



## **A Case Report on Pyloric Stenosis in Infants**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **Case Study**

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## **ABSTRACT**

**Introduction:** Pyloric stenosis also known as pylorostenosis or specifically as infantile hypertrophic pyloric stenosis (IHPS) is the tapering (stenosis) of the opening from the stomach to the first part of the small intestine (duodenum). The term "pylorus" indicates "gate". The thickened pylorus is felt as an olive shaped abnormal mass in the upper right hypochondriac and epigastrium region of the infant's abdomen.

**Clinical Findings:** Frequent vomiting after feeding which is projectile, non-bilious, in nature. Continual hunger, dehydration, alterations in bowel movements, weight issues.

**Diagnostic Evaluation:** History collection (family history), physical examination (olive shaped mass) at epigastrium, hematological test (CBC), biochemistry test (KFT) (electrolyte imbalance). Ultrasonography (USG) abdomen:- thickened pylorus (<3mm), narrowed pyloric lumen, gastric content can not pass to duodenum, superior mesenteric artery and superior mesenteric vein located without altered position.

**Therapeutic Interventions:** Inj. Cefotaxim 1gm 1.4ml IV x BD (Antibiotics), Inj. Pantodex 40mg 2ml IV x OD (proton-pump-inhibitor), Inj. Temfix 100ml 50ml IV xBD (antipyretic analgesic), IV Fluids.

**Surgical Interventions:** Fred-Ramstedt's Pyloromyotomy.

**Outcome:** After treatment, infant show improvement. His frequent vomiting has been stopped and hunger problem resolved, baby starts gaining weight after surgery.

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**Conclusion:** My patient was 1 month 10 days old when he was admitted to the paediatric intensive care unit (ICU) with the chief complaint of frequent vomiting, persistent hunger, weight loss, and dehydration. After a thorough physical examination and a variety of tests, he was diagnosed with infantile hypertrophic pyloric stenosis.

**Keywords:** Pylorostenosis; pyloromyotomy; projectile-vomiting; olive shaped mass; mesenteric artery/vein.

## 1. INTRODUCTION

Pyloric stenosis or pylorostenosis also commonly known as an infantile hypertrophic pyloric stenosis (IHPS) is a tapering (stenosis) of the orifice from the stomach to the first part of the small intestines (duodenum) [1].

The muscle surrounding this orifice has grown in size (hypertrophy), it contracts when the stomach empties. Severe projectile-non-bilious-vomiting is a symptom of this illness. It is commonly seen in first few weeks of life. Infantile hypertrophic pyloric stenosis is the medical term for it [2]. The thickened pylorus is felt as an olive-shaped aberrant lump in the infant's upper right hypochondriac and epigastrium area [3]. Pyloric stenosis is uncommon in major (over 18) patients, where the cause is generally tapering pylorus owing to scarring from chronic peptic ulcers [4].

### 1.1 Aim

This case study reveals the patient's medical history, clinical characteristics, prognosis, as well as risk factors in the clinical presentation.

### 1.2 Definition

Hypertrophic pyloric stenosis (HPS) is characterized by aberrant thickening and elongation of the pyloric sphincter muscle, resulting in gastric outlet blockage [5].

### 1.3 Incidence

3 in 1000 live births. Male: Female ratio is 5:1. Frequently occurs in first born male child. One of the leading causes of laparotomy prior to 1 year of age. Age: 3 weeks to 3 months of age. Children of parents who have developed pyloric stenosis in their infancy [6].

### 1.4 Patient's Identification

A male infant of 1 month 10 days old from Ta-pusad dist.-Yawatmal admitted to the Pediatrics ICU AVBRH on 15th January 2021 with the chief complaints of frequent vomiting, persistent

hunger, weight problems, dehydration, and after complete physical examination and various other investigations including ultrasonography abdomen he was diagnosed as an infantile hypertrophic pyloric stenosis. His weight was 3 kg 700 gm, height of 50 cm.

### 1.5 Present Medical History

A male infant of 1 month 10 days old was brought to AVBRH on 15th January 2021 by his parents with a complaint of severe projectile vomiting that is different from usual feeding burps, along with fever, feeding problems and irritation. The infant was weak and his weight is less than what should be at his age. After physical examination and various other investigations he was diagnosed as infantile hypertrophic pyloric stenosis.

### 1.6 Past Medical History

Child does not have any kind of past medical history.

### 1.7 Present Surgical History

Child has been undergone through a surgical procedure known as Fred-Ramstedt's Pyloromyotomy on 21st January 2021 and the further treatment is getting carried out till my last date of care.

### 1.8 Family History

There are three members in family. Parents does not have any history related to infantile or digestive disorders. Their marriage was non-consanguineous marriage. There was no health complaints of any other family members except my patient who was being admitted in the hospital.

### 1.9 Past Interventions and Outcome

Patient does not have been undergone through any therapeutic, medical or surgical interventions in the past.

## 1.10 Clinical Findings

Frequent vomiting that is different from usual feeding burps which is projectile-non-bilious in nature, persistent hunger, weight less than appropriate to age, dehydration, and fever.

## 1.11 Etiology

It's unclear what causes infantile hypertrophic pyloric stenosis. According to certain research, young infants who were given macrolide antibiotics had a higher rate of infantile hypertrophic pyloric stenosis. Postnatal erythromycin exposure has also been linked to an increased chance of developing pyloric stenosis [7].

## 1.12 Pathophysiology

The hypertrophic pylorus blocks the gastric exit, preventing the stomach contents from being emptied into the small intestine. As a result, the only way to get rid of all the ingested food and gastric secretions is to vomit [8]. Which can have a projectile character to it. Consistent vomiting causes stomach acid to be lost (hydrochloric acid) low blood chloride levels come from the chloride loss, impairing the kidney's capacity to eliminate bicarbonates [9]. Because the pyloric obstruction preventing duodenal contents (which contains the bile) from entering into stomach, the vomited contents do not contain bile. Due to the lower blood volume, secondary hyperaldosteronism develops [10]. High levels of aldosterone cause the kidney to accumulate and retain sodium (Na+) (to compensate for intravascular volume depletion) and excrete more potassium (K+) into the urine (resulting in

hypokalemia hyperventilation is the body's compensatory strategy for metabolic alkalosis, and it results in a rise in arterial pCO<sub>2</sub> [11].

## 1.13 Physical Examination

There is not much abnormalities in the head to foot examination. The infant was weak, looks dull, not so cooperative, thin body built, with dry skin turgor, absence of tears while crying, olive shaped mass palpable at right hypochondriac and epigastrium region of infant's abdomen, and abnormal bowel sounds were heard.

## 1.14 Therapeutic Interventions

Infantile hypertrophic pyloric stenosis is primarily treated surgically, with just a few instances being mild enough to be managed medically. Despite the basic issue, the dangers of pyloric stenosis stem from dehydration and electrolyte imbalance. Infantile hypertrophic pyloric stenosis is often treated surgically, with just a few instances being mild enough to be managed medically [12]. The fact that pyloric stenosis is a basic issue, the dangers stem from dehydration and electrolyte imbalance. It might be used instead of surgery in newborns who are allergic to anaesthesia or surgery, or whose parents do not want surgery [13]. IV atropine dose 0.04 to 0.225 mg/kg/day for 1 to 10 days. Oral atropine suspension dose 0.08 to 0.45 mg/mg/day. Inj. Cefotaxim 1gm 1.4ml IV x BD (Antibiotics), Inj. Pantodex 40mg 2ml IV x OD (proton-pump-inhibitor), Inj. Temfix 100ml 50ml IV xBD (antipyretic analgesic), IV Fluids.

**Table 1. Riskfactors**

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Sex (mostly in male),
Age (mostly in infants)
Race (mostly in northern European white ancestry, sub-Saharan African, Asians),
Premature birth,
Family history
Bottle feeding
Early antibiotics use
The risk of hypertrophic pyloric stenosis increases 1.5 to 2.0 times if the mother smoked heavily during pregnancy.
History of peptic ulceration in pyloric region in adults

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**Table 2.Complications**

Surgical Site Infection
Incisional Hernia
Stagnation Gastritis
mucosal perforation
Septic shock

**Table 3. Diagnostic assessment**

Diagnostic tests	Results
blood test:- Hb%-	12gm%
RBC count-	4.25million/cumm
WBC count-	15000/Cumm
monocytes-	2%
granulocytes-	18%
lymphocytes-	44%
KFT:- sr.urea-	9mg/dL
sr.creatinine-	0.5mg/dL
sr.sodium-	143mEq/L
sr.potassium-	3.8mEq/L
Random blood sugar level:-	312mg/dL
Ultrasonography (USG) abdomen:-thickened pylorus (<3mm), narrowed pyloric lumen, gastric content can not pass to duodenum, with normal abdominal blood supply.	

**1.15 Surgical Interventions**

The infantile hypertrophic pyloric stenosis is best treated by surgical interventions. It has a success rate of nearly 100% [14]. The surgical management focuses on providing a free passage to the food from stomach to small intestines. Laparoscopic pyloromyotomy, Fred-Ramstedt’s pyloromyotomy, Balloon-dilation. My patient has been undergone through Fred-Ramstedt’s pyloromyotomy on 21st January 2021 [15].

**2. DISCUSSION**

A male infant of 1 month 10 days old from ta:-pusad, dist:- yawatmal, was admitted to pediatric ICU AVBRH on 15th January 2021 with a complaint of severe vomiting which is different from usual feeding burps and projectile in nature, dehydration, persistent hunger weight problem, fever, irritation, excessive crying as soon as he admitted in the hospital physical Examination and other investigation were performed and he was diagnosed as infantile hypertrophic pyloric stenosis and provided appropriate treatment for dehydration as priority and performed a surgery known as Fred-Ramstedt’s pyloromyotomy on 21st January 2021 and the infant shows great improvement. Further treatment is getting carried out till my last date of care.

**3. CONCLUSION**

Pyloric stenosis is one of the common case found in infants more specifically in first born male child. It is a most common cause of laparotomy before 1 year of age. It is important to manage the infants’ dehydration and electrolyte imbalance first as a priority than that of the underlying problem itself. The early diagnosis and treatment should be considered so that the infant will not develop the complications from the disease. Health education to the parents plays a crucial role in prognosis of the disease. My patient show great improvement after getting the treatment and the treatment is going on till my last date of care.

**CONSENT AND ETHICAL CLEARANCE**

The writers have acquired and saved patients’ Consent and ethical approval in accordance with international standards or university standard guidelines.

**COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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