CASE REPORT

Congenital Adhesion Band Causing Midgut Volvulus in a Neonate: A Case Report

Verrell Christopher Amadeus, Andi Dwihantoro, Dutha Patria Hutama, Agitya Seta Yogaswara, Donny Aditia1, Clara Wenda Aginta Sembiring, Nadia Shafira Dahani

Pediatric Surgery Division, Department of Surgery, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada/Dr. Sardjito Hospital, Yogyakarta, 55281, Indonesia

ABSTRACT

Congenital adhesion band is a rare finding in neonates and may cause obstruction at any age. Only a few case reports exist regarding the finding. Here we present a 6-days-old boy, referred to our institution with complaints of repeated bilious vomiting; abdominal distention was not found and the child was still able to defecate. Babygram showing double bubble was performed at the previous hospital. Upper GI series was then done at our institution showing windsock appearance at the 2nd part of duodenum suggesting duodenal web, elective laparotomy was done with findings of midgut volvulus and adhesion of the jejunum to the ascending colon..
Malaysian Journal of Medicine and Health Sciences (2026) 22(SUPP6): 105-107. doi:10.47836/mjmhs.22.s6.23

Keywords: Neonate, Congenital Adhesion Band, Intestinal Obstruction, bilious vomiting, duodenal web

Corresponding Author:
Andi Dwihantoro, MD
Email: Andi.dwihantoro@ugm.ac.id
Tel: +62???????

INTRODUCTION

Intestinal obstruction in neonates cause mortality in up to 4.1% of patients (1). The most common causes include duodenal atresia, malrotation with volvulus, small bowel atresia, Hirschsprung's disease, and nonsurgical causes such as sepsis and necrotizing enterocolitis (2, 3) . Another less common cause is congenital adhesion bands, which are rarely found in neonates and can present with variable features of intestinal obstruction at any age, however only a few case reports exist in the literature (3, 4). Here we present a neonate with bilious vomiting, with upper GI series revealing windsock appearance suggestive of duodenal stenosis, however intraoperative findings were of congenital adhesion band associated with midgut volvulus.

CASE REPORT

A 6-day-old male neonate was referred to our hospital with a chief complaint of bilious vomiting. The patient was born at 37 weeks' gestation to a 29-year-old mother via spontaneous vaginal delivery. Apgar scores were 8 and 9 at 1 and 5 minutes, respectively, with a birth weight of 3300 grams. He cried immediately after birth and passed meconium within 24 hours.

At 3 days of age, the patient developed yellowish vomiting 2–3 times daily but remained able to breastfeed. He had no abdominal distension, no fever, and continued to pass stools (4–6 times/day) and urine normally. At 5 days of age, the vomiting persisted, and he was evaluated at a private hospital where a babygram showed a "double bubble" appearance, with an impression of duodenal atresia or stenosis. He was referred to our center for further evaluation.

On admission (at 6 days of age), the infant appeared active, cried strongly, and had vomited once with bilious contents and was still able to defecate. Upon examination, no abdominal distention or visible peristalsis was found, the abdomen was soft on palpation and tympanic on percussion. On rectal examination, normal sphincter tone was found and ampulla was not collapsed, with brown stool present.Upper GI contrast study was done at our institution (Fig 1) and demonstrated a windsock appearance at the second part of the duodenum, suggesting duodenal web. Exploratory laparotomy was then conducted.

Intraoperative findings revealed a midgut volvulus and a congenital adhesion band extending from the jejunum to the ascending colon. However, no malrotation was noted. Adhesiolysis and reduction of the volvulus were performed (Fig 2).

Postoperatively, patient was kept nil per os, and enteral feeding with breast milk was initiated on postoperative

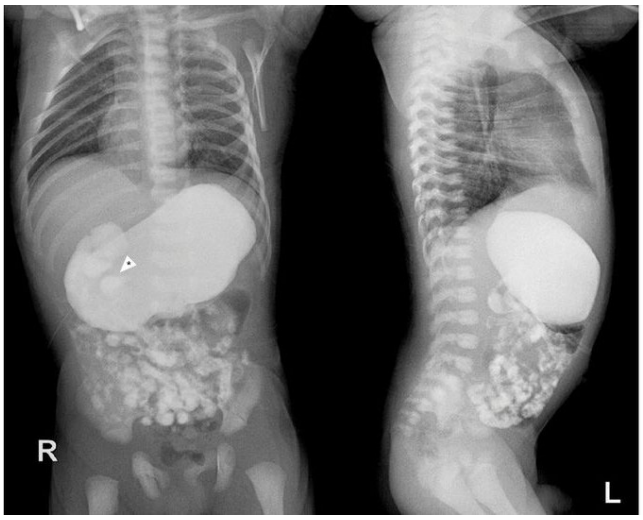

Figure 1: Upper GI Series showing dilated stomach and duodenum with windsock appearance

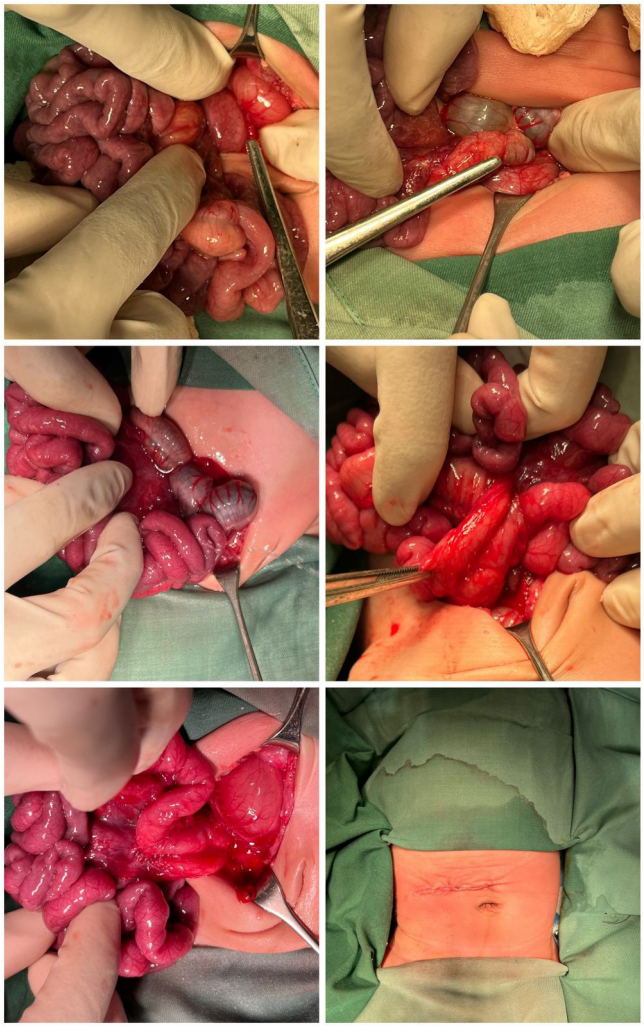

Figure 2: Intraoperative findings showing volvulus with congenital band

day two. The patient could tolerate the diet well and no further vomiting was found.

DISCUSSION

Congenital adhesion bands are rare embryologic remnants that may cause intestinal obstruction at any age, but neonatal presentation is extremely uncommon (3,4). Congenital adhesion bands are suggested to be developed during embryogenesis, caused by abnormal adhesion of peritoneal folds, which may be caused by infectious or ischemic insults, however the exact etiology and mechanism remain to be elucidated (4). A study by Pope et al. revealed downregulation of CDX1and SHH gene in congenital intra-abdominal adhesion band patients' fibroblasts, compared to control, which could cause hyperproliferation of fibroblasts and development of congenital adhesion bands, showing genetic factors may affect the pathogenesis of the condition (5).

In this case, the initial imaging findings of a "double bubble" suggested duodenal atresia or stenosis, which are much more common. The presence of continued stool passage and absence of abdominal distension delayed suspicion for complete obstruction. The upper GI series revealing a windsock deformity pointed toward a duodenal web, a condition caused by incomplete recanalization of the duodenum. Intraoperative discovery of a congenital adhesion band, complicated by midgut volvulus, further highlights the diagnostic challenge of such rare anomalies.

Previous reports have shown that congenital adhesion bands may cause volvulus, which was found in our case, and strangulation, thus surgical interventions are essential (4). In our case, no malrotation nor Ladd's band was found, and the chosen procedure was reduction of the volvulus and adhesiolysis for the adhesion band.

CONCLUSION

This case illustrates that congenital adhesion bands, though rare, should be considered in neonates with bilious vomiting and inconclusive imaging findings. Radiological features such as the windsock deformity may mimic duodenal atresia, but surgical exploration remains the gold standard for definitive diagnosis and treatment.

REFERENCES

1. Lan Q, Zhong J, Wang Y, Zhu H, Liu X, Guo Y, Qu Z. Acute small bowel obstruction caused by a fan-shaped congenital band in a child: a case report. Front Pediatr. 2025;13:1539677. doi:10.3389/fped.2025.1539677.
2. Jackson R, Folaranmi SE, Goel N. Approach to the baby with bilious vomiting. Paediatr Child Health. 2022;32(1):1-6. doi:10.1016/j.paed.2021.10.009.

3. Lee RA, Dassios T, Bhat R, Greenough A. Bilious vomiting in the newborn: a three-year experience in a tertiary medical and surgical centre. Case Rep Pediatr. 2020;2020:8824556. doi:10.1155/2020/8824556.
4. Yang KH, Lee TB, Lee SH, Kim SH, Cho YH, Kim HY. Congenital adhesion band causing small bowel obstruction: what's the difference in various age groups, pediatric and adult patients? BMC Surg. 2016;16(1):79. doi:10.1186/s12893-016-0196-4.
5. Pope HF, Pilmane M, Junga A, Pētersons A. The assessment of CDX1, IHH, SHH, GATA4, FOXA2, FOXF1 in congenital intra-abdominal adhesions. Acta Med Litu. 2024;31(1):109-21. doi:10.15388/Amed.2024.31.1.15.