Children with Gastrointestinal Dysfunction

Hypertrophic Pyloric Stenosis

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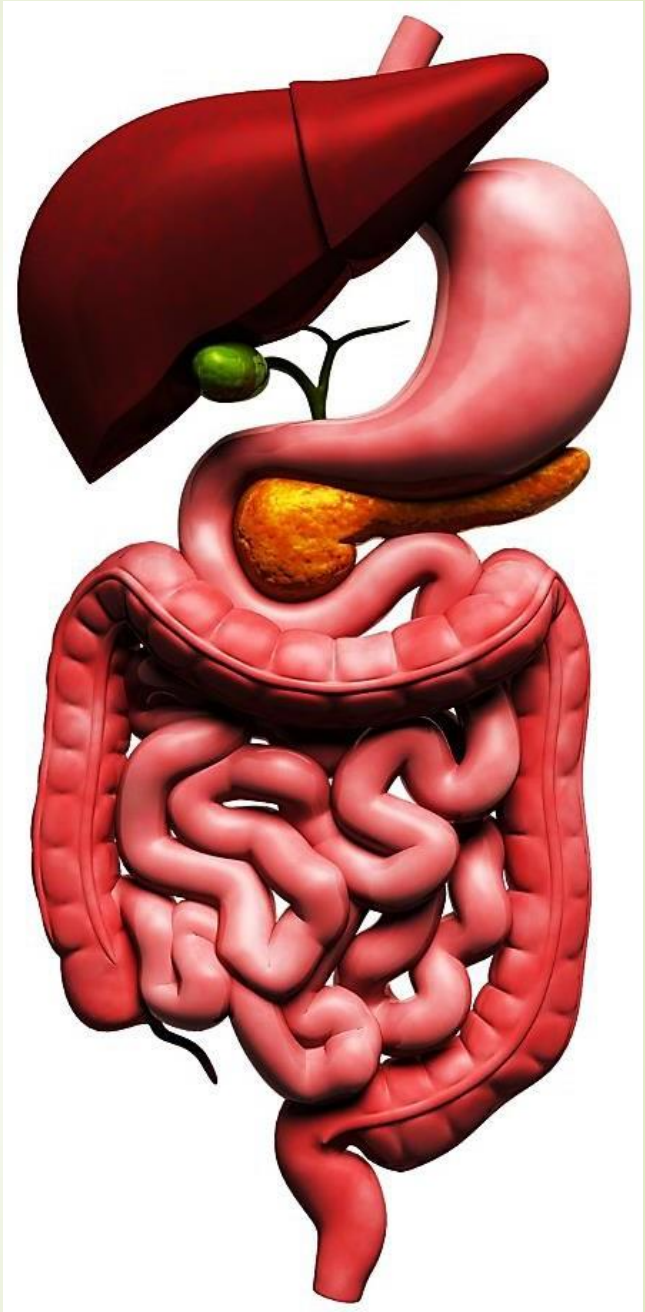
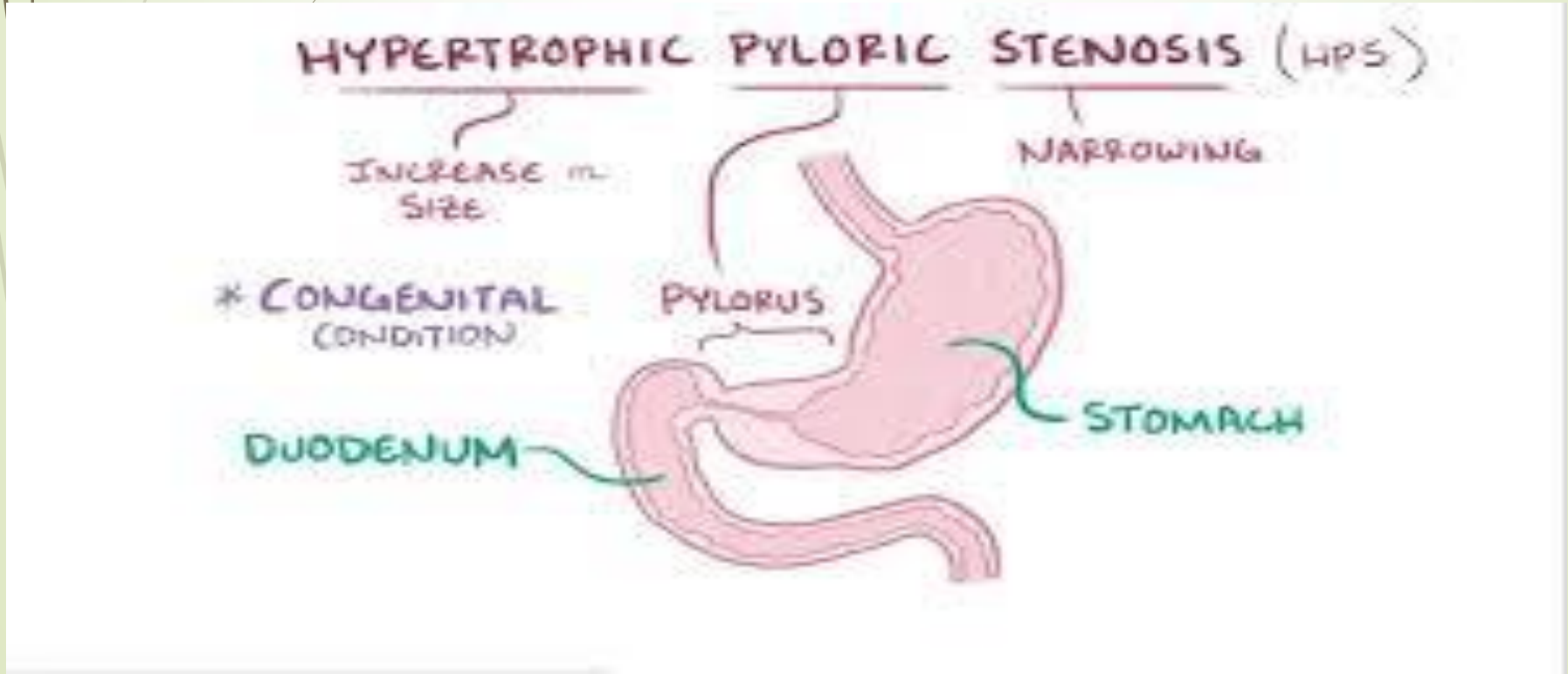
Outline

- Definition
- Causes
- Signs and symptoms
- diagnostic evaluation
- Complication
- Therapeutic management
- Nursing diagnosis
- Nursing care management



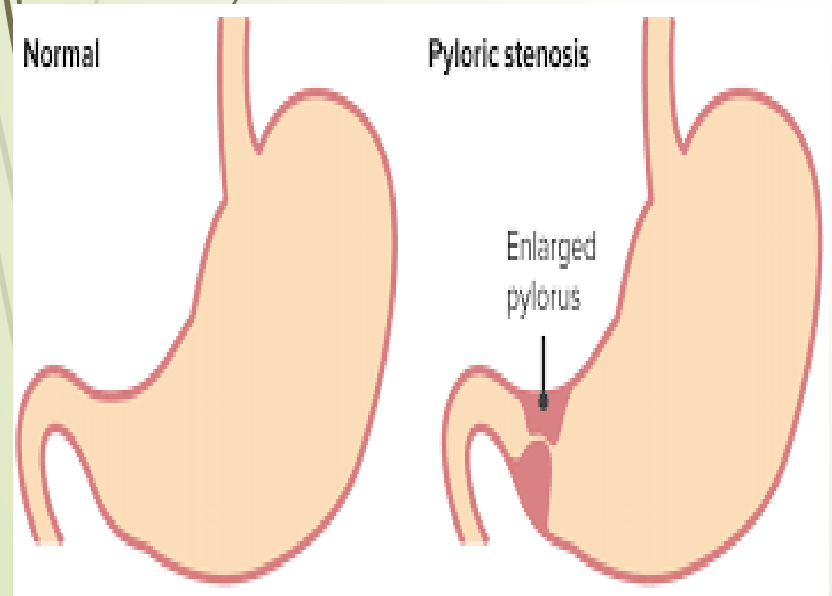
Introduction

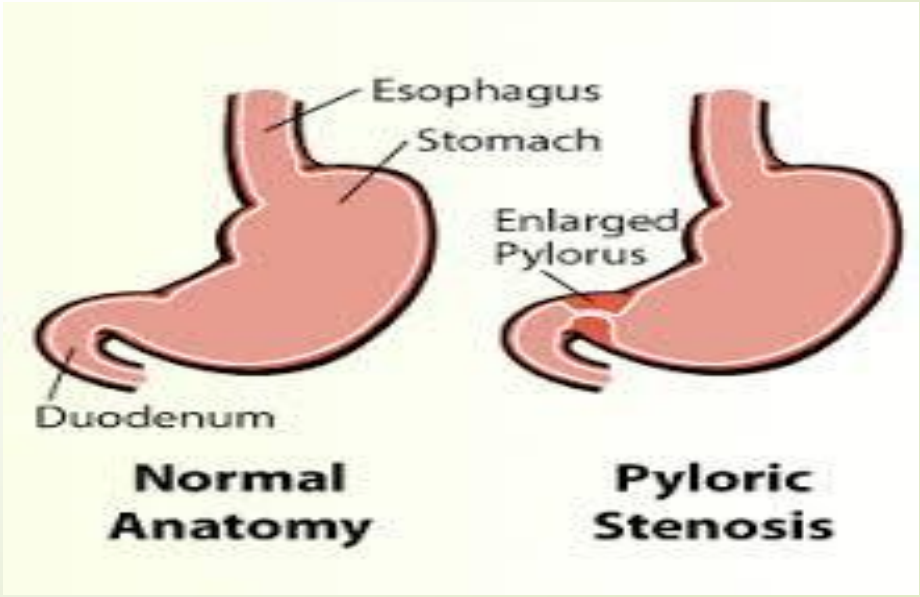
- The pylorus muscle which is at the distal end of the stomach becomes thickened causing constriction of the pyloric canal between the stomach and the duodenum and obstruction of the gastric outlet of the stomach.



Definition

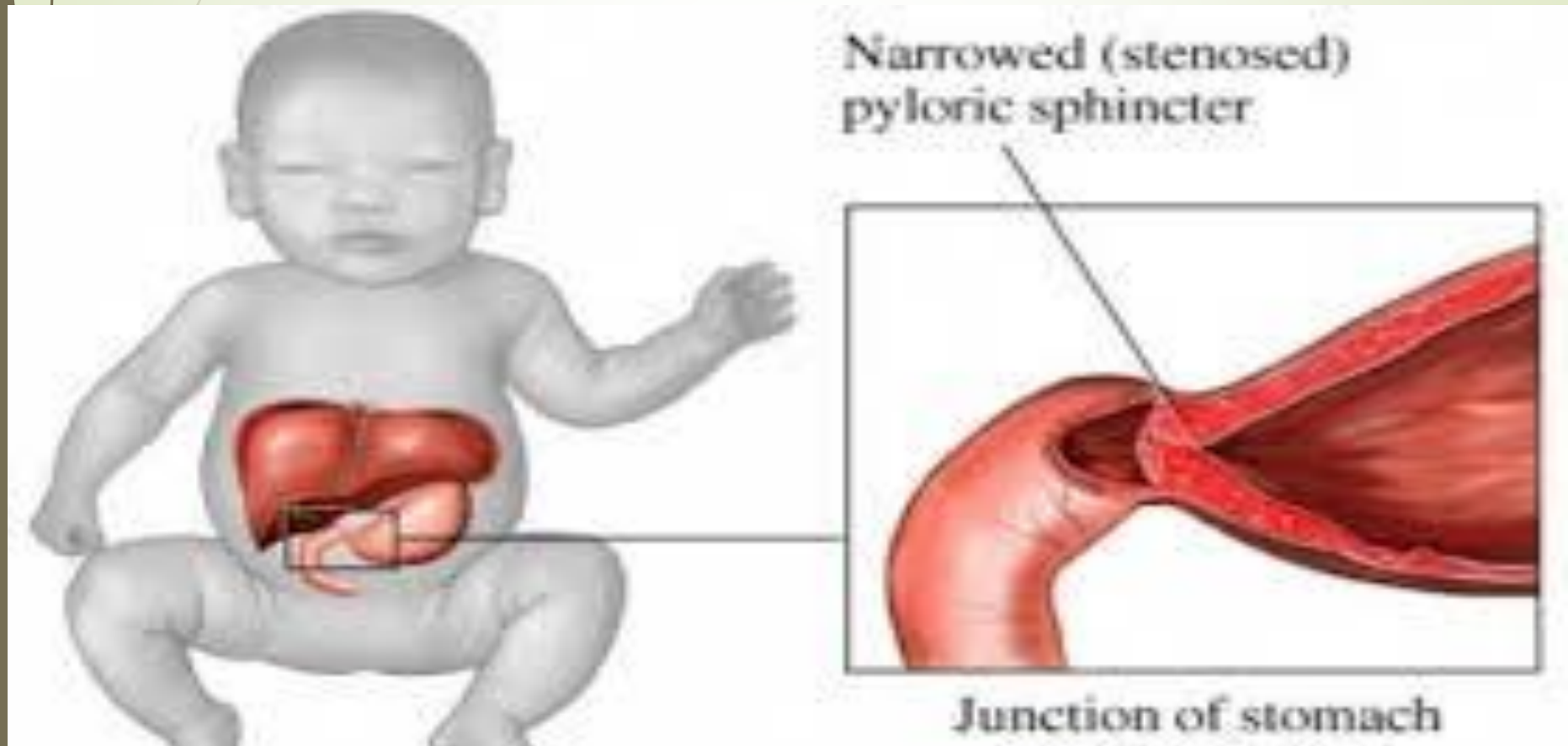
- Pyloric stenosis results from hypertrophy of the muscles surrounding the pylorus leading to its narrowing and gastric outlet obstruction.



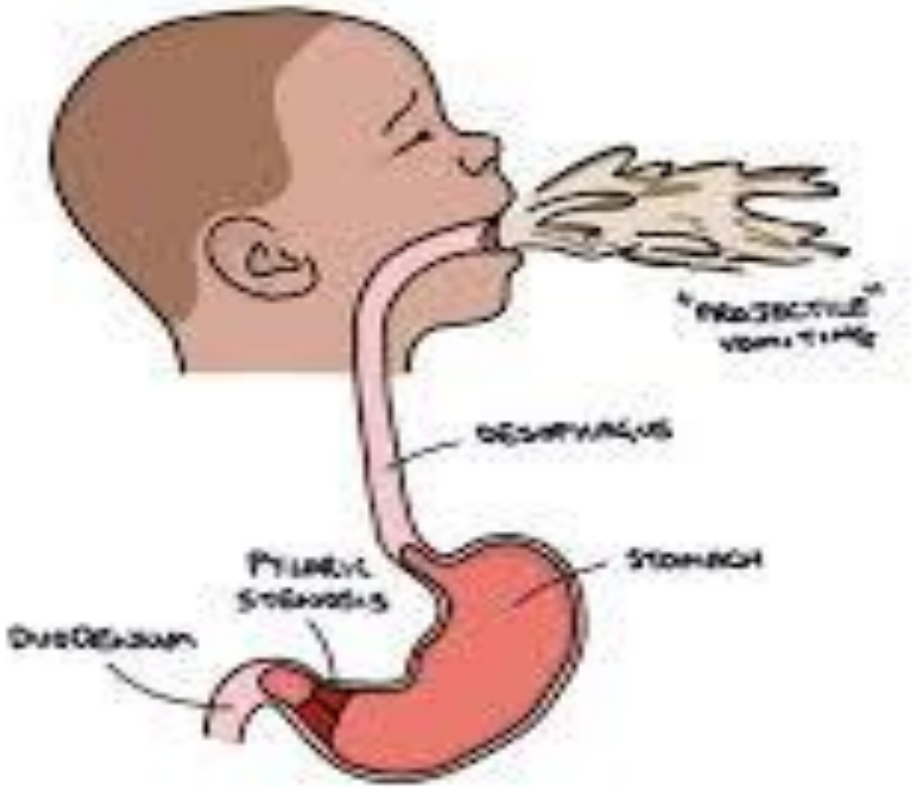


Pyloric stenosis resulting in:-

- Narrowing of the pyloric sphincter
- Delayed emptying of the stomach.



Pyloric stenosis is a relatively common condition that causes severe **projectile non-bilious vomiting** in the first few weeks of life.



Epidemiology and Etiology

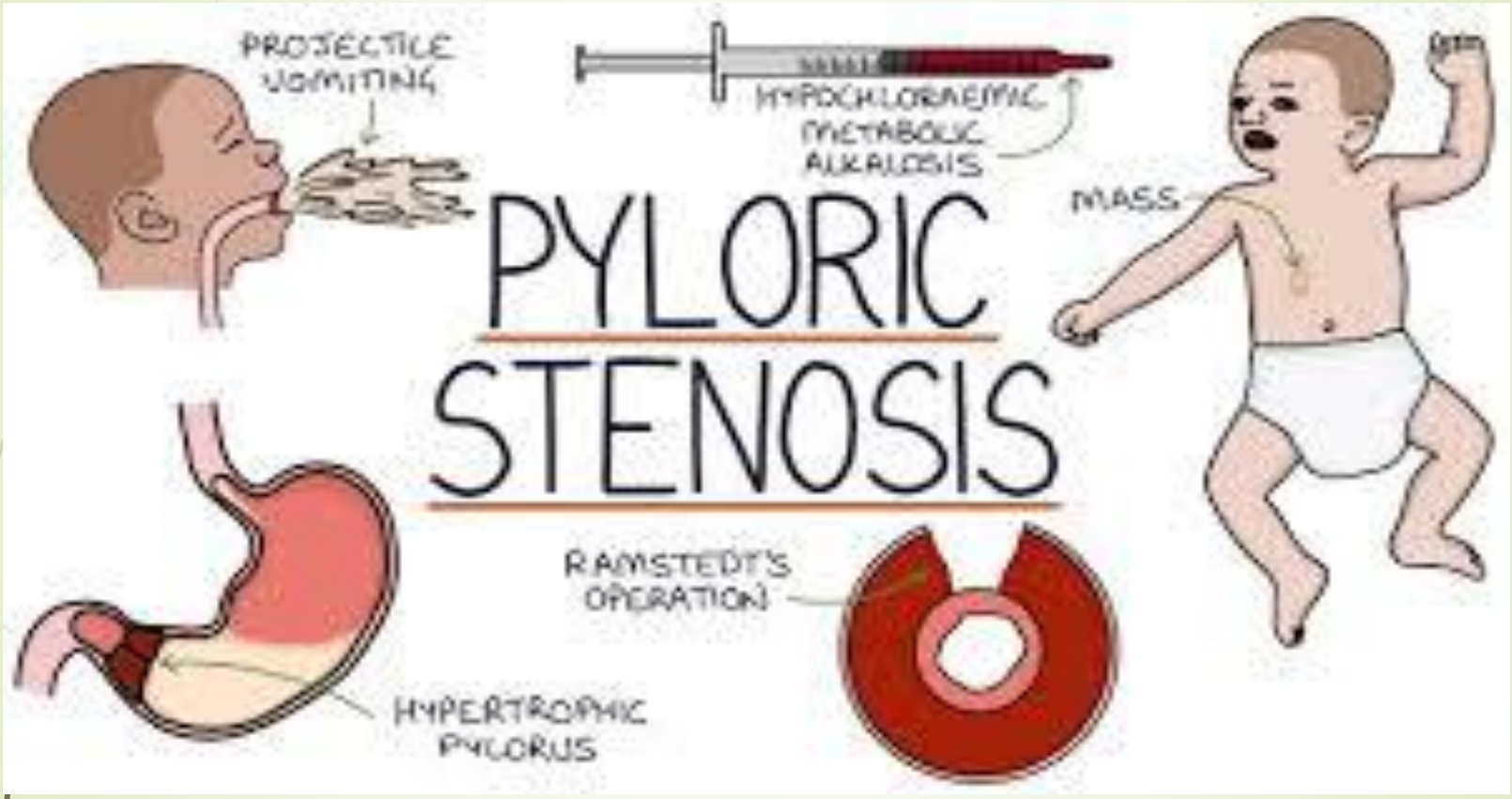
- Infantile pyloric stenosis occurs in the first 3–6 weeks of life.
- Pyloric stenosis has also been reported in the first few days of life and in utero.
- Males are more commonly affected than females, with firstborn males affected about four times as often.

- The incidence of infantile hypertrophic pyloric stenosis is variable. It is:
- – 0.7 per 1000 live births in Blacks.
- – 0.6 per 1000 live births in Asians.
- – Less common among children of mixed race parents.
- - The exact cause is not known. It appears to be inherited.

Pathophysiology

- • There is hypertrophy and hyperplasia of the two (circular and longitudinal) muscular layers of the pylorus.
- • This leads to narrowing of the pyloric canal and gastric outlet obstruction.
- • The pyloric canal becomes lengthened, and the whole pylorus becomes thickened. The mucosa is usually edematous and thickened.

- Infantile pyloric stenosis is characterized by **persistent, non-bilious projectile vomiting due to gastric outlet obstruction.**
- Prolonged vomiting leads to loss of large quantities of gastric secretions. As a result of dehydration


PROJECTILE VOMITING
HYPOCHLORAEMIC METABOLIC ALKALOSIS
PYLORIC STENOSIS
MASS
RAMSTEDT'S OPERATION
HYPERTROPHIC PYLORUS

Clinical Manifestations

- - Progressively projectile and non-bile-stained vomiting. The child remains hungry.
- - Poor weight gain and malnutrition
- a palpable pyloric mass (olive sign) which is felt in the right upper abdomen, especially after vomiting and during a test feed.
- • May be dehydrated.
- • Indirect hyperbilirubinemia may be seen in 1–2 % of affected infants.

Diagnosis

- Diagnosis is via a careful history and physical examination, often supplemented by radiographic studies.

•Ultrasonography.

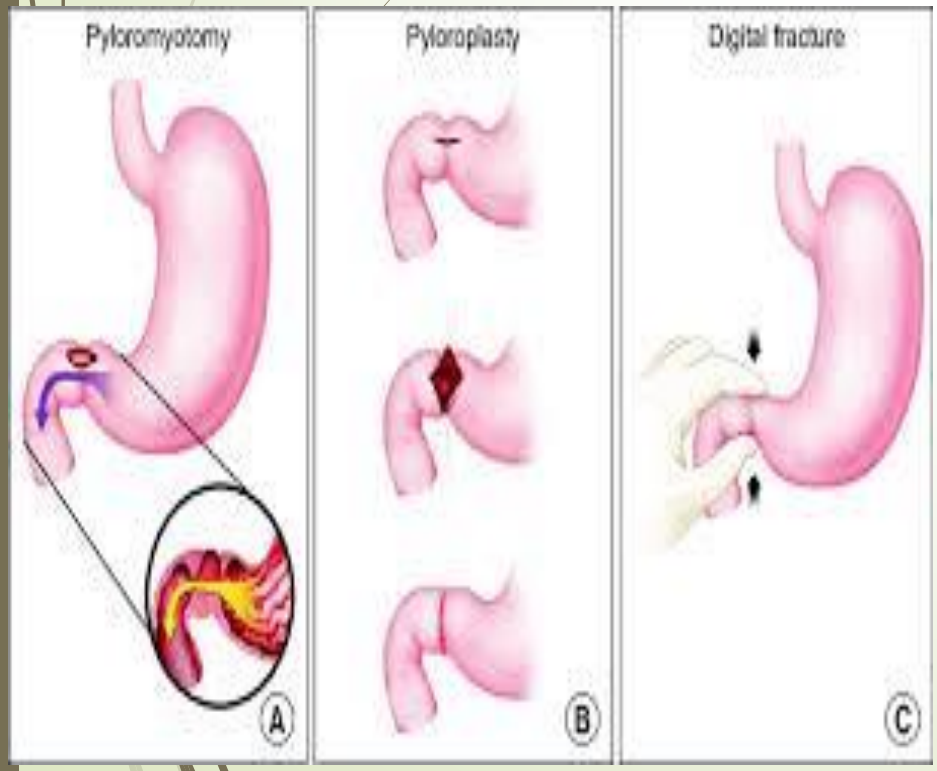
Ultrasonography confirms hypertrophic pyloric stenosis when the pyloric muscle thickness is > 4 mm

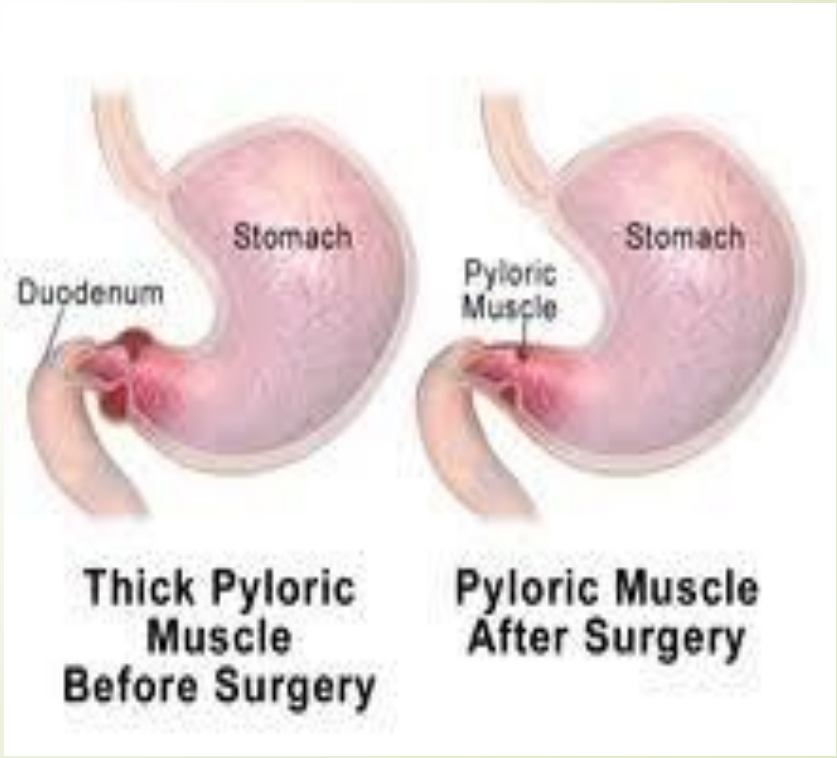
•Blood tests will reveal hypokalemic, hypochloremic metabolicalkalosis.

Medical Management

- The mortality and morbidity of infantile pyloric stenosis comes from the dehydration and electrolyte disturbance. Therefore, the infant must be initially stabilized by correcting the dehydration and hypochloremic alkalosis with IV fluids.

- **Pyloromyotomy.** A surgical procedure called a pyloromyotomy, also known as a Fredet-Ramstedt operation, is the treatment of choice. Pyloromyotomy can be done by open procedure or laparoscopically depending on the surgeon's experience and preference





Pre-operative Nursing Care

- Nothing per mouth
- Naso-gastric intubation for suction and repeated washing using warm saline
- Intravenous fluid therapy to correct dehydration and electrolyte disturbances.
- Intravenous broad-spectrum antibiotics and vitamin K.

Post-operative Nursing Care

- Measuring vital signs
- Monitor parenteral fluids to maintain hydration
- Oral feeding resumed 2-8 hours after surgery (slowly)
- if the mother was breast feeding, she should resume this as soon as possible.
- Report any vomiting
- Removal of the naso-gastric tube after 12 hours post-operatively.
- Position with head elevated
- Assess Surgical site to prevent infection

Nursing care

1- Nursing Assessment

- **Assess the child's history of vomiting.** Ask when the vomiting started and determine the character of the vomiting.
- **Assess for the child's elimination.** Ask the caregiver about constipation and scanty urine.
- **Physical exam.** Physical exam reveals an infant who may show signs of dehydration; obtain the infant's weight and observe skin turgor and skin condition, anterior fontanelle, temperature, apical pulse rate, irritability, lethargy, urine, lips and mucous membranes of the mouth, and eyes; observe for visible gastric peristalsis when the infant is eating.

2- Nursing Diagnoses

- **Imbalanced nutrition: less than body requirements** related to inability to retain food.
- **Deficient fluid volume** related to frequent vomiting.
- **Impaired oral mucous membrane** related to NPO status.
- **Risk for impaired skin integrity** related to fluid and nutritional deficit.
- **Compromised family coping** related to seriousness of illness and impending surgery.

3- Nursing Care Planning and Goals

- Improving nutrition and hydration.
- Maintaining mouth and skin integrity.
- Relieving family anxiety.

4- Nursing Interventions

- **Maintain adequate nutrition and fluid intake.**
- If the infant is severely dehydrated and malnourished, rehydration with intravenous fluid and electrolytes are necessary
- feedings of formula thickened with infant cereal and fed through a large-holed nipple may be given to improve nutrition; feed the infant slowly while he or she is sitting in an infant seat or being held upright.

- Provide mouth care. The infant needs good mouth care as the mucous membranes of the mouth may be dry because of dehydration
- Promote skin integrity. The infant is repositioned, the diaper is changed, and lanolin or A and D ointment is applied to dry skin areas.
- Promote family coping. Include the caregivers in the preparation for surgery and explain the importance of added IV fluids, and the function of the NG tube and saline lavage;
- describe the surgical procedure to be performed; and explain what to expect and how long the operation will last.

5- Evaluation

- Goals are met as evidenced by:
- Improved nutrition and hydration.
- Maintained mouth and skin integrity.
- Relieved family anxiety.

Thank you