


Congenital Band Compression: A Rare Cause of Small Bowel Obstruction in Newborns

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Abstract

Keywords

- Congenital anomalous band
- Small bowel obstruction
- Newborn

Anomalous congenital band is a very rare cause of intestinal obstructions in newborns. It should be considered as one of the etiologies of acute small bowel obstruction in neonatal period. We report here a retrospective study of three newborns with anomalous congenital bands who underwent surgical intervention between 2015 and 2018. There were 2 girls and 1 boy, aged respectively 1, 27 and 30 days. All the newborns were admitted with clinical diagnosis of acute small bowel obstruction. While band excision was done in all, one case received resection and anastomosis for intestinal necrosis. There are no specific signs that can help make the diagnosis of anomalous congenital band before surgical exploration.

Introduction

The etiologies of neonatal intestinal obstruction are various such as small bowel atresia, annular pancreas, volvulus or Hirschsprung's disease.¹ However, intestinal obstruction caused by anomalous congenital band is extremely rare in neonatal period.²⁻³ Here, we report three neonates with signs of intestinal obstruction resulting from anomalous congenital bands. The purpose of our study is to determine the clinical and paraclinical particularities of congenital adhesion band in newborn, and to review the pediatric literature about this condition.

Case Presentation 1:

A 27-day-old girl who was born vaginally at 37 weeks' gestation, was admitted to our institution with signs of bowel obstruction including abdominal distension and vomiting. She had passed meconium within the first 24 hours of birth. On examination, abdominal distension was observed and the nasogastric tube had bilious fluid. On digital rectal examination, rectum was empty. Blood tests values were within normal limits. Abdominal X-ray showed multiple air fluid levels **Figure 1**. Ultrasound scanning of the mesenteric vessels did not reveal intestinal volvulus. The contrast enema showed no passage of

contrast material beyond ileal level. The diagnosis of anomalous congenital bands was suspected. Laparotomy exploration revealed congenital band between the terminal ileum mesentery and the ascending colon. The Histologic examination showed that the fibrotic band was composed of loose connective tissue containing nerve fibers and arteries. The baby was discharged 4 days postoperatively.



Figure 1: X-ray abdomen showing a small bowel obstruction

Case Presentation 2:

A one-month-old boy delivered by cesarean section at 35 weeks of pregnancy was admitted in our unit with the diagnosis of acute intestinal obstruction. The newborn presented with bilious vomiting and abdominal distension which had been observed since 4 days before admission. He was treated with anti-emetics and antibiotics. Then he was transferred to our department because of persistence of symptoms such as bilious vomiting and feeding intolerance. On physical examination, he had stable vital signs. The abdomen was distended and tender. Digital rectal exam showed an empty rectal ampulla. A nasogastric tube was inserted. The abdominal X-ray revealed intestinal obstruction. The water-soluble contrast enema showed distal small bowel distention with micro colon **Figure 2**. Parenteral solutions with antibiotic treatment were started. The diagnosis of congenital peritoneal band was suspected. Laparotomy revealed an anomalous congenital band that extended from the medial side of the ascending colon to the small bowel mesentery. At 21th postoperative day, the patient reoperated for intestinal obstruction due to

colonic stricture located within 1 cm of the ileocecal area. The baby was discharged 6 days post operatively. The histopathologic examination showed an anomalous band with loose connective tissue containing blood vessels.

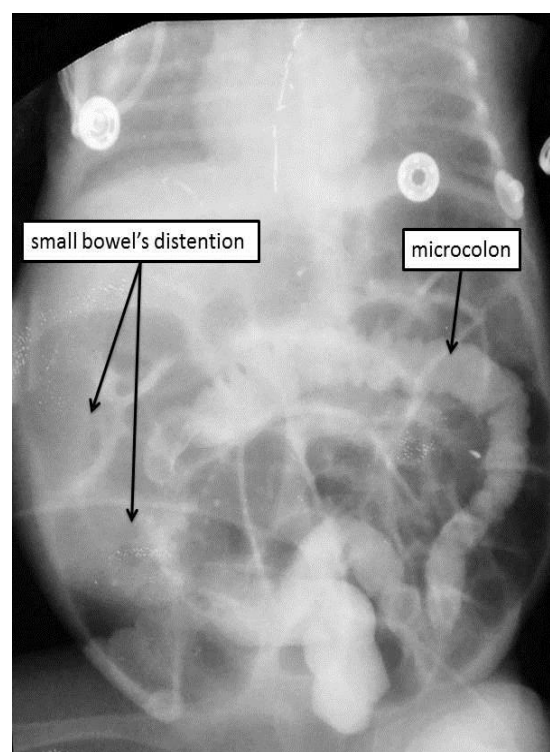


Figure 2: Contrast enema showed distal small bowel's distention with microcolon

Case Presentation 3:

A 36-week-gestation neonate was born by cesarean for fetal distress. The newborn was admitted with bilious vomiting and abdominal distension on the first day of life. Physical examination found distended and tender abdomen. Abdominal X-ray showed multiple air-fluid levels and few dilated bowel gas shadows. The ultrasonography showed small bowel

dilatation. Laparotomy revealed congenital band between the right uterine horn and the ileum **Figure 3**. The congenital band was ligated. The histopathologic report showed a fibrotic band that contains nerves and blood vessels. The baby was discharged following stabilization of his condition and relief of symptoms 4 days post operatively.

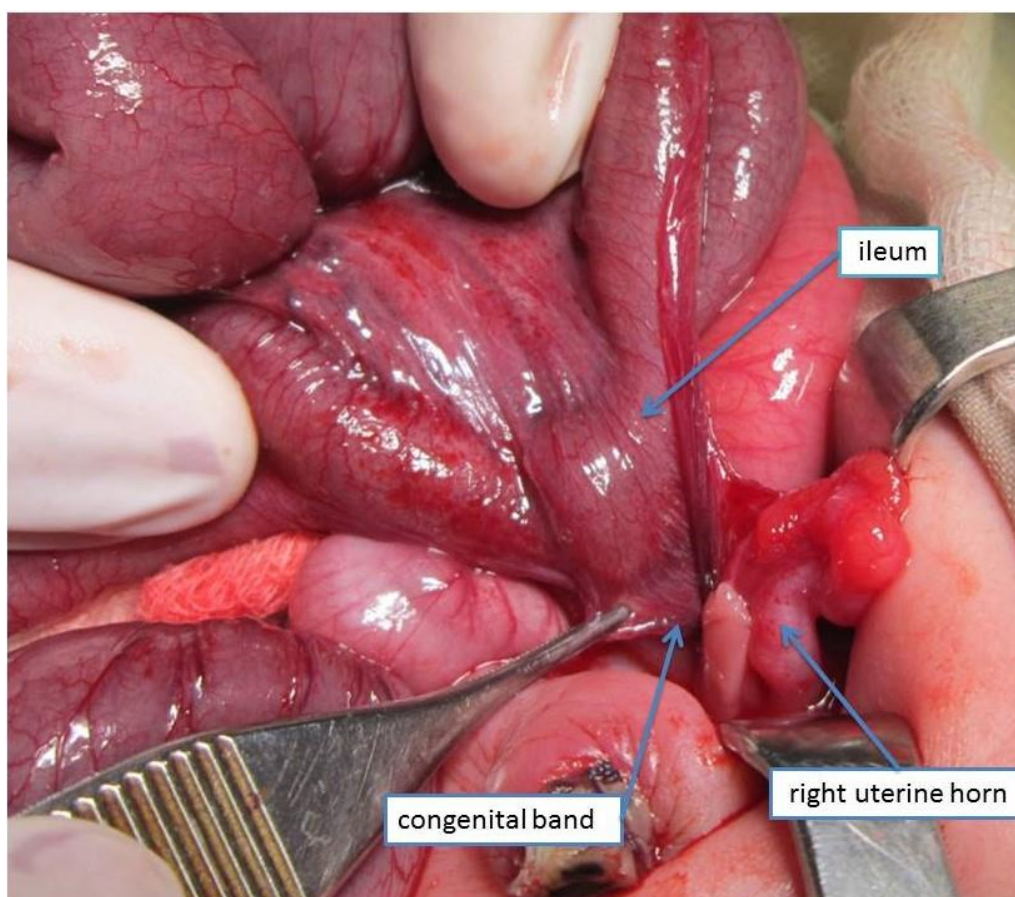


Figure 3: Exploratory laparotomy revealing: congenital band present between the right uterine horn and the ileum

Discussion

Anomalous congenital band is a very rare etiology of intestinal obstructions in newborns.³ It was first defined by Touloukian.³ Few cases have been reported in the literature.³ In the English literature, Erginel et al³ reported a series of 14 children with the diagnosis of anomalous congenital band which included only two new-borns patients. The aetiology was unclear.⁴ Omphalodiverticular, omphalomesenteric or mesodiverticular bands were reported but simple bands with unknown origin have been also described.¹ Anatomically, a popular hypothesis of anomalous band is the incomplete fetal or persistent vitelline circulation.⁵ But, embryologically, intraabdominal bands are different from remnants of vitello-intestinal duct.⁵ Some authors reported that there is not an identifiable embryonic origin, because band location is different from that of remnants.² The origin of the insertion of these bands suggested an anomaly of the mesentery rather than the intestine.² The most common location of the band was between the terminal ileum and the ascending colon. Other reported locations were between the ligament of Treitz and the mesentery of the terminal ileum, or between the right lobe of the liver and the ascending colon.⁴ In our study, no one had liver attachments. However, we had 1 case of obstruction secondary to a band extended from the gravid right horn to the small intestine. As far as we know, this is the first report of congenital adhesion band between the gravid horn and the intestine in children.

The intestinal obstruction may be caused by bowel compression, loop volvulus, or bowel strangulation by the band.³ In our series, it was due to strangulation by the band in all cases.

The preoperative diagnosis of an anomalous congenital band causing intestinal obstruction is possible in newborns. It depends on the detection of clinical obstructive manifestations and the results of radiologic exams.⁴ The clinical presentation often occurs as bowel obstruction with bilious vomiting and distension of the abdomen.

X-rays of the abdomen can show signs of small bowel obstruction such as intestinal dilatation and air-fluid levels. Abdominal ultrasound may reveal dilated loops.⁶

In newborns, the treatment of the anomaly consists on surgical band excision³ with intestinal resection and anastomosis if we found an intestinal necrosis due to compression of the bowel by the band. This can be done by laparotomy or laparoscopy. This represents a feasible and safe approach to confirm the diagnosis and treat the anomaly.³⁻⁷

Conclusion

Anomalous Congenital band is an uncommon entity in newborns that should be considered as one of the etiologies of acute small bowel obstruction in neonatal period. Early diagnosis and surgical management can reduce the risk of ischemia.

Ethical Considerations

This study is approved by Research Ethics Committee, Faculty of Medicine of Monastir, Ministry of Public Health, Republic of Tunisia.

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Conflict of interests

There are no conflicts of interest.

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