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HYPERTROPHIC PYLORIC STENOSIS

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ABSTRACT

Hypertrophic Pyloric Stenosis is conditioning in which the junction between the stomach and duodenum thickens.

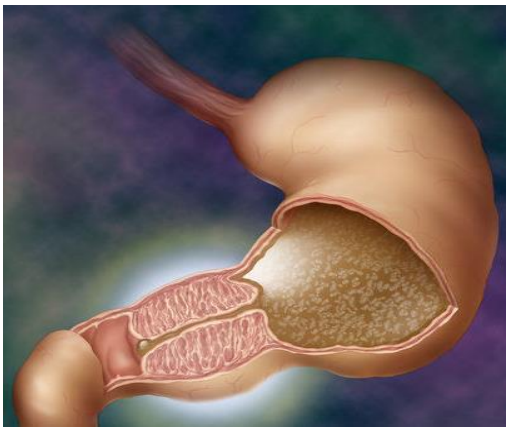
Keywords: Hypertrophy, Pyloric Sphincter, Stenosis, duodenum, circumferential, glucoronyl transferase, pyloromyotomy, Fredit- Ramstedt Procedure.

INTRODUCTION

The stomach connects the esophagus to the small intestines. The pylorus of the stomach is a small, narrow muscular sphincter through which food passes into the duodenum after it has been partially digested in the stomach. Pyloric stenosis is an obstruction at the pyloric sphincter caused by a hypertrophy of the circular muscle soon after birth. It is characterized by hypertrophy of the circular muscles of the pylorus with severe narrowing of the lumen.

DEFINITION

Pyloric stenosis occurs when the circumferential muscles of the pyloric sphincter become thickened, resulting in elongation and narrowing of the pyloric canal.



INCIDENCE

- 1-3.5 in 1000 infants
- Male to female ratio is 5:1

- Usually found in first born males
- Occurs in Europeans, rarely found in Blacks and Asians.

ETIOLOGY

- Exact cause is unknown.
- Genetic inheritance

RISK FACTORS

- Sex: more often in males than females, especially first born
- Race and Ethnicity: more common in whites and Hispanic children's
- Premature birth: common is preterm babies, when comparing full-term
- Family History: 20% of male and 10% of females born to pyloric stenosis mother get this disease
- Smoking during pregnancy: double the incidence
- Bottle feeding

PATHOPHYSIOLOGY

Circular muscles of the pylorus thicken by hypertrophy

↓

Severe narrowing of pyloric canal in between the stomach and duodenum

↓

Partial obstruction of the lumen

↓

Overtime, due to inflammation increase in hypertrophy causing complete obstruction

↓

It might manifest as an olivelike mass per abdomen

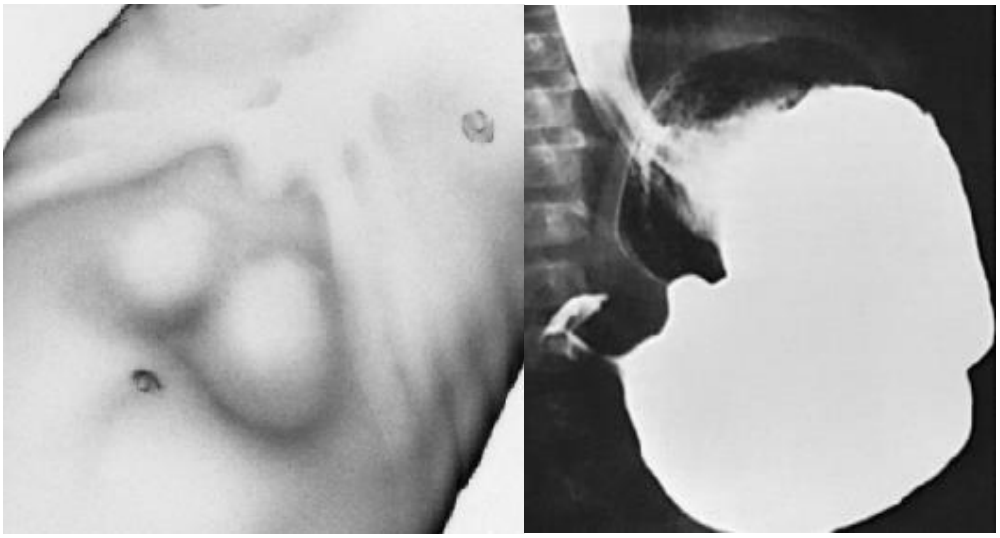
CLINICAL MANIFESTATIONS

- Projectile non bilious vomiting after feeds. In later stage might become brown if gastritis occurs. Vomiting usually starts at 3 weeks of age but can start as early as 1 week also as late as 5 months.
- Palpable mass at upper epigastrium just to the right of the umbilicus.
- Peristaltic waves passing from left to right across the abdomen are seen after each feed.
- Loss of weight and malnourishment
- Dehydration (lack of fluid intake and vomiting)
- Constipation

- Irritability
- Failure to thrive
- Metabolic alkalosis (due to vomiting loss of fluid, hydrogen ion and chloride)
- Indirect jaundice in 5% cases due to unavailability of glucoronyl transferase.

DIAGNOSTIC EVALUATION

- History collection about nature of vomiting
- Physical examination reveals olivelike mass that is easily palpable when child is empty stomach.
- Ultrasonography: an elongated mass surrounding a long pyloric canal
- Barium X-ray: narrow pyloric canal, delayed emptying and enlarged stomach
- Endoscopy
- Laboratory studies: show metabolic alteration due to severe depletion of water and electrolyte, decreased sodium, potassium and chloride, decreased chloride, increase in pH and bicarbonate.



TREATMENT

- **PRE-OP MANAGEMENT**

➢ Intravenous fluid therapy with 0.45–0.9% saline, in 5–10% dextrose, with the addition of potassium chloride in concentrations of 30–50 mEq/L

➢ Fluid therapy should be continued until the infant is rehydrated and the serum bicarbonate concentration is <30 mEq/dL, which implies that the alkalosis has been corrected. Correction of the alkalosis is essential to prevent postoperative apnea, which may be associated with anesthesia.

➢ Most infants can be successfully rehydrated within 24 hr vomiting usually stops when the stomach is empty, and only an occasional infant requires nasogastric suction.

- Urine output record and serum electrolytes
- Before surgery, aspirate the infant's stomach with suction tube to remove any residual gastric fluid or barium.

- **SURGICAL MANAGEMENT:**
- **PYLOROMYOTOMY** (Fredit- Ramstedt Procedure)

The procedure is performed through a right upper quadrant incision and consists of a longitudinal incision through the circular muscle fibers of the pylorus down to, but not including sub-mucosa. This surgery can be done by laparoscopic approach also.

- **POST-OP MANAGEMENT**
- Feeds are begun usually 4 to 6 hours post-operatively, begins with small frequent feeds of glucose, water or electrolyte solution, if retained, gradually full feeding id reinstated in about 48 hours.
- Continue IV maintenance fluid
- H2 receptor antagonist can be added as medication

NURSING MANAGEMENT

- **PRE-OPERATIVE MANAGEMENT**
- Monitor vital signs
- Recording intake output chart
- Small feeds with frequent burping are given
- Baby is handled less after feeding and placed in upright position or placed on right side with head of bed slightly raised.
- Weight assessment
- NPO for 6 hours and stomach wash

- **POST-OPERATIVE MANAGEMENT**
- Watch for abdominal distension and surgical site for bleeding or discharge
- Feed is clear fluid after 4-6 hours of surgery

COMPLICATION

- Failure to growth and develop
- Dehydration
- Stomach Irritation

CONCLUSION

Pyloric stenosis is not a congenital anomaly but occurs within some time period of birth. Complete surgical correction is possible; hence patient should be diagnosed and rectification should be done at the earliest. Proper care leads to regaining of complete functionality.

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