

Clinical Communications: Pediatrics

ACUTE GASTRIC VOLVULUS IN A SIX-YEAR-OLD: A CASE REPORT AND REVIEW OF THE LITERATURE

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□ **Abstract—Background:** First described in the pediatric population in 1899 by Oltmann, pediatric gastric volvulus is a rare disease, but carries a high mortality rate. Due to vague signs and symptoms it can easily be mistaken for gastroenteritis or appendicitis, but unique radiographic findings can help illuminate the diagnosis. The pathophysiology of gastric volvulus is related to an abnormality in the attachment of at least one of the gastric ligaments, which can occur either primarily or secondarily. The abnormality in these ligaments allows the stomach to freely rotate, eventually causing an obstruction. We describe a unique case occurring in a 6-year-old with no pre-existing medical conditions as well as the associated radiographic images. **Objectives:** Our aim is to discuss the presentation and management of a potentially lethal intra-abdominal process that mimics far more benign disease entities and to highlight the pertinent radiographic findings. **Case Report:** A previously healthy 6-year-old female presented to the emergency department in the middle of the night after sudden onset of vomiting and abdominal pain. On exam her heart rate was mildly elevated but all other vital signs were within normal limits. She was assessed with an abdominal x-ray and given ondansetron. After settling with her parents and having no further bouts of emesis she was sent home. She returned that afternoon febrile with increasing abdominal pain and emesis. Abdominal x-ray revealed a massively distended stomach and left diaphragmatic eventration. She underwent operative intervention and improved over the course of the following week. **Conclusion:** Acute gastric

volvulus presents a diagnostic challenge. In patients with vague abdominal complaints knowledge of the typical x-ray findings is essential in early identification and treatment. © 2014 Elsevier Inc.

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INTRODUCTION

Acute gastric volvulus is a rare yet potentially lethal condition. Clinically, it can mimic fairly benign conditions, such as viral gastroenteritis, but it can present with hallmark x-ray findings (1). Even with prompt diagnosis and surgical repair, this condition is estimated to carry a 65% overall mortality rate (2). Although a rare condition (282 acute cases recorded between 1929 and 2007), it is essential that emergency care providers are able to recognize the hallmark x-ray findings and accurately diagnose this condition (2).

CASE REPORT

A 6-year-old presented to a tertiary care pediatric emergency department (ED) with a 4-h history of vomiting and abdominal pain. The parents denied any prior history of fever or trauma.

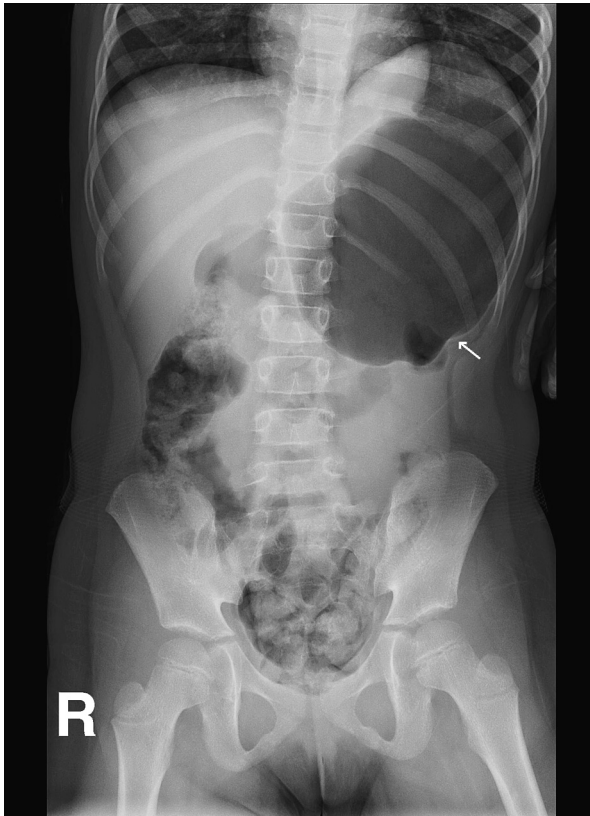


Figure 1. Initial abdominal anteroposterior radiograph (arrow showing gastric distension).

The parents denied any significant past medical or surgical history. The patient was on no medication and had met all of her developmental milestones.

On examination she had a mildly tender abdomen with a distended stomach. She was treated with 4 mg of oral ondansetron and underwent an abdominal series. The x-ray study showed a normal gas pattern with a distended gastric bubble (Figure 1). The patient promptly fell asleep after administration of the antiemetic and rested comfortably for the entire 4 h of observation in the department. She was discharged home to undergo an oral fluid challenge with parental supervision.

Approximately 8½ h later, the patient returned to the ED. The parents stated that she was still unable to tolerate any oral intake. Furthermore, her triage vitals showed a heart rate of 194 beats/min and a temperature of 38.5°C. On abdominal examination, the patient was noted to be guarding, and a distended stomach was again palpated.

After initiation of intravenous resuscitation, an ultrasound was ordered to rule out appendicitis. The staff radiologist reported that they were unable to visualize the appendix but were concerned that there may be free air. As such, Pediatric Surgery was consulted and a repeat abdominal x-ray study was ordered. The repeat x-ray study demonstrated a severely distended stomach and

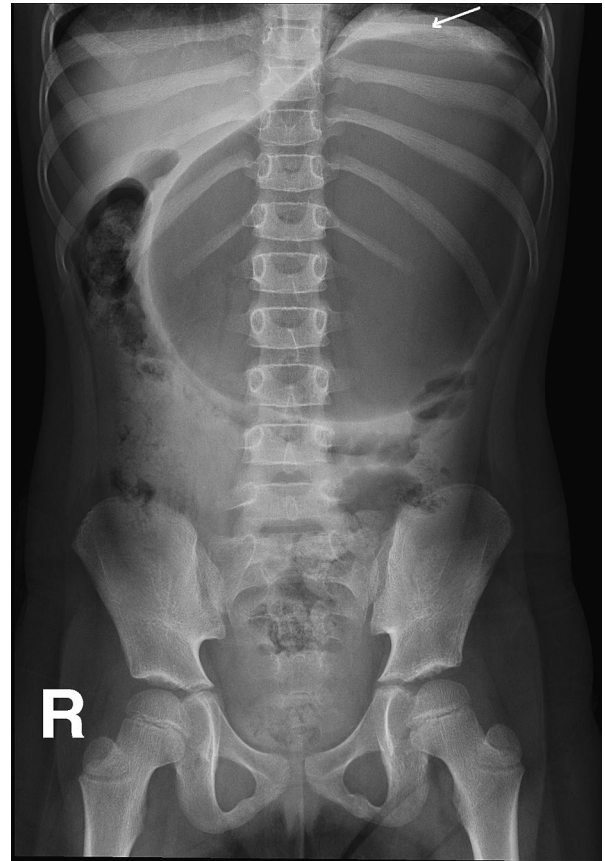


Figure 2. Repeat abdominal anteroposterior radiograph showing severe gastric distension & left diaphragmatic eventration (arrow showing diaphragmatic eventration).

left diaphragmatic eventration with no free air (Figure 2). At this point, the patient was taken to the operating room for an emergent laparotomy.

In the operating room, a nasogastric tube was placed to decompress the stomach, yielding dark bloody fluid. Immediately upon entering the abdominal cavity, bloody ascitic fluid, a foul odor, and a grossly distended stomach were encountered. The stomach was tortorted about the pylorus and the patient was recognized to have an organoaxial gastric volvulus. The stomach was grossly distended, and appeared densely ischemic. The fundus appeared dark, almost black, and there was extensive subserosal hemorrhage (Figure 3). There was no free air or perforation apparent. The stomach was hypermobile, with absence of the short gastric vessels to affix the fundus and greater curve up to the left upper quadrant, as well as deficient gastrocolic and gastrohepatic attachments. The volvulus was reduced and almost immediately the stomach began to pink up.

Throughout the procedure the patient was remarkably metabolically and hemodynamically stable. This permitted a period of observation in the operating room to assess the viability of the stomach. After 30 min the

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