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Obstructive & Inflammatory GI Conditions of Childhood

1. Obstructive & Inflammatory GI Conditions of Childhood Overview

Pyloric stenosis, intussusception, Hirschsprung disease, and necrotizing enterocolitis are all obstructive or inflammatory **GI conditions** that can cause **vomiting** and changes in **stool** and **abdominal assessment** (**TABLE 1**).

TABLE 1. OBSTRUCTIVE & INFLAMMATORY GI CONDITIONS OF CHILDHOOD

	Hypertrophic Pyloric Stenosis	Intussusception	Hirschsprung	Necrotizing Enterocolitis
Cause	**Thickening** of pyloric sphincter	**Telescoping** of bowel	**Lack of peristalsis** from absent ganglion cells	**Immature intestinal** wall
Vomiting	✪ **Nonbilious, projectile**	Bilious or nonbilious, nonprojectile	Bilious or nonbilious, nonprojectile	Bilious or nonbilious, nonprojectile
Stool	Varies	✪ **Red, "currant jelly"** stool	✪ **Meconium passage delayed >48 hr** after birth and/or **ribbon-like** stool	✪ **Bloody** stool
Abdominal Assessment	✪ **Olive-shaped** RUQ mass	✪ **Sausage-shaped** RUQ mass	Abdominal **distension**	✪ Abdominal **distension**
Major Complication	✪ **Dehydration**	Bowel perforation → Peritonitis + Shock	Enterocolitis	Bowel perforation → Peritonitis + Shock

2. Hypertrophic Pyloric Stenosis

Hypertrophic pyloric stenosis

- **Thickened pyloric sphincter obstructs** food from entering the duodenum (small intestine) (**FIGURE 1**) → Projectile vomiting → Fluid and electrolyte imbalances.
- Diagnosed with **ultrasound**

Assessment findings

- ✪ **Nonbilious projectile** vomiting (ejected several feet) followed by **hunger**
  - Emesis is **non**bilious because stomach contents **never reach the intestine**.
  - Loss of hydrochloric **acid** → **Metabolic alkalosis**
- ✪ **Olive-shaped** RUQ mass
- ✪ Signs of **dehydration** (**TABLE 2**)
- **Weight loss** due to poor nutrient absorption

Interventions

Nursing care focuses on:

1. Restoring **fluid** and **electrolyte balance** before surgery
2. Providing **post-pyloromyotomy monitoring** and **nutrition**

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2. Hypertrophic Pyloric Stenosis, Continued

FIGURE 1. HYPERTROPHIC PYLORIC STENOSIS

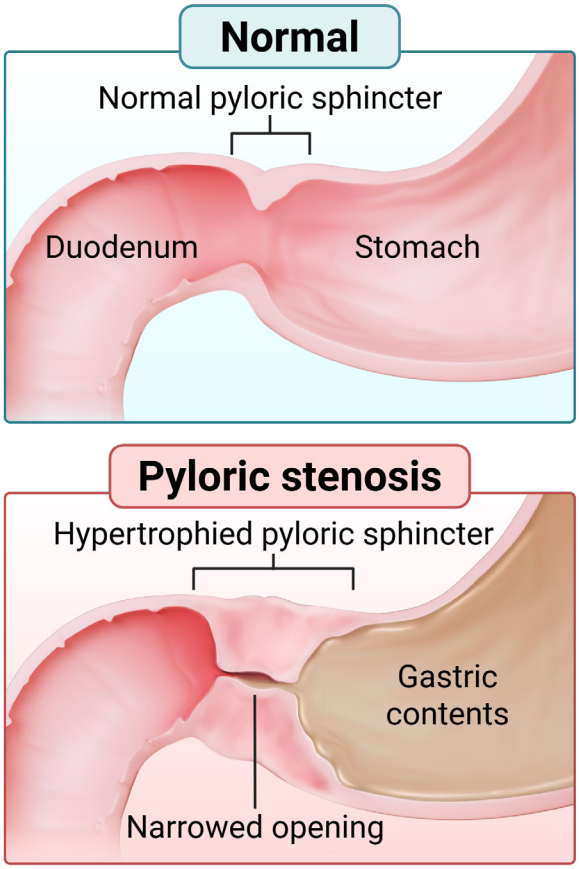

TABLE 2. SIGNS OF DEHYDRATION IN INFANTS & CHILDREN

- **Sunken fontanels**
- **Absence of tears**
- Sunken eyes
- Prolonged capillary refill
- Mottling or tenting of the skin
- **Decreased urine** output

1. Restore **fluid** and **electrolyte balance** before surgery:
   - Monitor for signs of **dehydration** (see **TABLE 2**).
     - Children with **vomiting or diarrhea** are at **high risk** for dehydration due to immature kidneys and a greater body surface-to-mass ratio.
   - To relieve **vomiting**:
     - Keep the client **NPO**.
     - Insert **NG tube** for **decompression**.
   - Administer **IV fluids** and **electrolyte replacement** as needed.
   - Maintain **strict I&O** (weigh diapers, record emesis and NG output).
2. Provide **post-pyloromyotomy monitoring** and **nutrition**:
   - Once dehydration resolves, the client undergoes a laparoscopic **pyloromyotomy** to **open the obstruction**.
   - Postoperative monitoring
     - Monitor for **return of bowel function** (presence of **bowel sounds**, passing gas and stool).
     - Report signs of **infection** (fever, erythema).
     - Vomiting is **expected** for the **first 48 hr** after surgery.
   - **Resume feedings** once bowel sounds return.
     - Provide **small, frequent** feedings.
     - Start with clear liquids and **advance slowly** to breast milk or formula as tolerated.

NCLEX Star Points

❶ **Hypertrophic pyloric stenosis**: **Nonbilious, projectile vomiting** followed by hunger and an **olive-shaped** abdominal **mass** are signs of **hypertrophic pyloric stenosis**. The major complication of hypertrophic pyloric stenosis is **dehydration**.

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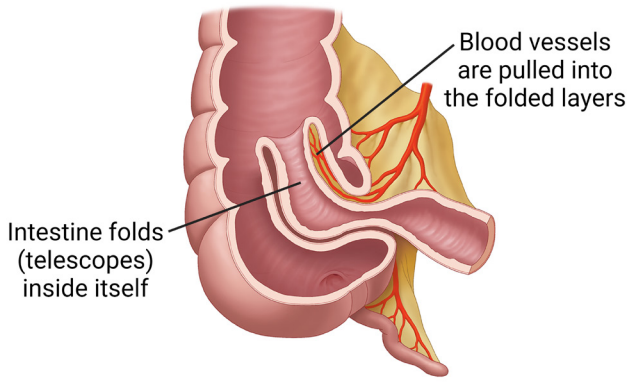
3. Intussusception

FIGURE 2. INTUSSUSCEPTION



Intussusception

- **Intestine "telescopes"** or **folds inside itself** (**FIGURE 2**) → Folded portion **obstructs blood flow** and **passage of food** → Intestinal **ischemia** → **Blood and mucus** leak into the intestine.
- Diagnosed with **abdominal ultrasound**

Assessment findings

- Episodes of **sudden, acute abdominal pain**
  - ✪ **Cries** inconsolably and draws **knees toward the chest**
    - Appears calm between painful episodes
- ✪ **Red**, mucousy, **"currant jelly" stool** from blood and mucus in bowel
- ✪ **Sausage-shaped RUQ** mass
- **Vomiting** (bilious or nonbilious, nonprojectile)

Interventions

Nursing care focuses on:

1. Monitoring for signs of **bowel perforation**, **dehydration**, and **spontaneous unfolding** of the bowel
2. Preparing for **reduction** and monitoring post-reduction **bowel function**

1. Monitor for signs of **bowel perforation**, **dehydration**, and **spontaneous unfolding** of the bowel:
   - Clients with intussusception are at risk for **life-threatening bowel perforation** from **ischemia**.
   - ✪ Immediately **report signs of peritonitis or shock** to the HCP, as this indicates **bowel perforation**.
     - **Fever**
     - **Rigid** abdomen
     - Signs of **shock** (pallor, ↑ HR, ↓ BP)
   - Monitor for signs of **dehydration** (see **TABLE 2**).
   - ✪ If child passes a **normal, formed, brown stool, immediately notify the HCP** as this indicates the obstruction has **unfolded itself** (resolved), which changes the plan of care.
2. Prepare for **reduction** and monitor post-reduction **bowel function**:
   - In a nonsurgical **reduction enema**, air (pneumatic) or saline (hydrostatic) is forced into the bowel to **unfold the intussusception**.
     - To prepare for reduction, **obtain consent** and **keep clients NPO** in case abdominal surgery is needed.
   - ✪ Monitor for **return of bowel function** (passage of normal, brown, formed stool).
   - Report **signs of recurrence** (red, mucousy, "currant jelly" stool).

NCLEX Star Points

❷ **Intussusception**: Episodes of **severe abdominal pain** and **red, "currant jelly" stools** are signs of **intussusception**. The nurse should monitor children with intussusception for signs of **bowel perforation** (rigid abdomen, hypotension).

❸ **Resolved intussusception**: If a client with **intussusception** passes a **normal, formed, brown stool**, the nurse should immediately **notify** the **HCP** because this indicates the intussusception has **resolved** (unfolded).

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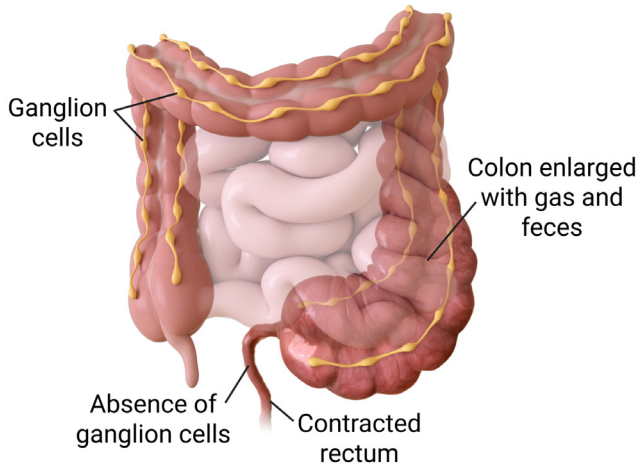
4. Hirschsprung Disease

FIGURE 3. HIRSCHSPRUNG DISEASE



Hirschsprung disease (HD), or congenital aganglionic megacolon

- Birth defect causes **absence of ganglion cells** in the distal colon and rectum ("aganglionic").
- Without ganglion cells, the bowel cannot relax → **Contracted** rectum + **lack of peristalsis** → Bowel **obstruction** → Buildup of gas and feces **distends the colon** proximal to obstruction ("megacolon") (**FIGURE 3**).
- Diagnosed with a **rectal exam** and **biopsy**

Assessment findings

- **Delayed passage of meconium** (>48 hr after birth)
- **Foul-smelling, ribbon-like** stool (as stool is forced through the **contracted rectum**)
- Chronic **constipation** (in older children)
- **Abdominal distention**, vomiting (bilious or nonbilious, nonprojectile)
- **Poor feeding → Weight loss**, growth failure

Interventions

Nursing care focuses on:

1. Restoring **hydration** and **nutrition** before surgery
2. Monitoring for **enterocolitis**
3. Preparing for **bowel surgery** and monitoring for **postoperative complications**

1. Restore **hydration** and **nutrition** before surgery:
   - Clients with HD may be too **dehydrated** and **malnourished** to tolerate surgery at first.
   - Provide a **high-calorie, high-protein diet** as needed.
   - Administer **IV fluids** and **electrolyte replacement** as needed.
2. Monitor for **enterocolitis**:
   - Clients with HD are at risk for **life-threatening enterocolitis** from a buildup of feces and **bacterial overgrowth**.
   - **Monitor abdominal girth**, as ↑ abdominal girth can indicate **enterocolitis** or **bowel perforation**.
     - Place tape measure at the **umbilicus** for consistent measurements.
   - Immediately report **signs of enterocolitis** to the HCP, including:
     - Fever, ill appearance
     - Increasing **abdominal girth**
     - **Explosive, watery diarrhea**
3. Prepare for **bowel surgery** and monitor for **postoperative complications**:
   - Once dehydration and malnutrition resolve, the client undergoes surgery to remove the aganglionic portion of the bowel.
   - Preoperatively
     - **Empty** the bowel with **saline enemas**.
     - **Sterilize** the bowel with PO/IV **antibiotics** and **colonic irrigations** with antibiotic solution.
   - Postoperatively
     - Monitor for return of **bowel function** (passing gas and stool).
     - Report signs of **infection**.
   - If a temporary colostomy is needed:
     - Allow child to **play with colostomy equipment** and **express concerns** about changes to body image.
     - Teach caregivers to **notify HCP** if **stoma** appears **pale, blue, or dusky**.

NCLEX Star Points

Hirschsprung disease: **Delayed passage of meconium** >48 hours after birth and passage of **foul-smelling, ribbon-like stools** are signs of **Hirschsprung disease**. The nurse should monitor children with Hirschsprung disease for **increasing abdominal girth**, which can indicate enterocolitis.

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5. Necrotizing Enterocolitis

Necrotizing enterocolitis (NEC) is acute **bowel inflammation** in newborns.

- Immature intestinal wall ⟶ Allows bacterial invasion + inflammation ⟶ Bowel necrosis + perforation
- Major risk factor is **prematurity**
- Diagnosed with **abdominal X-ray**

Assessment findings (**FIGURE 4**)

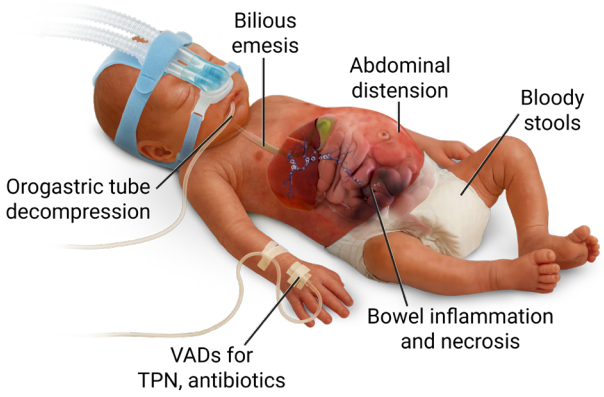
- ✪ **Abdominal distension** (early sign)
- ✪ **Bloody stool**
- Poor feeding, vomiting (bilious or nonbilious, nonprojectile)

Nursing Interventions

Nursing care focuses on:

1. Monitoring and preventing **bowel complications**
2. Initiating **bowel rest** and **antibiotic treatment**

FIGURE 4. NECROTIZING ENTEROCOLITIS



1. Monitor and prevent **bowel complications**:
   - ✪ Monitor **abdominal girth** with assessments of high-risk newborns for early detection.
   - Monitor and **report** signs of **peritonitis** or **shock** to the HCP, as this indicates **bowel perforation** (abdominal rigidity).
     - ✪ **Avoid rectal temperatures**; can ↑ perforation risk.
     - If **perforation** occurs, prepare for **surgical bowel resection**.

2. Initiate **bowel rest** and **antibiotic treatment**:
   - ✪ Implement **NPO** status.
   - ✪ Administer **IV antibiotics** to treat bacterial invasion and prevent sepsis.
   - Administer **total parenteral nutrition (TPN)** to provide nutrition while NPO.
   - Insert **NG** or **OG** tube connected to **suction** to decompress stomach.

NCLEX Star Points

❺ **Necrotizing Enterocolitis**: **Abdominal distension** and **bloody stools** in newborns are signs of necrotizing enterocolitis. If suspected, implement **NPO status** to promote bowel rest and administer **IV antibiotics to prevent sepsis**.

NCLEX Top 5 Targets

1. If a client has **nonbilious, projectile vomiting** followed by hunger and an **olive-shaped** abdominal **mass**, the nurse should suspect _____ **(which diagnosis?)** and prioritize assessment for _____ **(which complication?)**.
2. If a client has episodes of **severe abdominal pain** and **red, "currant jelly" stools**, the nurse should suspect _____ **(which diagnosis?)** and monitor for signs of _____ **(which complication?)**.
3. If a client with **intussusception** passes a **normal, formed, brown stool**, the nurse should _____ because this indicates the intussusception has _____.
4. If a client has **delayed passage of meconium** or **foul-smelling, ribbon-like stools**, the nurse should suspect _____ **(which diagnosis?)** and monitor for **increasing** _____.
5. If a newborn client has **abdominal distension** and **bloody stools**, the nurse should suspect _____ **(which diagnosis?)** and prepare to implement _____ **status** and administer _____.

Answers: 1. hypertrophic pyloric stenosis, dehydration 2. intussusception, bowel perforation 3. notify the HCP, resolved (unfolded) 4. Hirschsprung disease, abdominal girth 5. necrotizing enterocolitis, NPO, IV antibiotics

References:

Astle, B., Duggleby, W., Potter, P. A., Stockert, Perry, A. G., & Hall, A. M. (2024). *Potter and Perry's Canadian Fundamentals of Nursing* (7th ed.). Elsevier.

Berman, A. B., Snyder, S. J., & Frandsen, G. (2021). *Kozier & Erb's fundamentals of nursing: Concepts, process, and practice* (11th ed.). Pearson.

Callahan, B., Hand, M., & Steele, N. (Eds.). (2023). *Nursing: A concept-based approach to learning* (4th ed., Vol 2). Pearson.

Harding, M. M., Kwong, J., Hagler, D., & Reinisch, C. (Eds.). (2023). *Lewis's medical-surgical nursing: Assessment and management of clinical problems* (12th ed.). Elsevier.

Hockenberry, M., Duffy, E.A., & Gibbs, K. (2024). *Wong's nursing care of infants and children* (12th ed.). Elsevier.

Ignatavicius, D., Heimgartner, N., & Rebar, C. (Eds.). (2024). *Medical-surgical nursing: Concepts for clinical judgment and collaborative care* (11th ed.). Elsevier.

Keenan-Lindsay, L., Sams, C., & O'Connor, C. (2022). *Perry's maternal child nursing care in Canada* (3rd ed.). Elsevier Health Sciences (US).

Lowdermilk, D., Cashion, M. C., Alden, K. R., Olshansky, E.F., & Perry, S. (2023). *Maternity and women's health care* (13th ed.). Elsevier.

McCance, K. L., Huether, S. E., Brashers, V. L., & Rote, N. S. (2019). *Pathophysiology: The biologic basis for disease in adults and children* (8th ed.). Elsevier.

McKinney, E., Mau, K., Murray, S., James, S., Nelson, K., Ashwill, J., & Carroll, J. (2022). *Maternal-child nursing* (6th ed.). Elsevier Health Sciences.

Perry, S.E., Lowdermilk, D.L., Cashion, K. Alden, K.R., & Olshanksy, E.F. (2023). *Maternal child nursing care* (7th ed.). Elsevier.

Potter, P. A., Perry, A. G., Stockert, P. A., & Hall, A. M. (Eds.). (2023). *Fundamentals of nursing* (11th ed.). Elsevier.

Tyerman, J., Cobbett, S., Harding, M. M., Kwong, J., Roberts, D., Hagler, D., Reinisch, C. (Eds.). (2023). *Lewis's medical-surgical nursing in Canada: Assessment and management of clinical problems* (5th ed.). Elsevier.

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