11A. GI Manifestations of Psychologic Disorders

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I. Psychogenic Associations

Many psychological disorders have associated gastrointestinal manifestations. While evaluating a child for chronic abdominal pain, it is important to consider psychologic as well as organic etiologies for the symptoms.

II. Mood Disorder and Anxiety—Chronic Abdominal Pain

A. There is a vicious cycle involving chronic pain, depression, and anxiety, each provoking the other
B. Anxiety disorder is found in 80% of children with recurrent abdominal pain (RAP) in some studies
C. Depressive symptoms found in 40% of children with RAP
D. Possible explanations
   1. Pain evokes mood and anxiety disorders
   2. Affective disorders cause or exacerbate pain
   3. A common biological predisposition underlies both problems
   4. Common characteristics of both include somatization, social stress, and poor coping
E. Life stressors provoke
   1. Physiologic stress response with increased corticotropin-releasing factor (CRF)
   2. CRF causes ↑ intestinal motility, hyperalgesia, psychoemotional inflammatory responses
F. Typical life stresses
   1. Maternal separation
   2. Conflicting maternal relationships
   3. Abusive environments – sexual or physical
   4. Traumatic events – death, major illness, geographic dislocation
   5. Marital discord
   6. Peer pressure
   7. Perfectionism

III. Pathologic Aerophagia—Abdominal Distension

A. Symptoms: eructation, abdominal cramping, flatulence, chronic diarrhea
B. Tympanitic abdomen with very hyperactive bowel sounds
C. Plain abdominal film showing uniform gassy distension from esophagus to rectum, without air fluid levels
D. Hallmarks:
   1. Increasing abdominal distension throughout the day
   2. Increased flatus at night
E. Visible air swallowing is often subtle and hard to detect
F. Signs of abuse or stress

IV. Mental Retardation/Anxiety/Obsessive Compulsive Disorder (OCD)—Solitary Rectal Ulcer Syndrome

A. Presentation:
   1. Recurrent rectal bleeding
   2. Mucous discharge from the anus
   3. Prolonged straining to pass stool
   4. Tenesmus
5. Perineal pain
6. Rectal prolapse
   a. Secondary to excessive straining during defecation
   b. Intraabdominal pressure forces the anterior rectal mucosa firmly into the contracting puborectalis muscle
   c. The anterior rectal mucosa is frequently forced into the anal canal, and as a consequence becomes strangulated, causing congestion, edema, and ulceration

B. Differential Diagnosis
   1. Inflammatory bowel disease
   2. Infectious proctocolitis
   3. Intussusception
   4. Hemorrhoids
   5. Prolapsing rectal polyp
   6. Sexual abuse

C. Diagnosis
   1. History – straining, constipation, prolapse, self-digitization to induce stools
   2. Proctosigmoidoscopy and histology

D. Histology
   1. Fibromuscular obliteration of the lamina propria with disorientation of muscle fibers
   2. Mucous-laden macrophages
   3. Histologic changes are secondary to chronic mechanical and ischemic trauma, inflammation by hard stools, and intussusception of the rectal mucosa

E. Self-digitization maneuver to reduce a rectal prolapse or to evacuate an impacted stool may also cause direct trauma and ulceration
   1. Behavioral aspect
   2. Self-stimulating
   3. Habitual
   4. Associated with obsessive compulsive disorder
   5. Associated with Prader-Willi syndrome

F. Treatment is conservative
   1. Fiber, stool softeners and retraining to avoid straining
   2. Rectal medications with local anti-inflammatory effect - sucralfate, 5-ASA, corticosteroid, mesalazine, topical fibrin
   3. Behavior modification therapy by biofeedback in adults is associated with symptom improvement in 75% of patients with uncoordinated defecation habits, excessive straining, and high rectal sensory threshold

V. Trichotillomania—Abdominal Pain, Vomiting and Abdominal Mass
   A. Usually associated with underlying psychiatric disorders
   B. Most commonly age of presentation is adolescence
   C. 1% of patients with trichophagia develop a trichobezoar
   D. Association with early childhood neglect or abuse, psychiatric conditions, mental retardation or bereavement
   E. Presentation
      1. Abdominal pain
      2. Nausea, vomiting, halitosis
      3. Obstruction
      4. Peritonitis
      5. Less common: weight loss, anorexia, hematemesis, and intussusception
      6. Complications by a large eroding or obstructing bezoar
         a. Gastric ulceration
         b. Obstructive jaundice
         c. Acute pancreatitis
         d. Gastric emphysema
      7. Malabsorption-related complications: protein-losing enteropathy, iron deficiency, and megaloblastic anemia
   F. Pathophysiology
      1. Trichobezoars form when slippery hair strands escape peristaltic propulsion and are retained in the stomach
      2. As hair accumulates, peristalsis causes it to be enmeshed into a ball
3. If the ball becomes too large to exit the stomach, gastric atony may result
4. Hair ball assumes shape of stomach
5. Rapunzel syndrome: trichobezoar extending from the stomach to the small intestine

G. Treatment
1. Surgical removal
2. Pharmacotherapy: fluoxetine or other serotonin reuptake inhibitors
3. Parental counseling
4. Long-term prognosis good when medication is combined with behavioral therapy

Recommended Reading

A rare and often unrecognized cause of hematochezia and tenesmus in childhood: solitary rectal ulcer syndrome. *Pediatrics* 2002;110;e79.


I. Definition
Rumination is a syndrome characterized by repeated regurgitation of gastric contents followed by spitting or re-swallowing. Rumination may be difficult to differentiate from true vomiting

II. Rumination
A. Clinical definitions
1. Infant rumination– repetitive contractions of abdominal muscles, diaphragm, and tongue that produce regurgitation of gastric contents into the mouth, after which oral contents are rechewed, reswallowed, or expectorated
   a. Onset 3–8 months
   b. No nausea or distress
   c. Does not occur during sleep
   d. Not responsive to acid suppression, anticholinergics, formula change, gastrostomy, or gavage
   e. Infant rumination often occurs in the setting of child neglect or sensory deprivation, and is thought to represent a self-stimulatory behavior
2. Adolescent rumination– repeated painless regurgitation with rechewing, or expectoration of gastric contents occurring soon after eating, in the absence of retching
   a. Does not occur during sleep
   b. Usually begins within 30 minutes of a meal, and ceases when gastric acidity is restored (usually within 90 minutes of a meal)
   c. Unresponsive to acid suppression
   d. No organic basis determined on radiologic or endoscopic evaluation– no obstruction
   e. Motility studies show normal postprandial antral activity. May reveal marked increase in intraabdominal pressure just before regurgitation caused by voluntary contraction of abdominal musculature
   f. Episodes often preceded by burping
   g. Adolescents may have a combination of true reflux and ruminative behavior which makes diagnosis difficult

B. Statistics
1. Mean age of diagnosis in adolescent rumination is 15 years
2. Average duration of symptoms prior to diagnosis is 2 years
3. 73% miss school or work
4. 46% have been hospitalized
5. 11% have had surgery for the complaint before diagnosis
6. 16% have a comorbid psychiatric diagnosis

C. Abnormal motility findings associated with rumination that may promote rumination, but are not the sole etiologic mechanism
1. Gastric sensitivity to distension is higher than normal
2. Frequency of relaxations of the lower esophageal sphincter after distension is higher than normal
3. Postprandial gastric accommodation is decreased

D. Treatment
1. Identify triggers for the behavior
2. Exclude affective disorders
3. Infants often respond to increased parental attention and stimulation. No medical or behavioral therapy is needed

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4. Therapeutic options in adolescents
   a. Cognitive behavioral therapy with biofeedback
   b. Relaxation techniques
   c. Distraction
   d. Antidepressants, anxiolytics if indicated

**Recommended Reading**


I. Overview
Feeding refusal is a challenging diagnosis that is associated with several underlying organic conditions. There are specific behaviors that are associated with feeding refusal, and when present they assist with diagnosis. Psychogenic dysphagia should also be considered in the diagnosis of feeding refusal, particularly in older children.

II. Feeding Refusal
A. Definitions
   1. Child refuses to eat most foods, resulting in failure to meet nutritional needs
   2. Specific behaviors associated with food refusal
      a. Head turning, mouth closure, tongue thrust, spitting out food
      b. Food packing
      c. Excessive dawdling
      d. Gagging, vomiting during feeding
      e. Anticipatory gagging
      f. Requires distraction to be fed (TV, video)
      g. Shows no interest in food
B. Common associated organic conditions
   1. GE reflux
      a. Found by testing in 53%–69% of patients with food refusal
      b. Although found frequently in association with food refusal, it is rare that GE reflux is the cause of food refusal
   2. Pseudo-obstruction, achalasia, cricopharyngeal achalasia, and GI dysmotility
   3. TEF, laryngopharyngeal cleft, or other lesions causing aspiration
   4. Cardiopulmonary conditions, especially congenital heart disease
   5. Bronchopulmonary dysplasia
   6. Neurologic conditions
      a. Cerebral palsy – increased or decreased tone delays acquisition of feeding skills and produces fear of eating
      b. Autism – heightened texture and taste sensitivity limits food choices
   7. Anatomic anomalies causing aspiration or other negative experiences with eating
      a. Cleft lip and palate
      b. Microgastria
      c. Duodenal web, gastric outlet obstruction, duodenal stenosis
      d. Vascular ring
   8. Traumatic experience – choking, aspiration, forced feeding by caregiver
C. Development of feeding behavior
   1. There is a critical window during, newborn period to establish oropharyngeal coordination with deglutition. If normal deglutition is not established during this critical time, food refusal may result
   2. Normal feeding behavior depends on successful integration of both physical and emotional factors. Disruption in either may precipitate feeding refusal
   3. 25%–45% of normal children and up to 80% of developmentally delayed children experience some feeding disorder
D. One authority suggests the diagnosis of feeding refusal disorder can be made based on three criteria below in the absence of organic disease
   1. History of food refusal
   2. Pathological feeding
      a. Able to feed only when child is somnolent
      b. Persecutory feeding – unrelenting parental attempts to feed
      c. Forceful feeding
      d. Mechanistic feeding – rigid schedule and quantity unrelated to hunger cues
      e. Use of distraction as only means to accomplish feeding (TV, video)
   3. Anticipatory gagging

E. Treatment of food refusal
   1. Multidisciplinary approach involving primary care doctor, pediatric GI, developmental pediatrician; speech, physical, and occupational therapy; nutritionist, psychologist, family counselor
   2. Supervised behavior modification for child
   3. Modification of caregiver responses
      a. Eliminate parental coaxing, pleading, yelling
      b. Ignore child’s negative behaviors
      c. Reward child’s appropriate behaviors
   4. Techniques
      a. Positive rewards for good behavior – utensil use, eating, quiet behavior
      b. Consistency, e.g., re-presenting of food that has been spit out or thrown by child
      c. Hunger provocation by spacing out meals, or supervised temporary calorie restriction or limitation of milk
      d. Swallow induction – limiting tongue thrust and packing
      e. Smaller meals to increase chances of success

III. Psychogenic Dysphagia
   A. Common characteristics
      1. Fear of swallowing, particularly solid or lumpy food
      2. Globus sensation before or during swallowing
      3. Fear of gagging or vomiting leads to verbal and physical food refusal
      4. No abnormal body image, as in anorexia nervosa or bulimia
      5. Often, a traumatic event precedes onset
      6. Occurs in older children with previously normal eating behavior
   B. Clinical diagnosis of psychogenic dysphagia
      1. Normal physical examination
      2. Normal neurological examination
      3. Normal swallowing of saliva
      4. Compatible history
      5. Some imaging studies may be helpful – modified barium swallow, upper endoscopy – to rule out physical obstruction
   C. Treatment
      1. Cognitive behavioral therapy is most often effective
      2. Pharmacologic therapy for associated depression, anxiety disorder may be required

Recommended Reading


Levine E. Screening criteria for diagnosis of infantile feeding disorders as a cause of poor feeding or food refusal. *JPGN.* 2011;52:563-568.

I. Overview
The pediatric gastroenterologist is often the first subspecialist to see a patient with an eating disorder. Winsted and Willard reviewed the GI complaints in patients admitted for eating disorders, and found that 62% had seen a gastroenterologist or primary care physician for GI complaints. Of these, 46% had sought treatment for the gastrointestinal complaint before the diagnosis of eating disorder was made, and 38% had undergone endoscopy and imaging studies for GI complaints.

II. DSM IV-TR Criteria for Anorexia Nervosa
A. Refusal to maintain body weight at or above lower normal limits of weight for age and height
B. Weight loss producing body weight <85% of expected, or failure to gain sufficient weight during period of growth leading to body weight <85% of expected
C. Intense fear of gaining weight or becoming fat
D. Disturbance in body image. Undue influence of body weight or shape on self evaluation. Denial of seriousness of low body weight
E. Amenorrhea (at least three consecutive cycles) in postmenarchal patients
F. Types of eating disorder
   1. Restricting type: anorectic patient whose current underweight condition is a result of caloric restriction not binge-eating or purging behaviors such as self-induced vomiting, laxatives, diuretics or enemas
   2. Binge eating purging type: anorectic patient who is currently regularly engaged in binge eating or purging behaviors listed above

III. DSM IV-TR Criteria for Bulimia
A. Recurrent episodes of binge eating characterized by both:
   1. Eating in a discrete period of time an amount of food larger than most people would eat under similar circumstances
   2. A sense of lack of control over eating during the episode
B. Recurrent inappropriate compensatory behavior to prevent weight gain
   1. Self-induced vomiting
   2. Misuse of laxatives, diuretics, enemas, or other medications
   3. Fasting
   4. Excessive exercise
C. Binge eating and compensatory behavior occur at least twice a week for three months
D. Self-evaluation is unduly influenced by body shape and weight
E. The disturbance does not occur exclusively during episodes of anorexia nervosa
F. Types
   1. Purging type: During the current episode of bulimia nervosa, patient regularly uses purging techniques: self-induced vomiting, laxatives, diuretics, or enemas
   2. Nonpurging type: During the current episode of bulimia nervosa, patient uses inappropriate compensatory behavior, but has not regularly engaged in purging behaviors
IV. Medical Complications of Extreme Weight Loss and Undernutrition by System

A. Skin (all Eating Disorders)
   1. Xerosis (dry scaly skin) secondary to decreased dietary fat
   2. Lanugo-like body hair
   3. Telegen effluvium (hair loss secondary to poor nutrition)
   4. Acne secondary to hormonal imbalances
   5. Carotenemia – carotene deposits in skin from increased ingestion of carotene containing vegetables
   6. Acrocyanosis – increased dilatation of efferent capillaries in extremities
   7. Stomatitis or cheilitis

B. Endocrine:
   1. Type I diabetics who have bulimia often will abuse insulin for weight loss and can develop hypoglycemic comas
   2. Thyroid dysfunction

C. Gastrointestinal:
   1. Anorexia nervosa
      a. Gastric dilatation
      b. Spontaneous gastric rupture
      c. Mucosal necrosis (binge eating)
      d. Delayed gastric emptying
      e. Gastric motor dysfunction
      f. Impaired sense of hunger/satiety
      g. Delayed small bowel transit
      h. Constipation
      i. Pancreatitis
      j. Necrotizing colitis
      k. Perforated ulcer
   2. Bulimia
      a. Parotid gland hypertrophy
      b. Gastritis
      c. Acute liver damage
      d. Enamel erosion

D. Cardiovascular/Pulmonary
   1. Arrhythmias secondary to prolonged QTc interval and hypokalemia
   2. Hypotension and orthostatic hypotension
   3. Pneumomediastinum caused by vomiting
   4. Anorexia: QT/RR slope is enhanced secondary to autonomic imbalance; can result in life-threatening arrhythmia
   5. Bradycardia:
      a. Low Resting Energy Expenditure
      b. Problematic with extreme exercise
   6. Ampullary cardiomyopathy: akinesis of the apical region of the heart with compensatory hypercontraction of the basal ventricular components
   7. Myocardial atrophy
   8. Mitral valve prolapse
   9. Pericardial effusion
   10. Sudden cardiac death

E. Skeletal: Osteopenia: etiology, course and effective treatments are uncertain
   1. Osteopenia - etiology and outcome are uncertain
   2. Treatment of osteopenia
      a. Not recommended during acute phase of management
      b. Bisphosphonates can improve bone density
      c. Calcium and vitamin D supplements recommended

F. Mortality:
   1. Marked risk of premature death in anorexia nervosa
   2. Mean mortality risk is 10.5 (95% Confidence Interval= 5.5–15.5)
V. Medical Complications of Disordered Eating by Activity

A. Purging
1. Abnormal colonic motility
2. Arrhythmias
3. Cardiac and other myopathies
4. Dehydration
5. Dental caries
6. Electrolyte abnormalities caused by vomiting, laxatives, or diuretics
7. Gastrointestinal irritation, bleeding, or reflux
8. Parotid hypertrophy
9. Secondary renal failure

B. Appetite suppressant abuse
1. Anxiety
2. Hypertension
3. Tachyarrhythmia
4. Tremors

C. Metabolic complications of therapy – Refeeding syndrome
1. Onset within four days of refeeding
2. Etiology
   a. Sudden increase in serum insulin after refeeding
   b. Phosphorylated carbohydrate compounds in liver and skeletal muscle deplete intracellular ATP and 2,3 diphosphoglycerate in red blood cells, causing dysfunction and inadequate oxygen delivery
   c. Increased basal metabolic rate
   d. Intracellular movement of electrolytes, with associated decrease in serum concentration
      1) Hypophosphatemia
      2) Hypokalemia
      3) Hypomagnesemia
      4) Hypoglycemia
      5) Reduced serum thiamine

D. Clinical features of refeeding syndrome
1. Intracellular electrolyte shift and increased intravascular fluid increases cardiac workload and heart rate. Heart failure and pulmonary edema may occur
2. Hypovolemia and hemoconcentration
   a. Oxygen consumption increases, which increases the demand on the respiratory system
   b. Significant risks from refeeding syndrome – confusion, coma, seizures, death

E. Treatment monitoring in refeeding syndrome
1. A high index of suspicion in the early phase of refeeding syndrome is critical. Medical therapy is most effective at this time
2. Correct electrolyte imbalances and monitor frequently
3. Supplement with multiple vitamin preparations, especially thiamine and vitamin B complex
4. Maintain energy intake at 50%–70% of normal for the first 3–5 days

VI. Psychiatric Considerations in Eating Disorders

A. Family dysfunction
1. Overcontrolling parents
2. Parental substance abuse
3. Parental eating disorder
4. Sexual abuse by family member (15%)

B. Most patients have comorbid psychiatric conditions:
1. Depression
2. Anxiety
3. Personality disorders
4. Self-mutilation behaviors
5. Substance abuse
VII. Treatment
   A. The chronicity and complexity of the comorbid conditions associated with eating disorders makes treatment and management of these patients more appropriate for adolescent medicine physicians, psychologists, and psychiatrists. The role of the pediatric gastroenterologist is to recognize the condition, initiate appropriate evaluation, involve appropriate subspecialists for ongoing management, and consult on GI comorbidities during therapy. The greater the patient’s insight into the disorder, the better the chance of improvement at 6–12 months of therapy.
   B. Anorexia nervosa
      1. Medication is less successful in anorexia nervosa than in bulimia nervosa. It is most often used after weight has been restored, but may begin earlier when indicated.
      2. Selective serotonin reuptake inhibitors (e.g., fluoxetine) often used for depressive, obsessive, or compulsive symptoms that persist in spite of or in the absence of weight gain.
   C. Bulimia nervosa
      1. Antidepressants are used primarily to reduce the frequency of disturbed eating, and treat comorbid depression, anxiety, obsessions, and impulse-disorder symptoms.
      2. Medication can reduce binge episodes, but are not sufficient as sole therapy.
      3. The only medication approved by the US FDA for bulimia nervosa is the SSRI fluoxetine.
      4. Higher doses of fluoxetine may be needed to treat bulimia nervosa.

Recommended Reading


11E. Munchausen Syndrome by Proxy

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I. Overview
Munchausen syndrome by proxy (MSBP) is a factitious disorder in which the person caring for a child or an adult with special needs, acts as if that child has a medical illness. This is considered a form of child abuse. Factious disorders such as MSBP are mental illnesses.

II. Definition
A. Parent or caregiver fabricates symptoms of illness on behalf of an unsuspecting or helpless victim, thereby causing the victim to be regarded as ill by others
B. Defining characteristics
   1. Child’s symptoms produce repetitive or persistent interactions with health care providers, often associated with multiple diagnostic and therapeutic procedures
   2. Caregiver denies he/she is the cause of the child’s illness
   3. Symptoms abate when the child is separated from the caregiver

III. Epidemiology
A. Prevalence unknown
B. Equal prevalence in male and female children
C. Average age at diagnosis 48 months
D. Average interval from onset of symptoms to diagnosis is 21 months
E. Some studies estimate mortality as high as 6%–10%

IV. Presentation
A. Usually presents with a recurrent symptom that has not been explained through testing—e.g., vomiting, diarrhea, hematemesis, hematochezia, hematuria, multiple infections, apnea spells, seizures
B. Patients with central lines or other indwelling medical appliances may have a history of frequent infections or malfunctions
C. Specific diagnoses frequently made to explain symptoms include: intestinal pseudo-obstruction or gastroesophageal reflux disease, seizures, malabsorption syndrome, immune deficiency, urinary tract infection, epilepsy, bleeding disorder, metabolic disease
D. Successive siblings may be at risk

V. Characteristics of the Caregiver
A. Perpetrator is the biologic mother in 70% of cases
B. Perpetrator is knowledgeable about details of child’s symptoms and previous evaluations
C. If patient is hospitalized, caregiver rarely leaves the hospital
D. Caregiver is unusually comfortable with risky procedures or treatments, and calm despite setbacks or inability of physician to find the correct diagnosis
E. Frequently, caregiver demonstrates an interest in health care profession or is a medical professional or paraprofessional, or claims to be one
F. When caregiver is the mother, the father is often emotionally or physically unavailable
G. There is no consistent comorbid psychiatric diagnosis in the perpetrator
VI. Characteristics of the Physician Facilitator
   A. The physician, by ordering tests and therapies, may perpetuate or aggravate MSBP
   B. The role and the importance of a physician facilitator in MSBP is currently under active study
   C. Preliminary descriptions of the physician facilitator include:
      1. Subspecialist with an interest in unusual diagnoses, challenged by complex medical mysteries
      2. Subspecialist with tendency to use diagnostic testing
      3. Physician may become defensive when approached with the possibility of MSBP
      4. Physician may develop a very strong bond with the caregiver over the investigation and care of the patient

VII. Diagnosis/Management
   A. Document the patient’s symptoms. The diagnosis of MSBP must be added to the differential diagnostic considerations if the history does not point to a specific diagnosis after preliminary screening tests, and if characteristics of patient, caregiver, and symptoms are as outlined above
   B. Order specific tests to confirm suspicions of abuse and maintain the chain of evidence: if a specific cause is suspected, such as poisoning (e.g., insulin, salt, sedative, laxatives, emetics), obtain confirmatory toxicology. If suffocation is considered, video surveillance should be initiated. Failure to evaluate may result in continued dangerous abuse
   C. Obtain information from previous evaluators in writing and in person: written records may not contain the candid opinion by previous medical providers that MSBP has been suspected
   D. Psychiatric or psychological assessment of the suspected perpetrator and family. Identification and documentation of warning signs in caregiver and family members will be important in validating concerns and putting the pieces together
   E. Systematically assess the child’s condition. For example, if the child has “problems eating” or “vomits all his food”, the child should be fed under direct supervision. If the child’s problems have been fabricated, the child may improve dramatically upon separation from the caregiver
   F. Be cautious about requests for performing new tests or repeating old tests
   G. The Department of Children’s Protective Services must be notified if a diagnosis of MSBP is suspected. Because this is a dangerous form of child abuse, separation from the caregiver may be needed. Supervised foster care placement may be needed to prove that a child is healthy
   H. Hospital admission for observation, review of medical records, and sequential withdrawal of unnecessary medical therapies

VIII. Special Situations for Pediatric Gastroenterologists
   A. Laxative abuse
      1. Produces chronic diarrhea that can be hard to differentiate from organic causes
      2. Examinations for fecal pH, osmolarity, electrolytes, blood, WBC, culture, and parasites are usually normal or negative
      3. Stool content of magnesium may be elevated if magnesium salts are used
      4. Phenolphthalein may be detected by alkalinizing stool water (pink color develops). Phenolphthalein is no longer used in commercially available laxatives in the US, but is available elsewhere
      5. Colonoscopy may show melanosis coli (dark submucous pigmentation seen with anthracine derivatives)
      6. Medical complications of laxative abuse include malnutrition, renal calculi, renal failure, hypokalemia
   B. GI bleeding
      1. Caregiver complains of bright red blood per rectum
         a. Monitor vital signs
         b. Check hematocrit
         c. Check the blood in the diaper by Hemoccult. Red dyes and tomato juice may be used
         d. Check excreted blood microscopically to determine source (caregiver, animals)
         e. In some cases, blood may be drawn from a child’s vein or indwelling IV and placed in the diaper
C. Vomiting
   1. Exaggeration and fabrication of spit up or vomiting should be suspected:
      a. If symptom reports are dramatic or inconsistent with the physical exam
      b. If the medical history does not make sense
      c. If the caregiver is the only one who witnesses the child vomiting

Recommended Reading


