4 years of age chronologically and developmentally. The behavior is not due exclusively to the direct physiologic effects of a substance (eg, laxatives) or a general medical condition, except through a mechanism involving constipation. Constipation is defined by the Academy of Pediatric Gastroenterologists and Nutritionists as delay or difficulty in defecation for 2 or more weeks. The primary care setting is the optimal place for long-term treatment that addresses medical and behavioral components of this common pediatric problem.

Epidemiology and Pathogenesis of Encopresis

Encopresis reportedly affects 2.8% of 4-year-olds, 1.9% of 6-year-olds, and 1.6% of 10- to 11-year-olds. It usually presents in children younger than 7 years of age. More than 90% of encopresis is due to functional constipation where retained stool distends the rectum, resulting in stool leaking around a stool mass (Figure). Stretch receptors in a distended rectum do not seem to signal the child to defecate until soiling is nearly complete. Encopresis generally is not caused by underlying psychopathology, but it can be associated with emotional distress.

Rare cases of encopresis are due to

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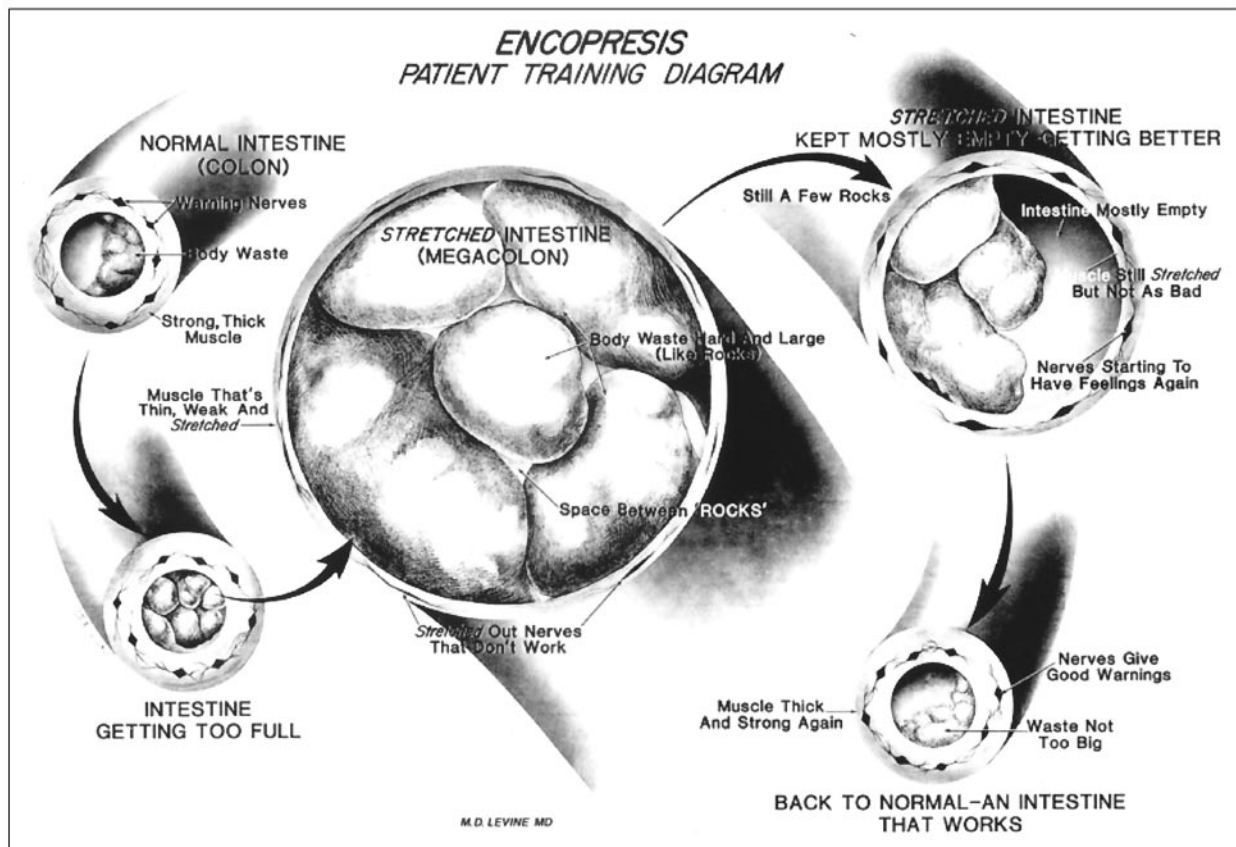


Figure. Process and effects of encopresis. Reprinted with permission from Levine MD. *Developmental and Behavioral Pediatrics*. P. 419 3/e. © 1999 with permission from Elsevier, Inc.

damaged corticospinal pathways or anorectal dysfunction after pull-through surgery. A small subset of children who have encopresis may pass stool impulsively due to anxiety or other emotional stressors without underlying constipation.

Clinical Presentation and Assessment

A child who has functional constipation and consequent encopresis reports uncomfortable, often infrequent stooling into the toilet, with uncontrolled stool accidents into underwear or pull-up diapers. A detailed history and physical examination are required to rule out systemic or organic causes of constipation or incontinence, such as spinal cord dys-

plasia, hypothyroidism, and meconium ileus of cystic fibrosis. For most children, no further diagnostic assessment is necessary beyond thorough, directed fact finding.

The history should begin with events since birth, with specifics surrounding bowel function and any treatments used. Past medical and surgical history may identify systemic diseases or medical causes of constipation that indicate treatments other than laxatives and maintenance of stool regularity. For example, Hirschsprung disease usually presents with difficulty in evacuation from birth, recurrent abdominal distension, or emesis. Failure to thrive and enterocolitis often occur in infancy. Encopresis is rare, and the rectal examination findings include a

tight aganglionic bowel around the examining finger.

It is essential to distinguish delayed toilet training, where the child never consolidated the ability to stool independently into the toilet, from encopresis. Treatment varies, depending on whether constipation underlies the stooling accidents, rather than toilet refusal, although toilet refusal often is associated with constipation. Developmental history focuses on details of toilet training, when and which methods were used, and any successes or failures. Most children are toilet trained by 3 years of age in the United States. Children who are not toilet trained until after 4 years are outliers in this developmental trajectory.

Points to review include details of present urinary and bowel patterns, such as frequency of stool evacuation into the toilet, stool accidents, stool consistency, and the urge to defecate. More severe, prolonged constipation generally requires more aggressive treatment. Any history of abuse or other trauma also should be sought. Children who have been abused may become incontinent in times of stress or as part of regressive behavior and are less suitable candidates for rectal suppositories or enemas.

Urinary patterns, diurnal and nocturnal enuresis, and symptoms of urinary infection must be elicited and may indicate neurologic abnormalities or consequent urine contamination. Constipation and encopresis may be associated with urine infections, especially in females, due to poor hygiene. Even without infection, enuresis can be caused by a dilated rectum pushing on and irritating the bladder, thus causing spasm. History may reveal that increasing stool backup is associated with urine accidents. Charting calendars may clarify such details.

History taking provides an essential opportunity to communicate with the child. The child must be a participant for treatment to be effective, and often affected children are overwhelmed and embarrassed when encopresis is discussed. Developing a sense of the child's perspective can create a connection between caregiver and patient and may be gained with questions about present school and family functioning.

The physical examination of the child who has encopresis includes determination of growth parameters, attention to signs of systemic disease, careful neurologic assessment, and examination of the anal opening. Anal fissures cause ongoing pain with defecation, tags may reflect inflammatory bowel disease, and an absent

anal wink may indicate neurologic abnormality. An anteriorly placed anus may be associated with lifelong constipation and deserves referral to a surgeon. Rectal examination can be useful in assessing for Hirschsprung disease and may indicate the degree of rectal impaction, which can guide treatment. Low anal pressure may reflect external or internal sphincter disease. For most children, a rectal examination performed with the child lying on his or her back in a modified lithotomy position can minimize trauma.

A rectal examination may not be appropriate for the first visit, particularly in a child who has a history of sexual abuse or who is overwhelmed with the discussion of this private problem. However, a digital examination should be performed at least once to rule out organic causes of constipation and to prescribe adequate treatment.

Laboratory investigation is indicated only as history or physical examination suggests; rarely, laboratory studies may include thyroid function tests and measurement of electrolytes, calcium, and magnesium. An abdominal radiograph may be useful when the history is vague or the child is uncooperative with the examination. Lumbosacral spine films or magnetic resonance imaging are indicated when results of the lower extremity neurologic examination are abnormal or sacral abnormalities are seen.

Management of Encopresis

A limited body of evidence-based data addresses the treatment of childhood encopresis. Management includes intensive medication and behavioral interventions and is adjusted to the child's developmental stage and degree of constipation. Retention caused by painful fissures re-

quires treatment with lubrication before constipation can be addressed.

A Cochrane Database Systematic Review in July 2001 found 16 randomized or quasi-randomized trials of behavior or cognitive interventions (with or without other treatments) for the management of defecation disorders in children. A total of 843 children were included in the trials. Overall conclusions suggested that behavioral intervention plus laxative therapy, rather than either alone, improves fecal continence in children who have encopresis. Biofeedback was not found to be effective.

These findings support the efficacy of the treatment methods we have employed for 25 years in the Developmental Medicine Center at Boston's Children's Hospital (Table 1). There are several variations of the medications chosen and the order in which they are employed. The first two steps occur at the initial visit; the third step occurs after the clean-out stage.

Mineral oil often is difficult to tolerate. We recommend keeping the oil cold and mixing it in a 1:1 ratio with a fat-based substance that the child enjoys, such as pudding, yogurt, or chocolate syrup. Mineral oil should be avoided in children at risk for aspiration. Some prescribe a multivitamin to prevent malabsorption of fat-soluble vitamins, although the literature is inconsistent in supporting this widespread practice.

Encopresis Without Constipation

Treatment of encopresis that occurs without constipation requires similar behavioral approaches, but without concomitant laxative therapy. In these cases, the index of suspicion for organic pathology or abuse is considerably higher.

Table 1. Developmental Medicine Center Program at Boston's Children's Hospital

Step One: Psychoeducation

Demystify the shame and blame around stool accidents

- Use the child's abdominal radiograph or an illustrated explanation (or both) to review the process of retained stool that leads to a distended gut, allowing stool to "sneak out" without warning.
- Discuss that retained stool has to be cleaned out with medication (some children fear we mean surgery unless specified) and that there likely will be a lot of stool to clean out!
- Empathize with the stress and frustration and emphasize the need to break the cycle of impatience that may have developed. Clarify that now the child truly cannot control the stool leaking out and cannot be blamed.

Step Two: The Initial Clean-out of Retained Stool

The clean-out method depends on the age of the child, previous treatments, and history of trauma

- Children 7 years of age and older who have no history of trauma may opt for the fastest and most direct choice: a 14-day cycle of alternating bisacodyl pills, bisacodyl suppository, and Fleet® enema (Table 2).
- Younger children (<7 y) or those who cannot tolerate suppositories or enemas may require polyethylene glycol without electrolytes, starting at 1 cap in 6 oz of fluid per day. Impaction that is present for many months may require higher dosing or the addition of a stimulant such as senna or bisacodyl.
- During the initial clean-out, the child and family should expect a large amount of stool output and should be reminded of the radiograph documenting the bowel full of stool.

Step Three: Establishing Regular Bowel Patterns

Medication and a behavior plan

- We often use mineral oil titrated to efficacy, from 2 Tbsp per day to 6 Tbsp twice per day. Polyethylene glycol without electrolytes also is used frequently, particularly for children who do not tolerate the taste of mineral oil or who experience oil leakage. The maintenance dose of polyethylene glycol without electrolytes generally ranges from 1/2 cap every day to 1 cap twice per day. The dose is adjusted to maintain soft, regular stools.
- Because the child may not develop the urge to defecate for 6 to 9 months after constipation is treated, a regular sitting time is necessary. The goal is to pass stool into the toilet before stool leaks. Sitting after breakfast and dinner takes advantage of the body's gastrocolic reflex and often can be incorporated easily into the daily routine. We suggest sitting for 5 to 10 minutes, depending on the child's age and attention span.
- The family must work to eliminate any negative associations around toileting that may have developed. Limiting conversation about toileting can be helpful, as can rewarding the child for sitting or taking care of his or her own bodily needs. Older children may benefit from having games or activities in the bathroom (Table 3).

Long-term Strategies

Constipation and encopresis often are long-term issues, recurring intermittently after substantial initial improvement. Children may require mineral oil, polyethylene glycol with-

out electrolytes, or high-fiber supplements for extended periods (months to years). However, patients should be advised to avoid long-term use of enemas and stimulants, which can cause dependence and irritation. The

Table 2. Schedule of Clean-out

Day 1: Bisacodyl pill
Day 2: Bisacodyl suppository
Day 3: Fleet® enema
Repeat three additional times over 12 days

child should maintain regularity by continuing the sitting routine after meals, especially during times of transition (eg, holidays, vacations, or weekends). Reviewing signs of backup (eg, hard stools, skipping days, stomachaches, or smears in the underwear) and developing a rescue plan (eg, increased mineral oil, senna, sitting, or fiber) empowers the child and family to anticipate, tolerate, and treat recurrences. We often see children on a monthly schedule until they have established regular bowel patterns, followed by visits every 3 to 4 months until incontinence has resolved fully and the family knows the signs of backup and interventions to employ. Children frequently are followed for 1 to 2 years because follow-up visits provide opportunities to assess treatment progress, fine-tune medication regimens, anticipate challenges, and celebrate successes.

Prognosis

Most children treated for encopresis have meaningful improvement, although there are few data to guide predictions. Recovery rates are quoted as being 30% to 50% after 1 year and 48% to 75% after 5 years. In our experience, children who have prolonged courses of constipation and complex psychiatric and social situations are less likely to recover quickly than are those who have briefer and simpler histories. Even children who continue to have inter-

Table 3. Suggested Rewards for Patients Who Have Encopresis

Preschoolers	School Age Children	Adolescents
<ul style="list-style-type: none"> • Stickers or small sweets earned for sitting time • Reading books or singing songs while sitting • Special dolls or trucks kept in the bathroom, to be used only during sitting time 	<ul style="list-style-type: none"> • Stickers or small sweets earned for sitting time • Reading books together while sitting • Activity books, hand-held computer games kept in the bathroom, to be used only during sitting time • Pennies or dimes earned for sitting, redeemed for small drug store items 	<ul style="list-style-type: none"> • Magazines or books left in the bathroom • Privacy and time assured

mittent episodes of constipation and encopresis feel more in control with the understanding that their problem is not one of fault and with the skills to manage their bodily functions better.

Suggested Reading

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Loening-Baucke V. Encopresis. *Curr Opin Pediatr.* 2002;14:570–575

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PIR Quiz

Quiz also available online at www.pedsinreview.org.

6. A 4-year-old girl who has had intermittent constipation now has enuresis after being consistently toilet trained. Results of a urinalysis and culture are normal. Of the following, this change is *most* likely due to:
 - A. A dilated rectum irritating the bladder.
 - B. Congenital megacolon.
 - C. Hirschsprung disease.
 - D. Poor hygiene and urine contamination by stool.
 - E. Psychological stress.
7. A 2-year-old boy has had difficulties with stooling since birth associated with abdominal distention. Of the following, the condition that is of *greatest* concern is:
 - A. Constipation.
 - B. Delayed toilet training.
 - C. Encopresis.
 - D. Hirschsprung disease.
 - E. Toilet refusal.
8. A 5-year-old girl has infrequent stools but has never been completely toilet trained. Of the following, this condition is *best* described as:
 - A. Constipation.
 - B. Delayed toilet training.
 - C. Enuresis.
 - D. Hirschsprung disease.
 - E. Toilet refusal.
9. Combination therapies are the most beneficial in the treatment of encopresis, although data to guide predications of success are limited. Recovery rates after 1 year are quoted at:
 - A. 5%.
 - B. 25%.
 - C. 45%.
 - D. 65%.
 - E. 85%.