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Experience 50 Cases of Infantile Hypertrophic Pyloric Stenosis Underwent Ramstids' surgery in Karbala

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Abstract

Background: Infantile hypertrophic pyloric stenosis is the most common cause of gastric outlet obstruction in infants. There is a paucity of published data regarding this condition in our setting. This study describes the clinical presentation, mode of treatment, and outcome of treatment for this disease, and identifies factors responsible for the poor outcome in these patients.

Methods: This was a descriptive retrospective study of infants with Infantile hypertrophic pyloric stenosis admitted to hospitals in Karbala between January 1, 2020, and October 24, 2024 (50 cases, 40 males, 10 females).

Results: electrolyte disturbance, including Hyponatremia, hypochloremia, Hypokalemia, and Metabolic alkalosis. Division of case number by age, including (1-2 weeks is 2), (2-6 weeks is 40), and (older than 6 weeks is 8). Clinical features presentation number, including (non-bilious projectile vomiting = 50, poor weight gain =30, and vomiting with blood = 2). Post-operative complications including surgical site infection = 5 cases, incisional hernia = 1 case, post-operative emesis = 10 cases, and death = zero.

Conclusion: Infantile hypertrophic pyloric stenosis is the predominant cause of gastric outlet obstruction in newborns in our context. A guideline should be established to rectify fluid and electrolyte imbalances post-diagnosis to reduce perioperative hospital duration. Postoperatively, these patients require meticulous management in the pediatric ward, particularly during the first postoperative phase. Additional research is required in this domain to enhance the management of infants with infantile hypertrophic pyloric stenosis.

Introduction

Infantile hypertrophic pyloric stenosis (IHPS) is when both layers of muscle in the pylorus get too big; this causes puking that is projectile and doesn't contain bile. It could get so bad that it blocks

the stomach's output almost completely, stopping chyme from going into the duodenum [1]. For a long time, Ramstedt's pyloromyotomy has been the usual surgery for treating infantile hypertrophic pyloric stenosis. There is disagreement about whether this procedure can be done properly in a district general hospital or if it should only be done in specialised paediatric units. This disease mostly affects first-born boys, with a reported 4:1 ratio of boys to girls [2]. Infantile hypertrophic pyloric stenosis is thought to affect between 0.5 and 5 out of every 1,000 live births, and it happens more often in Western countries than in African countries [3, 4]. Different parts of Europe are exhibiting varying trends in the prevalence of the sickness [5].

The diagnosis of infantile hypertrophic pyloric stenosis is typically confirmed via abdominal ultrasound, which reveals increased thickness in the pyloric muscle's length and diameter [6,7]. Laboratory assessment typically reveals hypochloremic, hypokalaemic metabolic alkalosis due to significant loss of stomach hydrochloric acid, with severity contingent upon the length of symptoms before initial evaluation [8]. The timing of the procedure is contingent upon the infant's clinical condition. Should the diagnosis occur promptly and the child is adequately hydrated with balanced electrolytes, the surgery may be conducted on the day of diagnosis [9]. Surgery should be postponed in the presence of dehydration and/or electrolyte imbalances [10]. This paper delineates our experience in managing hypertrophic pyloric stenosis in paediatric patients within our local context, outlining the clinical manifestations, therapeutic approaches, and resultant outcomes. The study sought to elucidate the obstacles inherent in the care of paediatric patients and propose strategies for enhancing each instance to facilitate complete recovery.

Patients and methods:

- 50 cases, 40 males, 10 females, duration of the periodic of time between 1\1\2020 and 24\10\2024.
- 1st born baby in 24 cases. No associated anomalies in all cases.
- 50 cases: (40 bottle feed, 6 mixed feeds, and 4 breast feed).
  Gestation age
  46 cases: 37- 42 (term)
  4 cases: premature (37 weeks, pregnancy).
- Diagnosis by ultrasound sonography in 50 cases: thickness > 4 mm and length > 16 mm.
- 39 cases with electrolyte disturbance
- 11 cases without electrolyte abnormalities.
- Surgery was done for 50 cases with extra-mucosal pyloromyotomy. (Ramstad's surgery).

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Results:

Table No. 1: Disturbance of Electrolytes.

Electrolyte Disturbance including
Hyponatremia
Hypochloremia
Hypokalemia
Metabolic alkalosis

Table No. 2: Distribution of cases by age.

Division of Case Number as Age	
Case Number	Age
2	1-2 weeks
40	2-6 weeks
8	Older than 6 weeks

Table no.3: Distribution of cases as clinical features presentation

Clinical Features Presentation	Number
Non-bilious projectile vomiting	50
Poor weight gain	30
Vomiting with blood	2

Table No. 4: Distribution of cases as post-operative complications

Post-Operative Complication	
Surgical site infection	5 cases
Incisional hernia.	1 case
Post-operative emesis	10 cases
Death	Zero

Discussion

Infantile hypertrophic pyloric stenosis exhibits a higher prevalence in boys compared to girls. The fundamental cause of this male predominance remains ambiguous and necessitates additional research and study. Our research indicated an elevated prevalence of IHPS in premature and male babies, aligning with most of the existing literature [11]. Patients undergo nearly total pyloric blockage due to progressive hypertrophy of the pyloric muscle. One of the prevalent symptoms is acute, intense vomiting post-ingestion, which may result in dehydration and metabolic alkalosis due to hypochloremia in babies [12]. First identified by Harald Hirschsprung in 1888, infantile hypertrophic pyloric stenosis is recognised as the predominant cause of gastric outlet obstruction in infancy and the leading surgical aetiology of vomiting [13, 14].

Our study included a group of different clinical manifestations, including non-bilious projectile vomiting, which reached 50 cases, and a slight weight gain, which reached 30 cases. Vomiting accompanied by blood was 2 cases, as shown in Table No. 3 and Figure No. 1. Infants with severe

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vomiting caused by pyloric stenosis can develop profound hypochloremia and hypokalemia. The classic biochemical abnormality in hypertrophic pyloric stenosis is hypochloremic, hypokalemic metabolic alkalosis, as shown in Table No. 1 [15].

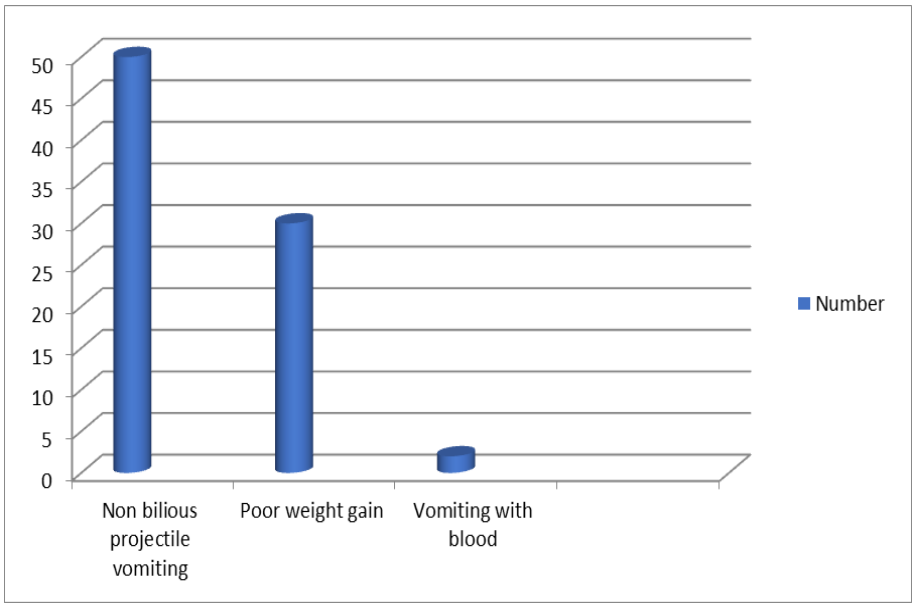

Figure No. 1: Clinical Features Presentation.

Post-operative complications included some details, including that out of 5 surgical site infections, the wound hernia is only in one case, while post-operative vomiting occurred in 10 cases, while no case led to death, as shown in table no.4, and figure no.2. This is evidence that all cases were successfully managed and controlled, thus treating them appropriately.

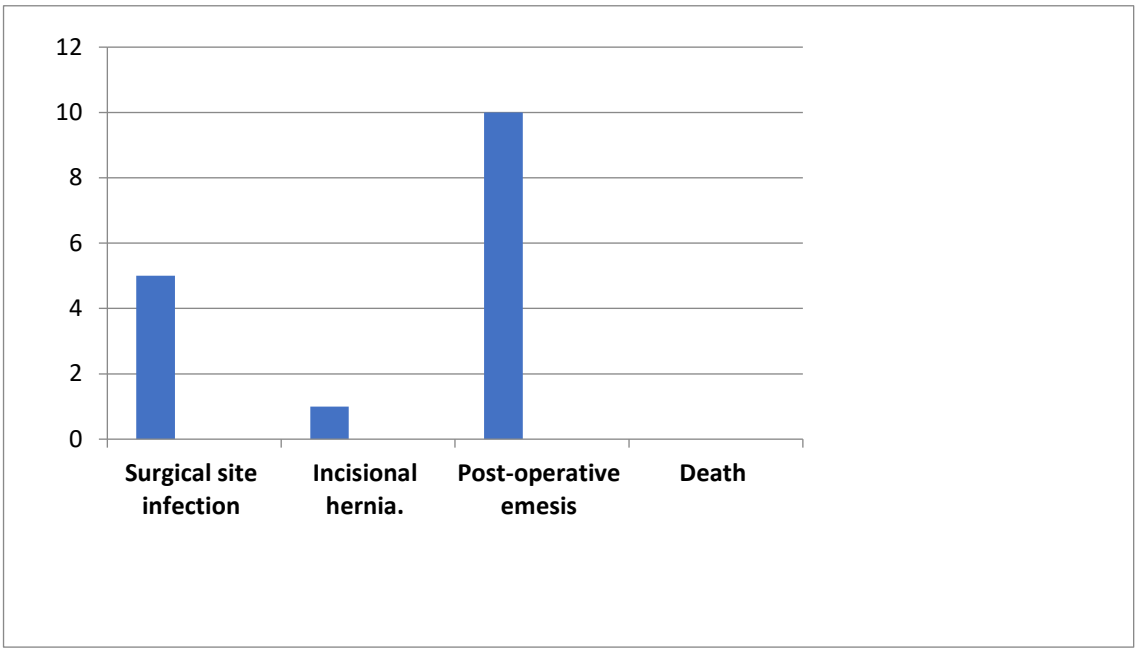

Figure No. 2: showing post-operative complications.

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Medical intervention is essential and typically involves rehydration and correction of electrolyte abnormalities. If there are no or minimal indications of dehydration, administer 5% dextrose with 0.25% NaCl and 2 mEq KCl per 100 mL. Higher amounts of NaCl in IVF are recommended if the condition is severe or life-threatening. Due to the risk of hypoventilation, bicarbonate levels must be adjusted and monitored. The insertion of a nasogastric tube should be contemplated. Following rehydration of the child, the subsequent procedure is surgery [16,17]. The surgical intervention is referred to as pyloromyotomy. The pyloric muscle is incised to the submucosa during this surgical procedure. The procedure may be conducted either openly or laparoscopically, contingent upon the surgeon's preference. The procedure is therapeutic and exhibits minimal morbidity.

Conclusion

In our setting, infantile hypertrophic pyloric stenosis is the most common reason why babies cannot empty their stomachs. The main things that led to a bad result were the age of less than two weeks, late presentation, a long stay in the hospital before surgery, an infection at the surgical site, and a high percentage of dehydration and electrolyte disturbance. To avoid waiting too long to make a diagnosis, doctors should be very suspicious of babies who are vomiting that is not caused by bile. To reduce the time spent in the hospital before surgery, there should be a rule for addressing fluid and electrolyte imbalances once they have been diagnosed. Postoperatively, these kids need to be carefully cared for in the paediatric ward, at least right after surgery. More research needs to be done in this area to help improve the care for babies who have infantile hypertrophic pyloric stenosis.

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