

## Perforated Gastric Diverticulum in a Preterm Newborn: A Case Report

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### Abstract

### Keywords

- Preterm Newborn
- Perforated
- Gastric Diverticulum

Gastric diverticulum in newborn infants is the rarest (0.04%) of gastrointestinal diverticula. Most of them especially in this age group are asymptomatic or cannot be diagnosed based on examinations and symptoms. However, if it becomes symptomatic, the symptoms can range from vague abdominal pain to bleeding, perforation or torsion. The present case report discusses a preterm newborn with a perforated gastric diverticulum.

### Introduction

Gastric diverticulum (GD) is a very rare condition, mostly seen in middle-aged patients. According to endoscopy detection ranges, the incidence rate is from 0.04% to 0.11% in the general population.<sup>1,2</sup> For most cases, gastric diverticulum is asymptomatic. However, if it becomes symptomatic, the symptoms can range from vague abdominal pain to bleeding, perforation or torsion.<sup>3</sup> The size of most diverticula is 1-3 cm. Most diverticula larger than 4 cm are very prone to complications and do not respond

well to medications. Therefore, surgery may be required in these cases.<sup>4-6</sup> The present case report discusses a preterm newborn with a perforated gastric diverticulum. This condition is very rare at this age and even more so with this particular case's clinical presentation.

### Case presentation

The male patient was born preterm at 29 weeks due to an early start of uterine contractions. Birth was preceded by a normal pregnancy and delivery was normal vaginal delivery. The birth weight was

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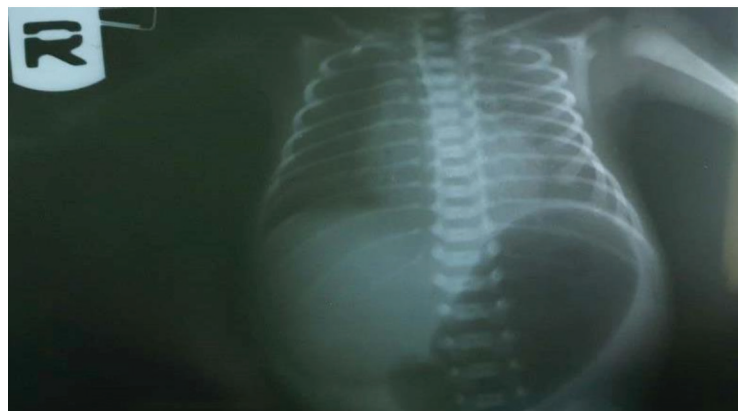
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1325 gr and the estimated first-minute Apgar score was 7. The patient had apnea and bradycardia. After successful resuscitation, he was delivered to the NICU with severe respiratory distress. The patient gradually stabilized and by the end of the first day, his vital signs were as follows: PR=140/min, RR=40/min, SpO<sub>2</sub>=95%. At two days old,

the patient had a significantly distended abdomen, there was neither defecation nor diuresis and the patient again became lethargic and acidotic. A thoracoabdominal x-ray **Figure 1** was taken and showed a distended abdomen due to a severely distended stomach.

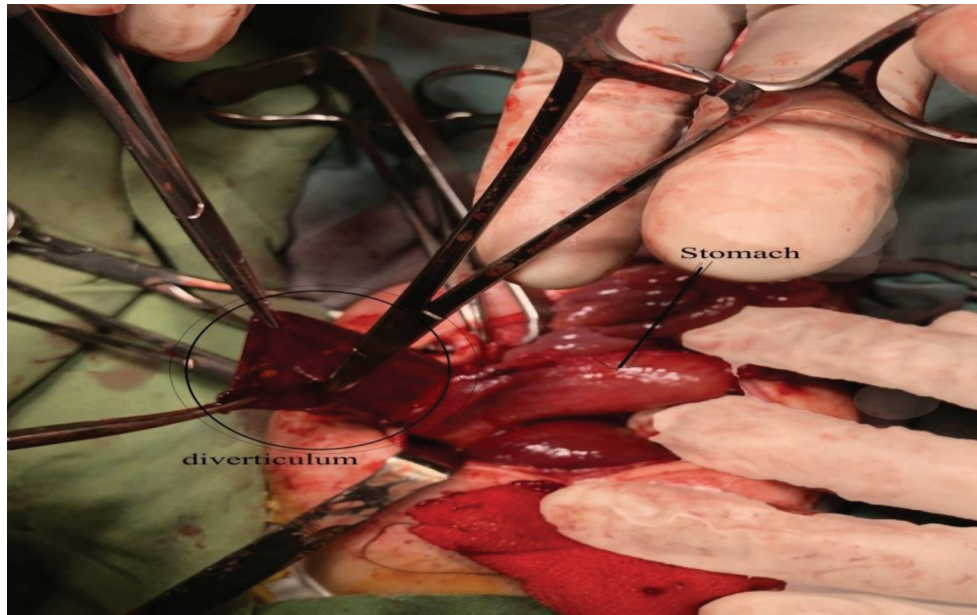


**Figure 1:** Thoracoabdominal x-ray

There was no pneumoperitoneum or organomegaly and the rest of GI tract appeared normal. An orogastric tube was fixed but with no output. The next day a surgical consultation was requested; and a repeated thoracoabdominal x-ray indicated pneumoperitoneum. Diagnosing perforated necrotizing enterocolitis, the first surgeon decided to place a bedside peritoneal drain. The abdominal distention was immediately resolved after the placement of the drain. Despite this, the patient's condition continued to deteriorate.

After a second surgical consultation, the surgeon observed significant guarding and rigidity during an abdominal examination. As a result, the second surgeon decided to perform an emergent diagnostic laparotomy.

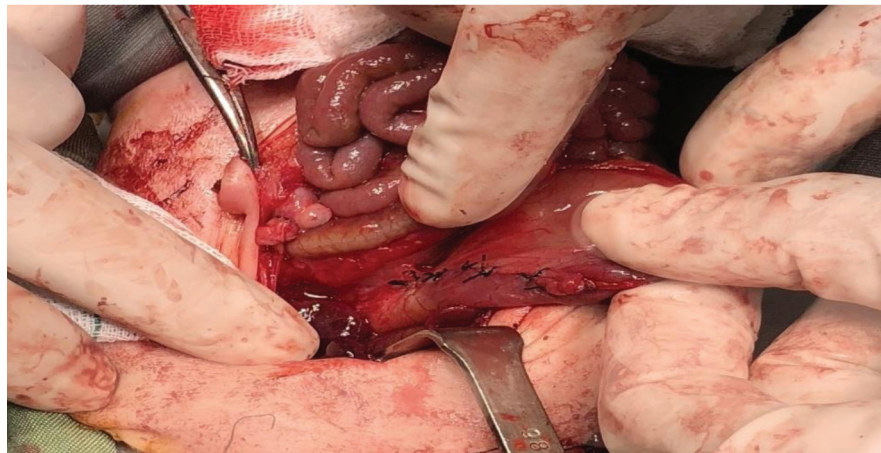
The abdomen was opened by a midline incision. Carefully examining the GI tract, the surgeon discovered a large perforated true gastric diverticulum on the posterior wall of the stomach close to the cardia **Figure 2**.



**Figure 2:** Before diverticulectomy

The diverticulum was excised **Figure 3** and the posterior wall reconstructed by multiple interrupted

silk sutures and an abdominal drain was also placed.



**Figure 3:** After diverticulectomy and repair

Examination of other GI tract parts showed no other anomalies. Follow-up of the patient showed a quick and proper recovery. The patient stabilized by the next day. In five days, he could be fed orally and maintained diuresis and defecation. All lab data were normalized. The abdominal drain had no significant output and was removed after one week. The patient was discharged from NICU in a good condition after 2 weeks.

## Discussion

Gastric diverticulum, an out pouching of the gastric wall, can be either true or false. Often congenital, true GD makes up about 75% of the gastric diverticula. They are mostly located on the posterior wall of the stomach near the oesophagogastric junction. In contrast, acquired gastric diverticula are often false and less common. They are typically found in the antrum and in the background of other GI diseases.<sup>6, 7</sup> Gastric diverticulum is a rare and incidental finding, with a prevalence of 0.04% in contrast study radiographs and 0.01% - 0.11% by endoscopy detection.<sup>1</sup> Gastric diverticulum has equal distribution between both genders and typically presents in middle-aged patients.<sup>2</sup> GD's are mostly asymptomatic. However, if GD becomes symptomatic, the symptoms extremely vary. There may be a vague discomfort and a feeling of fullness or serious complications may arise, such as perforation and bleeding.<sup>1, 3, 4, 7</sup> Asymptomatic diverticulum has no particular treatment, but proton pump inhibitors have shown to be of some benefit in symptomatic cases.<sup>4, 8</sup> In the case of upper GI bleeding related to GD, endoscopic management can be helpful.<sup>9</sup> Indications for surgical resection include large

GDs and complicated GDs (perforation, bleeding or malignancy).<sup>10</sup>

## Conclusion

In summary, we report a case of perforated gastric diverticulum which is very rare, especially in newborn infants. To avoid misdiagnosis, physicians should therefore remain vigilant about the possibility of this condition, because: 1-it cannot be diagnosed based on any signs or symptoms, 2-the main diagnostics modalities (endoscopy and barium study) are rarely performed in a preterm newborn who does not have any symptoms.

## Ethical Consideration

This study is approved by Ethics Committee of Birjand University of Medical Sciences, Reference number: REC.1398.264

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## Conflict of interests

There is no conflict of interests.

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