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Case Report

A case of spontaneous gastric perforation in a 3 years old male child

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ABSTRACT

A 3 years old boy attended emergency department with history of abdominal distension, fever, vomiting, loose stools for 5 days. The boy was suffering from epilepsy from last 1 year of age and was under treatment. From history and clinical examination, it seemed to be a case of peritonitis. Abdominal ultrasound revealed debrigenous free fluid in peritoneal cavity. Emergency exploratory laparotomy done and pyloric perforation was noted and repaired by modified graham's patch. The child, post-operatively, suffered from dys-electrolytemia and wound site infection and recovered with treatment.

Keywords: Gastric perforation, Spontaneous perforation, Paediatric population, Peritonitis

INTRODUCTION

Spontaneous gastric perforation in paediatric age group is a rare clinical finding, mostly restricted to neonatal age group. The clinical course is rapid with high mortality.[1] If early diagnosis and prompt treatment is not initiated, the condition can worsen and result in death or serious complications. In few studies, spontaneous gastric rupture has been attributed to many causes such as congenital absence of gastric musculature, prematurity, ischemia, necrotising enterocolitis, the aetiology of this condition in pre-school children is obscure.[2] We, hereby, report a case of spontaneous pyloric perforation in a 3-year-old male child with known case of seizure disorder on anti-epileptics.

CASE REPORT

A 3 year old male child presented to the hospital with abdominal distension, high grade gradual onset of fever, passage of watery stool, multiple episodes of non-projectile vomiting and loss of appetite for 5 days. The child was a known case of seizure disorder since 1 year of age and on syp. Sodium valproate. The child had attained all developmental milestones till age. On examination, child was lethargic with tachycardia and low volume pulse with signs of dehydration. Abdomen was found distended, tender, guarding and rigidity was also present all over the abdomen.

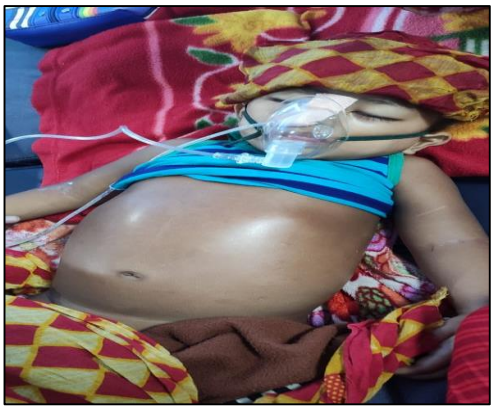

Figure 1: Preoperative phase of the child.

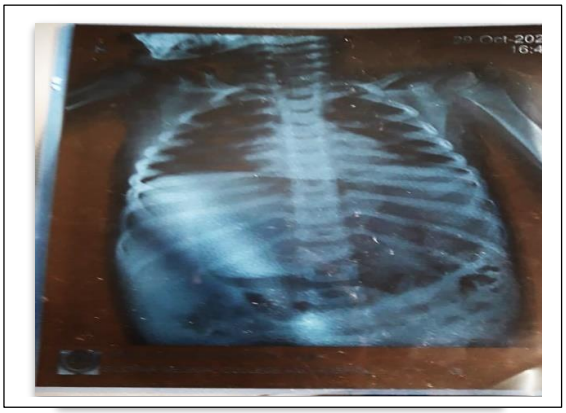

Figure 2: Radiograph showing dilated bowel.

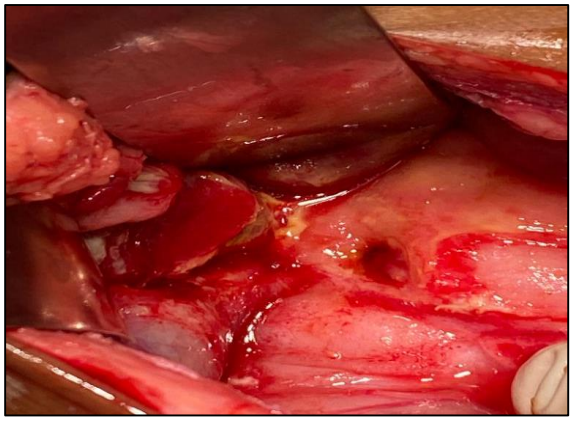

Figure 3: Perforation at pylorus.

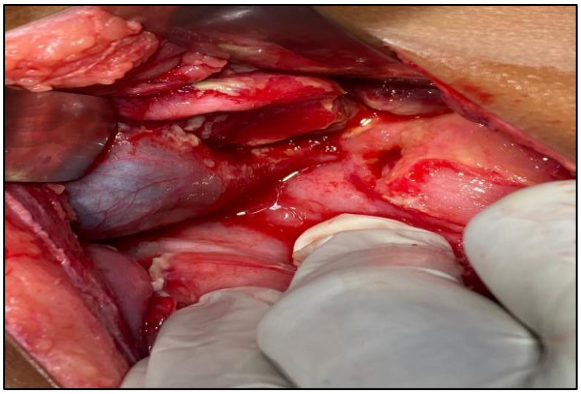

Figure 4: Perforation at pylorus.

A provisional diagnosis of acute abdomen (Peritonitis) in shock was made. The child was admitted in paediatric intensive care unit and started antibiotics and fluid resuscitation, Ryles' tube aspiration and on dopamine at calculated dose. Abdominal ultrasound revealed moderate debrigenous free fluid in the peritoneal cavity. Blood investigations revealed total count- 18710 cells/cumm, Hb- 9.1 g/dl, platelet count- 1.6 lakhs/cu mm. Chest X-ray including abdomen showed dilated bowel loops. The patient was put up for OT and emergency exploratory laparotomy done. On exploration, about 300-350 ml contaminated purulent fluid aspirated out and peritoneal toileting done. Then bowel loops explored and a perforation of size (0.5) cm^2 was noted at the pylorus. The perforation repaired by modified graham's patch and intra-peritoneal drains kept. Abdomen closed in layers.

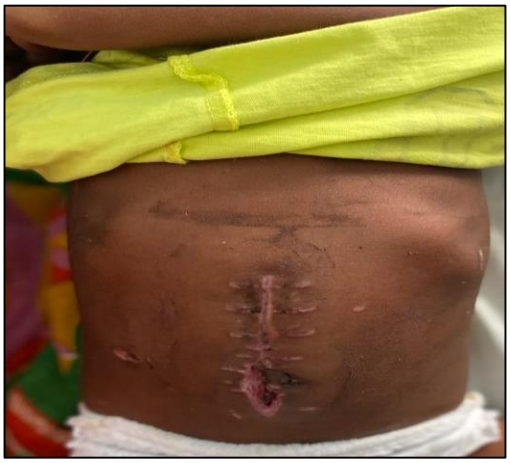

Figure 5: Surgical site infection at 1 week postop.

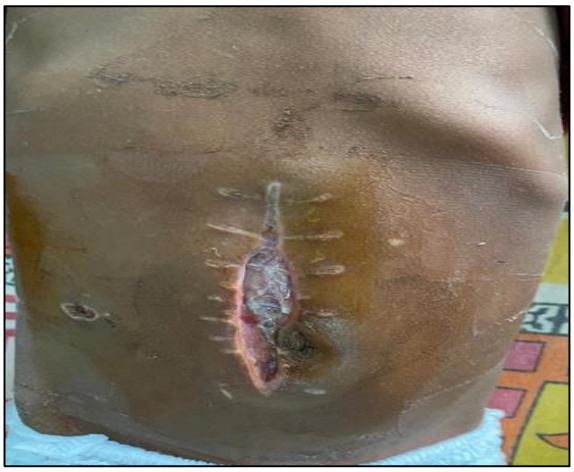

Figure 6: At 2 weeks postop.

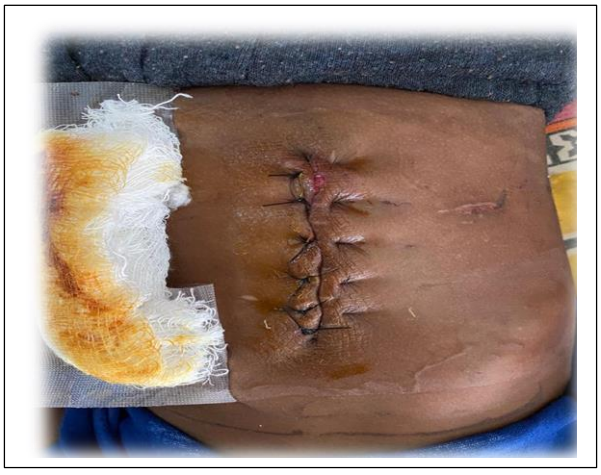

Figure 7: Secondary suturing done at 3 weeks postop.

Pus sent for culture and sensitivity, and antibiotics modified as per sensitivity report. Post-operatively, the patient suffered from dyselectrolytemia. Gradually, the clinical condition of the child improved and orally allowed from 5th post-operative day. However, surgical site infection was noticed from the 5th post-operative day. Abdominal drain output was minimal and removed on 6th post-operative day. The child had wound dehiscence and regular wound dressing continued. Secondary wound suturing done and finally, the patient was discharged on postop day 25 and reviewed for stitch removal after 10 days. On subsequent follow up, the boy was doing fine.

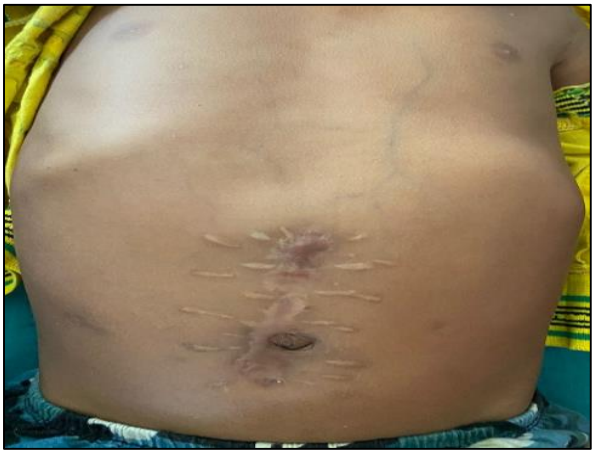

Figure 8: At 8 weeks.

DISCUSSION

Spontaneous gastric perforation is a rare entity with most cases reported in neonates who are low birth weight and had birth asphyxia.[3] The typical findings of gastric perforation are distension of abdomen, pain, features of shock. The aetiology in this case is unclear. However, there are some causes of gastric perforation such as a) peptic ulcer disease b) infection c) tumours like Burkitt's lymphoma, adenocarcinoma, lymphomatoid granulomatosis d) mechanical injury- via forceful feeding tube insertion, endoscopic injury, blunt trauma abdomen e) foreign body ingestion-like battery, toothpick, nail f) vascular injury due to gastric volvulus, incarcerated internal hernia g) anorexia nervosa (idiopathic).[4-7] However, no such cause could be identified in this patient. Our patient did not have a history of prematurity, birth trauma or hypoxia. There was no evidence of typhoid or leptospira infection.

Millar et al postulated that typical signs and clinical features suggestive of gastric rupture are: tympanic abdominal distension, tenderness of the abdominal wall, subcutaneous emphysema and evidence of shock. Vomiting is an uncommon manifestation of gastric perforation.[8] In our case, the patient had abdominal distension, high grade gradual onset of fever, passage of watery stool, multiple episodes of non- projectile vomiting and loss of appetite, tenderness of abdominal wall.

Once gastric rupture occurs, patient's condition will deteriorate progressively with: dehydration, acid-base imbalance, electrolyte disturbance (hypochloremia, hypocalcemia, hyponatremia), gradual development of pneumoperitoneum and respiratory distress.[9] Pediatric gastric perforation beyond neonatal age have fatal outcome and as high as upto 30% mortality rate.

A study done by Adachi et al in preschool children with gastric perforation and concluded that there is female preponderance and the majority of the ruptures occur around the lesser curvature.[10] Spontaneous perforation of greater curvature have higher mortality rate. However, in our case, the patient was a male and perforation was found at the anterior wall of pylorus. When diagnosis of gastric rupture is suspected an emergency laparotomy should be performed and resection of the non-viable tissue performed. The patients must be carefully followed in the post-operative period because of the risk of the delayed necrosis of the gastric wall. Broad spectrum antibiotic therapy is of great importance to avoid the risk of sepsis. The prognosis, in these cases, is generally good with appropriate surgical treatment, but delayed diagnosis and metabolic acidosis are associated with a poor prognosis.

CONCLUSION

Spontaneous gastric rupture is rare condition in childhood beyond the neonatal period. It should be considered in differential diagnosis, in children in pre-school age, in case of rapid onset of abdominal distension, dyspnea, dysphoria, coffee ground fluid vomit, lethargy and free air on abdominal X-ray. Paediatric critical illness score (PCIS) help to evaluate the gravity of illness in paediatric patients. PCIS calculated before surgery, it includes patient's age and ten physiological indices. These indices are heart rate, breath rate, systolic blood pressure, oxygen partial pressure and pH of arterial blood, serum sodium and potassium, creatinine or urea nitrogen, hemoglobin and Glasgow coma scale. Early diagnosis and emergency laparotomy will reduce complications and mortality. Treatment is the surgical repair of the gastric defect with or without an omental patch after adequate stabilization. Attempts should be made to investigate the underlying cause; in the absence of which the perforation is deemed spontaneous.

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Ethical approval: Not required

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