

Acute gastric volvulus due to congenital bands in a newborn case

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Acute gastric volvulus in the newborn period is a rare condition requiring surgery. The association of gastric volvulus with congenital bands is extremely rare and unreported previously. A one-day-old male neonate was diagnosed to have acute gastric obstruction in the neonatal intensive care unit. Mesenteroaxial gastric volvulus due to dense gastrocolic bands was detected during laparotomy. Band excision and anterior gastropexy were performed. The clinical features, radiologic findings, treatment modes and possible mechanisms of gastric volvulus due to congenital bands are discussed.

Key words: gastric volvulus, congenital band, newborn.

Gastric volvulus is a rare condition in childhood, requiring emergency surgical intervention. Most of the patients are diagnosed during infancy, and early presentation in the neonatal period accounts for 26% of all cases¹.

Gastric volvulus can be seen when gastric attachments are lax or absent². The association of gastric volvulus with congenital bands is extremely rare and unreported previously. Mesenteroaxial gastric volvulus due to congenital bands in a one-day-old male neonate is reported. Clinical features, radiologic findings, treatment modes and possible mechanisms of gastric volvulus due to congenital bands are discussed.

Case Report

A male newborn was referred to the neonatal intensive care unit on the first day of his life with non-bilious vomiting, retching and difficulty in feeding. He was born after an uneventful spontaneous vaginal delivery. After the first two uncomplicated breast-feedings, he experienced non-bilious vomiting episodes.

In the neonatal intensive care unit his blood pressure was 75/47 mmHg, pulse 135 bpm and respiratory rate 48/min. Complete blood count, and liver and renal function tests were normal.

His physical examination revealed epigastric distention. Abdominal X-ray revealed two gastric air-fluid levels with normal distribution of distal gas (Fig. 1). Due to difficulty in

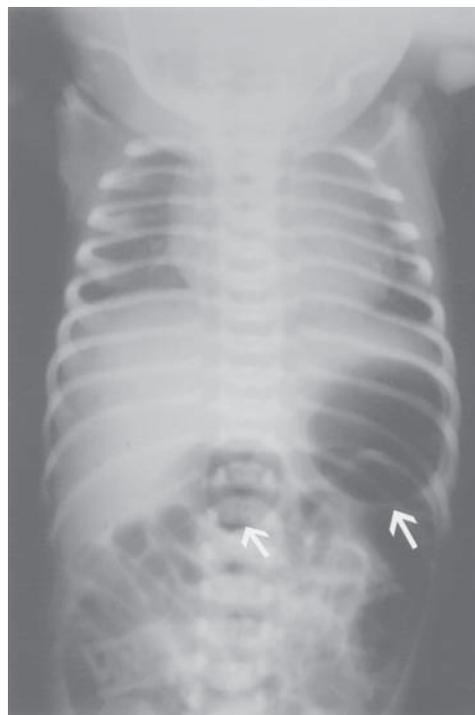


Fig. 1. Two gastric air fluid levels (arrows) with normal distribution of distal gas.

passing an orogastric tube, a feeding tube was inserted for gastric decompression. Upper gastrointestinal contrast graphs revealed gastric obstruction and rotating feeding tube in gastric fundus (Fig. 2). After radiologic evaluations were completed, the patient was diagnosed as acute gastric obstruction.

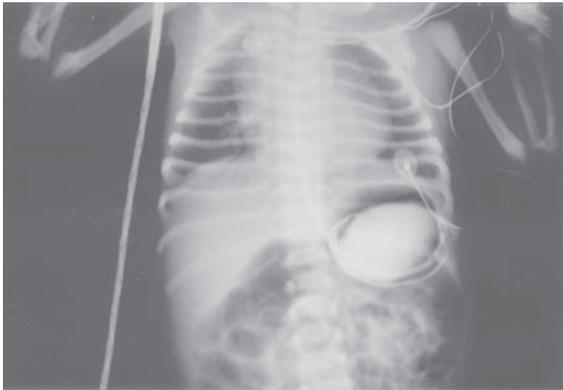


Fig. 2. Upper gastrointestinal contrast X-ray revealed gastric obstruction and rotating feeding tube in gastric fundus.

In exploratory laparotomy, gastric fundus was found distended and obstructed by dense congenital gastrocolic bands. Gastroesophageal junction and fundus were rotated anteriorly presenting a mesenteroaxial volvulus. Gastric volvulus occurred on the axis of congenital bands between the transverse colon and lesser curvature. Congenital dense bands were excised and gastric fundus was rotated. A nasogastric tube was easily passed from the pylorus. Gastric or pyloric web was excluded by intraoperative contrast X-ray. There was no malrotation, associating Ladd bands or absence or failure of attachment or elongation of gastric fixation. Anterior gastropexy was performed.

After laparotomy, he was fed via nasogastric tube. Oral feeding was started on the second postoperative day and he was discharged from the hospital after an uneventful one-week period.

Discussion

Gastric volvulus is a rare surgical emergency in infancy and childhood³. Borchardt⁴ described the classical triad of gastric volvulus as acute or localized epigastric distention, associating pain, inability to pass a nasogastric tube and nonproductive attempts at vomiting¹. Fifty-two percent of patients were younger than one year of age and 26% were newborn¹.

The stomach is held in place by gastrophrenic ligaments, esophageal hiatus, retroperitoneal fixation of duodenum, short gastric vessels and gastrocolic ligament; volvulus occurs only when these attachments are lax or absent². It has been reported that gastric distention may

also predispose to gastric volvulus^{3,5}. Gastric volvulus with congenital bands is extremely rare and unreported previously. In the present case, gastrocolic bands led to a partial obstruction and constituted an axis between the greater and lesser curvature. We hypothesize that the possible mechanism for gastric volvulus in the current case is rotation of the distended fundus on the axis of congenital bands after feeding attempts. The partial obstruction due to congenital band might have expedited the clinical presentation and caused mesenteroaxial volvulus.

Mesenteroaxial volvulus is less common in children¹. Although usual presentation of mesenteroaxial volvulus reveals rotation of pylorus or cardia anteriorly, the opposite may occur¹. When congenital bands cause gastric volvulus, gastroesophageal junction may displace anteriorly. The formal presentation of mesenteroaxial volvulus may not be evident in such cases if congenital bands are the only cause. In our case, we detected a mesenteroaxial gastric volvulus due to congenital bands, in which the gastroesophageal junction rotated anteriorly.

Classical presentation of gastric volvulus is non-bilious vomiting, retching and sudden epigastric pain². Abdominal or epigastric distention may be noted in physical examination. Attempts for passing nasogastric tube may be difficult or impossible. Shock or peritonitis is indicative of gastric necrosis or gastric perforation.

Abdominal radiographs demonstrating massive gastric distention are diagnostic. An air-fluid level in epigastrium or left upper quadrant can be seen. The rest of the abdomen may be gasless. In the present case, abdominal radiograph revealed two air-fluid levels that were created by congenital bands. Since bands led to partial obstruction, distal gas was also noted. Barium contrast roentgenograms can vary depending on the degree of obstruction. Even though our case did not demonstrate typical volvulus findings on contrast roentgenograms, gastric obstruction was evident because of difficulties in passing nasogastric tube and nasogastric tube rotation in gastric fundus.

Although gastric volvulus is a rare condition, it requires prompt diagnosis and treatment⁶. A nasogastric decompression and fluid resuscitation should be initiated. Operative treatment involves reduction of volvulus, gastric fixation and repair of necrosis or perforation, if present^{1,6}. Anterior

gastropexy or Stamm gastrostomy can be used to prevent recurrences². Other associated anomalies causing gastric volvulus should also be evaluated during laparotomy. Reduction of volvulus, congenital band excision and anterior gastropexy are the treatment options when congenital bands are the cause of gastric volvulus.

Gastric volvulus is a rare condition requiring emergency surgical treatment in childhood. Congenital bands may lead to gastric mesenteroaxial volvulus around their axis. Feeding attempts lead to distention and anterior displacement of gastric fundus. The presented possible mechanism for this unique entity should be considered as a rare cause of gastric volvulus.

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