

FEEDING PROBLEMS DURING THE 1ST YEAR OF LIFE

1. Underfeeding:

is suggested by: Restlessness, crying, and Failure to gain weight adequately.

Result from: failure to take a sufficient quantity of food even when offered.

All the followings should be considered

- * The frequency of feedings,
- * The mechanics of feeding,
- * The size of the holes in the nipple of feeding bottle,
- * The adequacy of eructation of air,
- * The possibility of abnormal mother-infant “bonding.
- * Possible systemic disease in the infant

The **extent and duration** of underfeeding determine the clinical manifestations:

- * Constipation, failure to sleep, irritability, excessive crying is to be expected.
- * Weight gain may be slow, or there may be an actual loss of weight.

In the latter case:

- * Skin becomes dry and wrinkled.
- * Subcutaneous tissue disappears.
- * The infant assumes the appearance of an “old man.
- * Deficiencies of vitamins A, B, C, and D as well as of iron and protein may be responsible for the characteristics of clinical manifestations.

Treatment of underfeeding include:

- *Increasing nutrient intake
- *Correcting any deficiencies of vitamins and/or minerals
- *Instructing the caregiver in the art and practice of infant feeding
- *If an underlying systemic disease, child abuse or neglect, or a psychological problem is responsible, specific management of that disorder is necessary.

2.Overfeeding

As a rule, postprandial discomfort from excessive intake limits the amount of food an infant voluntarily ingests, but there are exceptions.

If intake is excessive, regurgitation and vomiting are the most frequent symptoms.

Diets that are too high in fat delay gastric emptying, cause abdominal distention and discomfort, and may cause excessive weight gain.

Diets that are too high in carbohydrate are likely to cause undue fermentation in the intestine, resulting in distention and flatulence as well as more rapid weight gain than desirable.

3.REGURGITATION AND VOMITING

Regurgitation is the effortless movement of stomach contents into the esophagus and mouth. It is not associated with distress, and infants with regurgitation are often hungry immediately after an episode. The lower esophageal sphincter prevents reflux of gastric contents into the esophagus. Regurgitation is a result of gastroesophageal reflux through an incompetent or, in infants, immature lower esophageal sphincter. This is often a developmental process, and regurgitation or “spitting” resolves with maturity.

Regurgitation is a natural occurrence, especially during the 1st several months of life and reduced to a negligible amount by:

- * Adequate eructation of swallowed air during and after eating, by gentle handling,
- *Avoiding emotional conflicts,
- *Placing the infant on the right side for a short time immediately after eating.

Regurgitation should be differentiated from vomiting, which denotes an active reflex process with an extensive differential diagnosis

Vomiting Define: violent expulsion of gastric and sometimes intestinal contents.

vomiting caused by obstruction of the GIT is probably mediated by intestinal visceral afferent nerves stimulating the vomiting. If obstruction occur below the second part of the duodenum, vomitus is usually bile stained. With repeated vomiting in the absence of obstruction, duodenal content is refluxed in to the stomach and emesis may become bile stained.

Vomiting is one of the most common symptoms in infancy and may be associated with a variety of disturbances both trivial and serious. Its causes should always be investigated

Causes of vomiting

GIT

- Chalasia
- Achalasia
- Hiatal hernia
- Peptic esophagitis
- F.B
- Intussusceptions
- Pyloric stenosis
- Gluten enteropathy
- Diaphragmatic hernia
- Food allergy
- Hirsch sprung disease
- Appendicitis
- Gastroenteritis
- Hepatitis
- Volvulus
- Duodenal ulcer
- Malrotation
- Duplication

EXTRA GIT:

- Sepsis
- Pneumonia
- Otitis media
- UTI
- Meningitis
- Brain tumor
- Adrenal insufficiency
- Inborn error

Common causes:

Common IN infants

GE

Esophageal reflux

Over feeding

Anatomical obstruction
syndrome

Systemic infection

Medication

Pertussis

Common in child

GE

Systemic infection

Toxic ingestion

Pertussis

Medication

Reflux

Red Flag' clinical features in the vomiting child

1. **Bile-stained vomit:** Intestinal obstruction
2. **Hematemesis:** Esophagitis, peptic ulceration, oral/nasal bleeding.
3. **Projectile vomiting, in first few weeks of life: Pyloric stenosis**
4. **Vomiting at the end of paroxysmal coughing:** Whooping cough (pertussis)
5. **Abdominal tenderness/abdominal pain on movement:** Surgical abdomen
6. **Abdominal distension:** Intestinal obstruction, including strangulated inguinal hernia
7. **Hepatosplenomegaly:** Chronic liver disease

8. **Blood in the stool:** Intussusception, gastroenteritis – salmonella or campylobacter
9. **Severe dehydration, shock:** Severe gastroenteritis, systemic infection (urinary tract infection, meningitis), diabetic ketoacidosis
10. **Bulging fontanelle or seizures:** Raised intracranial pressure
11. **Failure to thrive:** Gastroesophageal reflux, coeliac disease and other chronic gastrointestinal conditions

Approach to child with vomiting

Physical examination should include assessment of the child's hydration status, including examination of capillary refill, moistness of mucous membranes, and skin turgor . The chest should be auscultated for evidence of rales or other signs of pulmonary involvement. The abdomen must be examined carefully for distention, organomegaly, bowel sounds, tenderness, and guarding. A rectal examination and testing stool for occult blood should be considered.

Laboratory evaluation of vomiting should include serum electrolytes, tests of renal function, complete blood count, amylase, lipase, and liver function tests. Additional testing may be required immediately when history and examination suggest a specific etiology. Ultrasound is useful to look for pyloric stenosis, gallstones, renal stones, hydronephrosis, biliary obstruction, pancreatitis, malrotation, intussusception, and other anatomical abnormalities. CT may be indicated to observe structures that cannot be visualized well by ultrasound. Barium studies can show obstructive or inflammatory lesions of the gut and can be therapeutic, as in the use of contrast enemas for intussusception.

Treatment needs to address the consequences and the causes of the vomiting. Dehydration must be treated with fluid resuscitation. This can be accomplished in most cases with oral fluid-electrolyte solutions, but intravenous (IV) fluids may be required. Electrolyte imbalances should be corrected by appropriate choice of fluids. Underlying causes should be treated when possible.

use of **antiemetic medications** is controversial. These drugs should not be prescribed until the etiology of the vomiting is known, and then only for severe symptoms. Anticholinergics (e.g., scopolamine) and antihistamines (e.g., dimenhydrinate) are useful for the prophylaxis and treatment of motion sickness. Drugs that block serotonin 5-HT₃ receptors, such as ondansetron and granisetron, are frequently used for viral gastroenteritis and can improve tolerance of oral rehydration therapy. They are helpful for chemotherapy- induced vomiting, often combined with dexamethasone. No antiemetic should be used in patients with

surgical emergencies or when a specific treatment of the underlying condition is possible. Correction of dehydration, ketosis, and acidosis is helpful to reduce vomiting in most patients with viral gastroenteritis.

4.LOOSE OR DIARRHEAL STOOLS

The stool of the breast-fed infant is naturally softer than that of the formula-fed infant. From about the 4th to the 6th day of life, the stools of the breast-fed infant go through a transitional stage of being loose, greenish-yellow in color and containing mucus to the typical “milk stool. Subsequently, the use of laxatives or the ingestion of certain foods by the mother may be temporarily responsible for a breast-fed infant's loose stools.

Excessive intake of breast milk may also increase the frequency and water content of the stool.

Actual diarrhea from overfeeding, however, is unusual; thus, diarrhea should be considered infectious until proven otherwise.

Although the stools of formula-fed infants tend to be firmer than those of breast-fed infants, loose stools also may result from artificial feeding.

Overfeeding may cause loose, frequent stools, particularly during the 1st 2 wk or so of life.

Later, formulas that are too concentrated or too high in sugar content, especially in lactose, may result in loose, frequent stools.

Non-digestive Tract Causes of diarrhea in Children

Infection: otitis media, urinary tract infection

Uremia

Medications: antibiotics, cisapride.

Tumors: neuroblastoma

Pericarditis

Adrenal insufficiency

5.Constipation

Constipation is practically unknown in breast-fed infants receiving an adequate amount of milk and is rare in formula-fed infants receiving an adequate intake. The consistency of the stool, not its frequency, is the basis for diagnosis.

Most infants have 1 or more stools daily, but some occasionally have a stool of normal consistency at intervals of up to 36–48 hr. Whenever constipation or obstipation is present from birth or shortly after birth, a rectal examination should be performed. Tight or spastic anal sphincters may occasionally be responsible for obstipation, and finger dilation is frequently corrective. Anal fissures or cracks may

also cause constipation. If irritation is alleviated, healing usually occurs quickly. A ganglionic megacolon may be manifested by constipation by early infancy, the absence of stool in the rectum on the digital examination suggest this possibility but further diagnostic workup is indicated. Constipation may be caused by an insufficient amount of food or fluid.

Nondigestive Tract Causes of constipation in Children

Hypothyroidism.

Spina bifida.

Developmental delay.

Dehydration: diabetes insipidus, renal tubular lesions

Medications: narcotics

Lead poisoning

Infant botulism

Management of constipation

1-Dietary: Simply increasing the amount of fluid or sugar in the formula may be corrective during the 1st few months of life. After this age, better results are obtained by adding or increasing the intakes of cereal, vegetables, and fruits. Prune juice (½–1 oz) may be helpful, but adding foods with some bulk is usually more effective.

2- Polyethylene glycol is effective for disimpaction and maintenance and regarded as first line treatment for functional constipation in children.

3- Milk of magnesia may be given in doses of 1–2 tsp, but should be reserved for unresponsive or severe constipation. less effective and palatable than PEG. Infants receiving magnesium-rich formula were reported to have a significantly softer stool consistency and a significantly higher defecation frequency compared with infants receiving regular formula. Side effects of magnesium hydroxide include diarrhea, abdominal pain, and bloating. Magnesium hydroxide should be used with caution in children with renal insufficiency, owing to the increased chance of hypermagnesemia

4- probiotics: Studies showed that probiotics have the potential to increase the stool frequency

5-Enemas and suppositories: e.g. glycerine suppositories should never be more than temporary measures.

6.Colic

is a symptom complex of paroxysmal abdominal pain, presumably of intestinal origin, and severe crying. It usually occurs in infants younger than 3 mo. of age

The clinical manifestations

The clinical manifestations are characteristic. The attack usually begins suddenly, with a loud, sometimes continuous cry. The paroxysms may persist for several hours. The infant's face may be flushed, or there may be circumoral pallor. The abdomen is usually distended and tense. The legs may be extended for short periods, but are usually drawn up on the abdomen. The feet are often cold, and the hands are usually clenched. The attack may not terminate until the infant is completely exhausted. Sometimes, the passage of feces or flatus appears to provide relief.

The etiology

Fewer than 5% of infants evaluated for excessive crying have an organic etiology, with no known association with feeding method or family history of food allergy or atopy. The etiology of colic is unknown and is likely multifactorial in etiology. Since it is a diagnosis of exclusion, evaluation of infants with excessive crying is necessary in order to rule out other serious diagnoses. usually the cause not apparent, the attacks seem to be associated

*With hunger or with swallowed air that has passed into the intestine.

*Overfeeding may cause discomfort and distention,

* Some foods, especially those with high carbohydrate content, may result in excessive intestinal fermentation.

*Crying with intestinal discomfort occurs in infants with intestinal allergy, but colic is not limited to this group.

Colic may mimic intestinal obstruction or peritoneal infection.

Attacks commonly occur in the late afternoon or early evening, suggesting that events in the household routine may be involved.

Worry, fear, anger, or excitement may cause vomiting in an older child and may cause colic in an infant, but no single factor consistently accounts for colic and no treatment consistently provides satisfactory relief.

Colic often is diagnosed using **Wessel's rule of threes**—crying for more than 3 hours per day, at least 3 days per week, for more than 3 weeks.

The limitations of this definition include the lack of specificity of the word *crying* (e.g., does this include fussing?) and the necessity to wait 3 weeks to make a diagnosis in an infant who has excessive crying. Colicky crying is often described as paroxysmal and may be characterized by facial grimacing, leg flexion, and passing flatus.

Differential diagnosis of colic

The differential diagnosis for colic is broad and includes any condition that can cause pain or discomfort in the infant, as well as conditions associated with nonpainful distress, such as fatigue or sensory overload. Cow's milk protein intolerance, gastroesophageal reflux disease (GERD), maternal substance use including nicotine, and anomalous left coronary artery all have been reported as causes of persistent crying.

In addition, situations associated with poor infant regulation, including fatigue, hunger, parental anxiety, and chaotic environmental conditions, may increase the risk of excessive crying.

In most cases, the cause of crying in infants is unexplained. If the condition began before 3 weeks' corrected age, the crying has a diurnal pattern consistent with colic (afternoon and evening clustering), the infant is otherwise developing and thriving, and no organic cause is found, a diagnosis of colic may be made.

Management

The management of colic begins with education and demystification. When the family and the physician are reassured that the infant is healthy, education about the normal pattern of infant crying is appropriate.

Anticipatory guidance should also be provided regarding atypical crying that warrants further medical attention. Learning about the temporal pattern of colic can be reassuring; the mean crying duration begins to decrease at 6 weeks of age and decreases by half by 12 weeks of age. Colic frequently resolves by 3 months of age. Approximately 15% of infants with colic continue to have excessive crying after this age.

Careful physical examination is important to eliminate the possibility of intussusception, strangulated hernia, or other serious causes of abdominal pain.

Helping families develop caregiving strategies for the infant's fussy period is useful. Techniques for calming infants “5 Ss”: swaddling, side or stomach holding, soothing noises (such as shushing, singing, or white noise), swinging or slow rhythmic movement (such as rocking, walking, or riding in a car), and sucking on a pacifier. Giving caregivers permission to allow the infant to rest or leave the infant alone in a safe place (such as a crib) when soothing strategies are not working may alleviate overstimulation in some infants; this also relieves families of guilt and allows them a wider range of responses to infant crying.

It is important to encourage parents to seek help and support from others when they are becoming overwhelmed and to advise against harmful methods to soothe an infant (such as placing the infant on a vibrating clothes dryer). Parents should be specifically educated about the dangers of shaking babies.

Medications, including simethicone, lactase, phenobarbital, diphenhydramine, alcohol, dicyclomine, and have not been shown to be of benefit and may cause serious side effects; they are, therefore, not recommended. Some early studies have suggested that probiotics may be useful, but results have been conflicting, and further research is needed.

Alternative treatments such as chamomile, fennel, vervain, licorice, and balm-mint teas have not been approved for use in infants and can cause serious side effects such as (hyponatremia and anemia).