

## A Case Report of Spontaneous Gastric Perforation in Newborn

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### ABSTRACT

Spontaneous gastric perforation is a serious, rare and life threatening condition. Perforation of the stomach is a full thickness injury to the wall of the organ. As the peritoneum completely covers the stomach, perforation of the wall creates a communication between the gastric lumen and the peritoneal cavity. Gastric perforation is caused by three different mechanisms. We report a case of gastric perforation in a Preterm, very low birth weight neonate in our NICU and based on the signs of abdominal distension and increased abdominal girth, Abdomen ultrasonography and Contrast dye study was done which showed perforation, following which exploratory laparotomy was performed and surgical repair was carried out. As it has high mortality rate so its prompt recognition and surgical intervention is utmost necessary.

**Keywords:** Gastric Perforation, Pneumoperitoneum, Exploratory laparotomy, Prematurity.

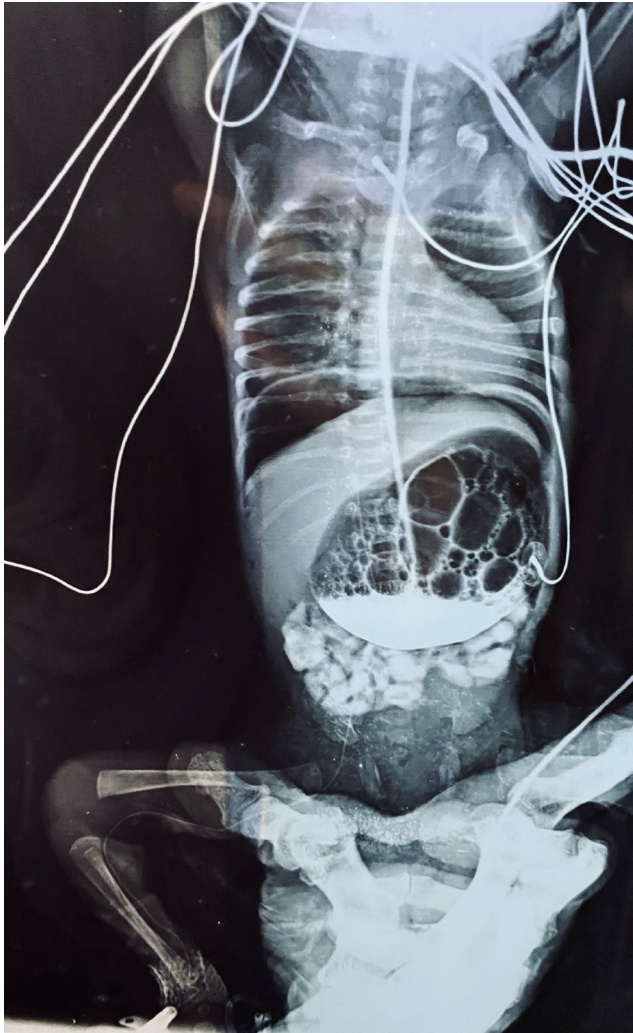
### INTRODUCTION

Acute Spontaneous Gastric Perforation in a neonate is a rare occurrence. It is an unusual surgical emergency. Gastric perforation is a full thickness injury to the wall of the organ and as the peritoneum completely covers the stomach, perforation of the wall creates a communication between the gastric lumen and the peritoneal cavity. If the perforation occurs acutely, there is no time for an inflammatory reaction to wall off the perforation, and the gastric content is free to enter the peritoneal cavity causing peritonitis and which can cause sepsis in the neonate.<sup>(1)</sup> The presence of free air in the peritoneal cavity may be secondary to perforation anywhere in the gastrointestinal tract. Treatment is a surgical repair. It carries mortality of 45-60%.

### Case report

32 weeks old, small for gestational age, 1kg female preterm baby delivered via LSCS

at Sharda hospital Surat. The delivery was attended by Neonatologist from Anand Hospital. Birth events were normal and baby was shifted to Anand hospital NICU for preterm care. On admission baby was hemodynamically stable. At 28 hours of life, trophic feeds started. At 52 hours of life, baby had abdominal distension and so was kept Nil per oral. Abdominal girth increased. So USG Abdomen was done which s/o Excessive bowel gas with dilated small and large bowel loops and signs of paralytic ileus. Contrast dye study was done on day of 4 which suggested of perforation. Parents were informed about the condition of their baby and need for surgery and written informed consent was taken. Exploratory laparotomy was performed on 5th day (Figure 1). On exploration Perforation (2cm\*1 cm) was seen on posterior wall of the stomach, so Primary repair was done in two layers and abdomen was closed (Figure 2). Postoperatively baby was kept



**Fig. 1: Contrast dye study showing perforation.**



**Fig. 2: Perforation of the posterior wall of stomach**

on Conventional mode of ventilator and was extubated on Day of life 6. Feeds in form of D5% was started on 14 days of life and was gradually increased and shifted to milk on 16th day and full feeds were achieved on day of life 20. Antibiotics were given during NICU stay. As baby was tolerating RT feeds, Dropper trial was given on 34 days of life and shifted to all dropper feeds. Baby developed anemia so PCV transfusion was also given. As baby was active, alert, hemodynamically

stable and tolerating oral feeds, hence was discharged from NICU on day of life 45.

## Discussion

Siebold reported the first case of gastric perforation in neonates in 1825<sup>(2)</sup>, whereas in 1950, the first survival of gastric perforation was reported.

The important causes which leads to neonatal gastric perforation were prematurity, perinatal asphyxia, Aggressive resuscitation required at birth. Common signs seen in neonates of gastric perforation is abdominal distension which can be associated with shock.

Three mechanisms which can lead to gastric perforation are Ischemia, Spontaneous and Traumatic. Most are due to vigorous placement of nasogastric or orogastric tube placement. Traumatic can be due to positive pressure ventilation<sup>(3)</sup>. Ischemic may be due to Prematurity, Asphyxia, Sepsis and are mostly associated with Necrotising enterocolitis.<sup>(4)</sup>

Mostly Spontaneous perforations occurs within the first week of life, particularly 2 to 7 days of life.<sup>(5)</sup>. In prematurity, mostly anatomical defects of the gastric muscular wall can cause perforation of the stomach. Most common site is the greater curvature and it appears as a puncture wound or short laceration<sup>(6)</sup>. Most common radiographic finding is pneumoperitoneum. Surgical repair is necessary which consists of debridement and two layer closure of the stomach<sup>(7)</sup>. Broad spectrum intravenous antibiotics are needed. Prompt surgical intervention is recommended management and any delay in surgery can result in high mortality.

## Conclusion

Neonatal gastric perforation has high mortality and complication rates, initial management is directed towards stabilization of the patient. Proper fluid and electrolyte replacement, antibiotics and then prompt surgical intervention. Early diagnosis can affect the outcome favorably.

**Ethical clearance:** Given by Anand Hospital on 30/07/2023

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