



## Idiopathic Gastric Rupture in a Child: Critical Situation

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**ABSTRACT:** Idiopathic gastric rupture is extremely rare condition in children. We report herein a 4-years-old girl with Idiopathic GR who presented with shock. Resuscitation and early surgical intervention led to saving the child's life.

**Index Word:** Gastric rupture, Pneumoperitoneum, Abdominal distension, Resuscitation.

### INTRODUCTION

Gastric rupture (GR) has been described as a grave abdominal catastrophe leading to early shock and even death<sup>1</sup>. Isolated GR in children is rare and diagnosis may present a challenge<sup>2</sup>. We report herein a rare case of gastric rupture in a child.

### CASE REPORT

A 4 year- old girl was complaining of severe abdominal pain for 48 hours prior to presentation; medical advice was sought in the emergency department (ED) twice and managed conservatively as non specific abdominal pain. Then she presented for the third time to ED, unconscious, unresponsive, hypothermic, non palpable pulse, irrecordable blood pressure and metabolic acidosis (pH 7.125) with hypoxemia (pO<sub>2</sub> 32 mmHg). Abdomen was very tense with ascitis, no audible intestinal sounds and no external bruises. Immediately she was ventilated and resuscitated. Laboratory tests showed an elevated white blood cell count (35\* 10<sup>9</sup> /L). A nasogastric tube (NGT) was passed, and a small quantity of blood was aspirated . The plain abdominal x- ray (Fig. 1) showed air in the upper half of the abdomen (ball sign). The

patient was shifted to the pediatric intensive care unit (PICU) after stabilization. Bedside abdominal ultrasound showed no liver, spleen, or renal injuries but there was massive ascitis with absent active bowel peristalsis (Fig. 2). Also, a Bedside contrast study showed an extra-gastric contrast leakage (Fig. 3). An exploratory laparotomy revealed massive serosanguous peritoneal fluid, food contamination, and a posterior wall gastric tear about 9 centimeters, extending along the greater curvature from the gastro-esophageal junction to the antrum. the margins of the tear were debridement and a biopsy was taken. Primary gastric closure was done (Fig. 4,5). There was no other gastrointestinal abnormalities. The patient was shifted back to PICU. She improved gradually from multiorgan failure and discharged on the 29<sup>th</sup> postoperative day. Histopathology showed only hemorrhages and necrosis, with No evidence of malignancy or acute inflammation in the ruptured gastric edges (Fig. 6). The child was followed up in outpatient clinic for next year with normal growth pattern and no abnormalities



Fig 1- free air in the upper abdomen.



Fig 2- Abdominal US shows Massive ascitis



Fig 3- Contrast leakage from the stomach

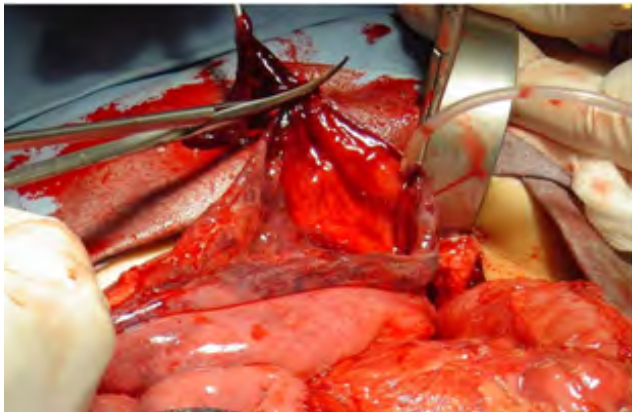


Fig 4- gastric rupture on greater curvature extending from the fundus to the antrum



Fig 5- stomach repaired in two layers

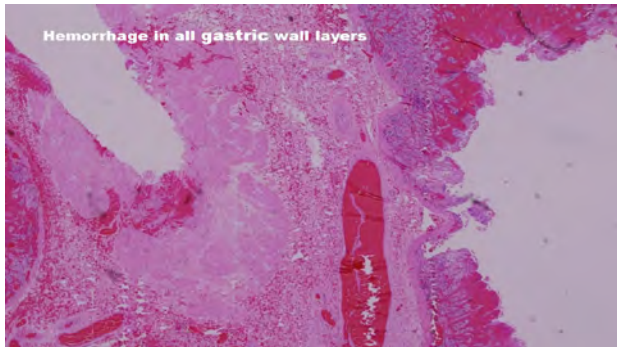


Fig 6- histopathology: hemorrhages and necrosis

## DISCUSSION

The stomach is a thick-wall, muscular and capacious organ with a relatively protected anatomical position and a high degree of mobility, so it is relatively resistant to a blunt injury, particularly when empty. GR is often observed in the neonatal period and sometimes occurs in adults but is rarely seen in children<sup>3,4</sup>.

GR in neonates may be idiopathic or caused by birth trauma, congenital muscle defects, hypoxia, mechanical injury, or increased intraluminal pressure. In most adults, the cause of this condition is peptic ulcer or carcinoma, but the pathogenesis of GR in childhood is unknown. Blunt abdominal trauma is reported to be the cause in 0.4% to 1.7% of cases. Other causes are falls, direct violence, cardiopulmonary resuscitation, seatbelt injury, after a Nissen fundoplication and as a complication of pyloric stenosis causing altered gastric emptying<sup>3-6</sup>.

In this case, there were no external bruises and no other organ injuries, which makes trauma a remote possibility. Every effort was done to explore social status of the child to rule out possibility of child abuse but nothing positive was detected. The relation of the patient with her mother was closely observed over three weeks in pediatric intensive care unit but nothing abnormal was seen.

The anterior gastric wall is most often involved, reported to be 40%, followed by greater curve (23%), lesser curve (15%), and posterior wall (15%). However, the greater curvature is the site most often affected in the pediatric age group<sup>3</sup>.

GR often leads to shock and death within a short period, but the mechanism for this is not well-known. Shock may be due, in part, to endotoxin translocation and endotoxemia as well as chemical peritonitis induced by the spillage of gastric acid<sup>1-3</sup>.

The mortality of GR even with surgical intervention

was reported to be up to 65%. Delayed diagnosis and metabolic acidosis are associated with poor prognosis and increased mortality; surgical treatment is important for survival<sup>1,4,7</sup>.

## CONCLUSION

Idiopathic gastric rupture is extremely rare in childhood; it needs a high degree of suspicion to be diagnosed in a shocked patient. Emergency and rapid resuscitation should precede the surgical intervention. Every effort has to be practiced to rule out child abuse.

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