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Anomalous congenital adhesion band: a rare cause of neonatal small bowel obstruction: A case report

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ABSTRACT

Background: Congenital adhesion band is a rare cause of neonatal intestinal obstruction. It may manifest from neonatal to adult age group with acute or sub-acute presentation. Diagnosis is often delayed due to absence of classical imaging findings. Exploratory laparotomy or laparoscopy is the definitive method of confirmation. Excision of the band and resection of affected bowel segment with end-to-end anastomosis is curative.

Case Presentation: We report a three days old term female neonate presenting with abdominal distension and bilious vomiting. She had leucocytosis, elevated inflammatory markers, dilated bowel loops without pneumoperitoneum or fluid levels or malrotation on imaging. A high index of suspicion and inconclusive imaging study findings led to prompt decision of exploratory laparotomy. Intra-operative findings showed intestinal adhesion at ileum with the presence of a fibrotic band. Ileal resection and anastomosis were performed. Postoperative recovery was uneventful.

Conclusion: A high index of suspicion of congenital adhesion band in the neonates with intestinal obstruction, especially with inconclusive imaging findings can reduce morbidity and mortality.

Keywords: *Congenital adhesion band; intestinal obstruction; neonate; laparotomy*

1. INTRODUCTION

Neonatal intestinal obstruction is a common surgical condition in this age group. Malrotation, intestinal atresia, meconium ileus, Ano-rectal malformation and Hirschsprung's disease are some common reasons and most of these problems are identified on physical examination and imaging. [1] Congenital adhesion band is a rare etiology, and it has variable presentations. It is usually without the presence of risk factors like previous abdominal surgery, trauma, inflammatory bowel disease, peritonitis or embryonic remnants. It may manifest from neonatal to adult age group with acute or sub-acute presentation. [2] Diagnosis is often delayed due to absence of classical imaging findings. This case report highlights the importance of high index of suspicion of congenital adhesion band as a rare cause of neonatal intestinal obstruction.

Case presentation

A 38-week female neonate with birthweight of 2.5 kg was born by normal vaginal delivery. She cried immediately after birth, did not require resuscitation and had a smooth perinatal transition. Antenatal follow-ups did not suggest any intrauterine infection, teratogen exposure or any major congenital anomalies in the fetus. Breastfeeding was initiated within the first hour of life and she passed meconium within 24 hours. However, she developed refusal of feeds, bilious vomiting, bleeding per rectum and abdominal distension on day 3 of life. She was referred to our hospital on day 5 of life. At admission she had fever, bleeding per rectum and abdominal distension although she did not have respiratory distress or hypotension. There was no discoloration of the abdominal wall, tenderness or signs of peritoneal irritation. Abdominal radiograph suggested distended bowel loops, absence of air at rectal ampulla without pneumatosis intestinalis, pneumoperitoneum or air-fluid

levels (figure 1). Ultrasonography of abdomen did not suggest malrotation. She was transferred to neonatal intensive care unit (NICU) and was initiated on broad spectrum antibiotics, fluids, bowel decompression and other supportive measures. Laboratory investigations suggested leucocytosis, elevated inflammatory markers with normal platelet count and coagulation parameters. Pediatric surgery consultation was sought. A clinical diagnosis of neonatal intestinal obstruction with inconclusive etiological clue from the imaging findings led to the prompt decision of exploration laparotomy. Intra-operative findings suggested intestinal adhesion at ileum with the presence of a fibrotic band (figure 2). Ileal resection and anastomosis were performed. Postoperative recovery was uneventful, and enteral feeding could be initiated after 72 hours. She was discharged home in good health and thriving well at one month follow-up.

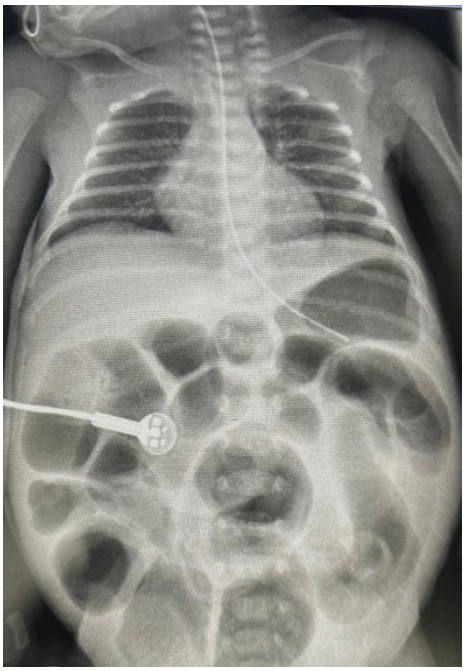

Figure 1: Abdominal radiograph shows dilated bowel loops without pneumoperitoneum or pneumatosis intestinalis

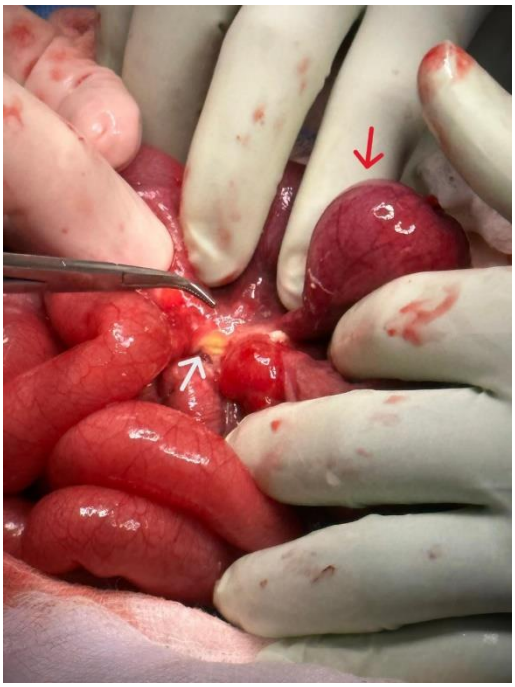

Figure 2: Intra-operative image shows fibrotic band (marked by white arrow) and trapped ischemic bowel loop (marked by red arrow)

Discussion

The etiology of congenital adhesion band is unknown. Some proposed hypotheses are incomplete regression of vitelline circulation, mesenteric anomalies, intra-uterine infection or infarction. [3] However, the most accepted hypothesis seems to be of a mesenteric origin due to its location. In early intrauterine life, the ventral and dorsal mesentery divides the peritoneal cavity into two halves- right and left. The mesentery remains in the posterior abdomen as the intestinal loops acquire their final position in the abdominal cavity at later intrauterine life. The ventral mesentery usually disappears except for a few locations. Congenital band is formed possibly due to the failure of the reabsorption of ventral mesentery at few locations in the abdominal cavity. [4] The obstructive mechanism could be bowel compression by the band or trapping of intestinal loops between the band and the mesentery. The neonatal presentation is mostly acute intestinal obstruction with abdominal distension and bilious vomiting. There is a male preponderance with age of presentation varying from 2 days to 7 years. [5] Most common location of this band is between ascending colon and terminal ileum (50%). [4] Most of the reported cases showed obstruction in the left side of abdomen ranging from 15 to 150 cm from the ileo-caecal valve. [6] Colitis is a rare presentation. One case report showed intestinal perforation in an extremely preterm neonate associated with congenital adhesion band. [7] Older children may present with chronic abdominal pain and distension and failure to thrive. [6,8] These bands may cause volvulus or intestinal ischemia. Imaging studies including contrast studies are inconclusive. CT abdomen may show internal herniation of bowel loop into the hiatus formed by the congenital adhesion band if present. [9] Exploratory laparotomy or laparoscopy is the definitive method of confirmation. Excision of the band and resection of affected bowel segment with end-to-end anastomosis is curative. Intraoperative finding of volvulus is common in neonates. Histologically, these bands are composed of connective tissue with vessels and nerves. [10] This case report highlights the importance of high index of suspicion of congenital adhesion band as a rare cause of neonatal intestinal obstruction and a precision-based decision of prompt surgical intervention, especially with inconclusive imaging findings.

Conclusion: Congenital adhesion band is a rare cause of neonatal intestinal obstruction. Radiological imaging study is often not helpful. A high index of suspicion of this entity should be kept in the neonates with intestinal obstruction, especially with inconclusive imaging findings. Prompt surgical intervention prevents ischemic damage to the bowel and can reduce morbidity and mortality.

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