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Case Report

Congenital adhesion band: A rare case in a neonate ☆

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ABSTRACT

Diseases of the gastrointestinal system may be congenital or acquired. Intestinal obstruction is common in children and neonates, and it has various causes. Obstructions due to congenital adhesion bands are rare. Few cases were reported in the literature. In this paper, we will discuss the case of an 8-day-old girl who was presented to the emergency department with signs of intestinal obstruction.

Introduction

The most common emergencies in the neonatal period are intestinal obstructions [1]. Neonatal intestinal obstruction accounts for 1 in 2000 births per year [2]. Causes of intestinal obstruction can be classified into 2 categories: acquired and congenital [3]. Some acquired causes include postoperative and inflammatory adhesions, while congenital causes include atresia, stenosis, and volvulus [3]. Although postoperative and inflammatory adherences are the most common causes of intestinal obstruction in infants, congenital adhesion bands remain one of the rarest causes [4]. A congenital adhesion band, previously referred to as an anomalous congenital band, is an intraperitoneal adhesion; it is not related to an intra-abdominal process such as embryonic remnants and is considered to arise de novo or from a congenital origin [4].

Case report

A baby girl, member of a twin, was born at 39 weeks of gestation by cesarean section following a smooth pregnancy course. Prenatal ultrasonography was normal with no findings of intestinal obstruction. Her birth weight was 2.59 kg. Apgar

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scores at birth were 9 and 10 at 1 and 5 minutes, respectively. The patient had a normal physical exam at birth.

On the day of life one, there was minimal breastfeeding and passage of meconium. On the day 2 of life, the patient produced whitish vomiting after breastfeeding, yet the patient passed meconium. Then, from day 3 of life till day 8, bilious vomiting was produced with no passage of meconium which required neonatal intensive care unit admission. On day 8 of life, the patient presented to the emergency department with a 5-day history of bilious vomiting and severe dehydration. Physical examination revealed a distended abdomen, thinning of the muscles where bones felt more than usual, jaundice, and dry skin. There was a good bilateral air entry, and no heart murmurs were auscultated.

Decompression using a nasogastric tube was initiated and gastro-biliary content was drained. A rectal tube was also inserted, and meconium was passed through it on day 2 of admission. A complete blood count showed markedly increased blood urea nitrogen (BUN: 20.03 mmol/L), no other remarkable findings were found. Stool and urine analysis were normal. The patient was put on intravenous fluid for dehydration. The kidney, ureter, and bladder (KUB) study showed a double-bubble sign, overdistended stomach, gas in the rectum, and absence of air-fluid levels (Fig. 1). An upper gastrointestinal (GI) series with contrast revealed partial obstruction of the second part of the duodenum (Fig. 2). The patient was admitted for laparotomy which confirmed the presence of a congenital adhesion band extending from the mesentery to the lateral abdominal wall crossing over the second part of the duodenum and compressing it distal to the ampulla of Vater (Fig. 3). The band was excised, and the compression was relieved. The cecum, ascending, and transverse colon were in their normal position. The surgery was uncomplicated. The patient passed minimal bilious secretions through the nasogastric tube from postoperative day 1 till postoperative day 5. The patient was discharged 14 days postoperative.

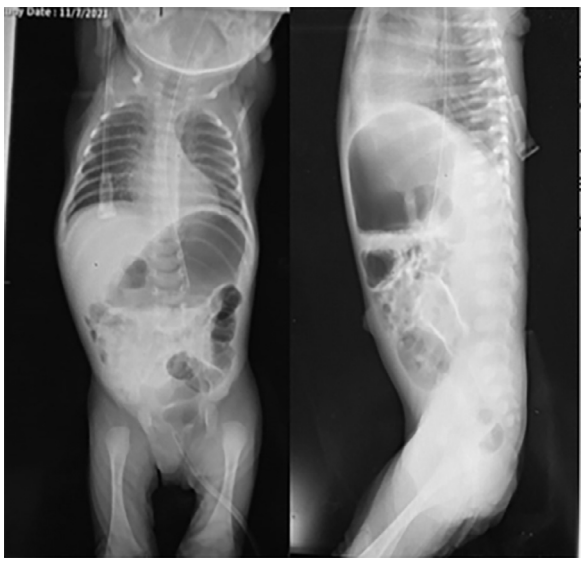

Fig. 1 – Antero-posterior and lateral views of the KUB showing double-bubble sign, overdistended stomach, gas in the rectum, and absence of air-fluid levels.

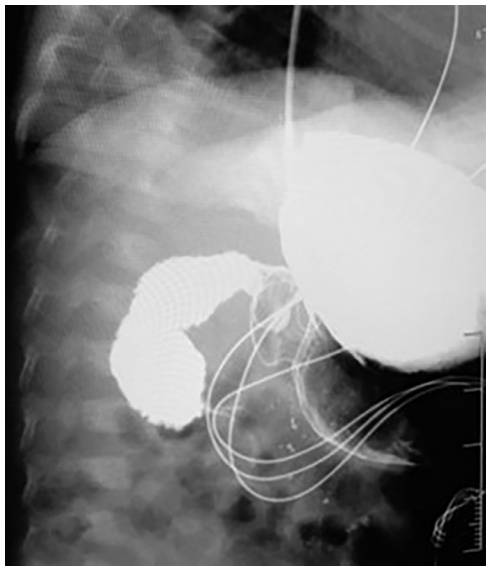

Fig. 2 – Upper gastrointestinal series with contrast showing partial obstruction of the second part of duodenum.

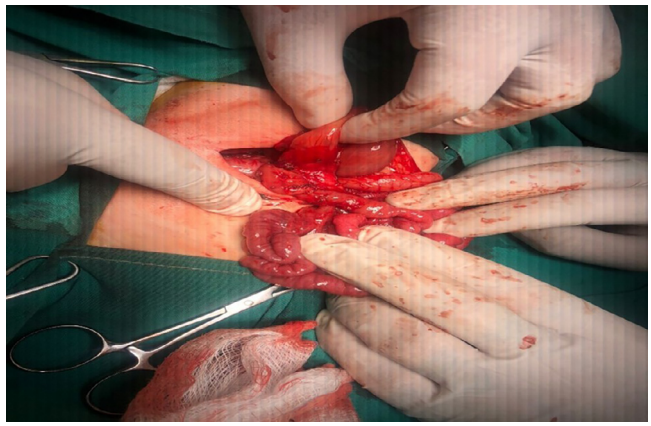

Fig. 3 – Congenital adhesion band was located extending from mesentery to the second part of the duodenum compressing it.

Discussion

Congenital adhesion band is not related to any abdominal diseases or past abdominal surgeries such as inflammatory bowel disease, and laparotomies [3].

The etiology of this band is uncertain, it has no embryonic cause such as being a remnant of omphalomesenteric duct or vitelline vessels because they have different locations [3]. Akgur et al. [5], who reported the largest series of 8 children having congenital anomalous bands, proposed that these bands mostly result from a mesenteric anomaly.

This is the first case of a congenital adhesion band in a neonate reported in Lebanon. Due to the limited resources and skilled personnel in Lebanon, many physicians may aim to

follow the diagnosis and management plan of other potential cases.

The sites of congenital adhesion bands from the most to the least common include the ileum, colon, mesentery, omentum, peritoneum, jejunum, and any site of gastrointestinal tract. [6] In our case, the site of obstruction was the second part of the duodenum, which is different from that found in the case of Weledji et al. [4] that presented with an obstruction of the third part of the duodenum, and different from the case of Catania et al. [7] where the site of obstruction was the duodeno-jejunal flexure, Other sites were also reported by Akgur et al. [5] and Nicolas et al. [8] between the right colon and ileum, and at the level of jejunum and terminal ileum respectively.

In this case, the neonate had signs and symptoms of intestinal obstruction which were episodes of bilious vomiting, poor feeding, abdominal distention, and dehydration; these symptoms are similar to those found by Catania et al. [7] and Yang et al. [9] in the neonatal age group.

It is difficult to achieve a diagnosis in cases of extrinsic intestinal obstruction because radiologic examinations do not establish a definitive diagnosis before surgery [7,9]. The most convenient approach reported in the literature to diagnose cases of intestinal obstruction in neonates includes abdominal X-ray film, upper GI series, contrast enema, and CT scan; radiologic features of intestinal obstruction were seen in almost all the cases. [7] In 1 case report mentioned by Liu et al. [10], an upper GI series was performed showing incomplete obstruction of the duodenum near the Treitz's ligament, but only after laparotomy, a final diagnosis was made.

In this case, a KUB was done followed by an upper GI series which showed a double-bubble sign, marked abdominal distention, and partial duodenal obstruction with no air-fluid levels. This approach was similar to that done by Gourishetti et al. [11], in which the results of the KUB and upper GI series revealed significant distention of the abdomen and no malrotation respectively. To reach a definitive diagnosis of this report, an exploratory laparotomy was performed revealing an intraperitoneal adhesion extending from the mesentery to the second part of the duodenum distal to ampulla of Vater thus leading to duodenal obstruction. Exploratory laparotomies were also used in other similar cases by Sozen et al. [6], Gourishetti et al. [11], and Etensel et al. [12] for both diagnosis and treatment.

The most important challenge encountered was the rarity of the case which reflects the lack of definitive evidence for diagnosis and treatment. The scarce literature contributes to the late diagnosis of such cases thus imposing danger on the life of the neonate. It was the first case to be encountered at the hospital in Lebanon where the patient presented, so congenital adhesion band was not on top of the differential diagnosis list.

Intestinal obstruction caused by congenital adhesion band is a life-threatening condition and an urgent intervention is needed. According to Yang et al. [9], these cases can be complicated by volvulus and strangulation and surgical intention should be implemented as early as possible. In the study of Wu et al. [13], laparoscopic approach was found to be the suitable way for confirmation of diagnosis and treatment in these cases. In our case, laparotomy was done to relieve the compression and cut the adhesion band, which is similar to the management of some cases reported by Galvan-Montano [3] and Weledji et al. [4]. Laparotomy was the chosen method due to the lack of resources and experienced personnel at the institution where the patient was presented. Since in our case the cecum and duodenum were in their normal position with no associated malrotation, the diagnosis of Ladd bands, which are fibrous stalks of peritoneal tissue connecting the cecum to retroperitoneum usually in the setting of intestinal malrotation, was excluded.

Conclusion

Congenital adhesion band is a rare but dangerous finding in neonates and should always be included in the differential diagnosis of intestinal obstruction. It should be suspected in cases presenting with bilious vomiting and abdominal distention with no previous surgical history. A prompt laparotomy provides both diagnostic and therapeutic value to these cases as there is no exact tool for diagnosis. Rapid identification of such cases is lifesaving. With the growing literature, physicians can better manage them without wasting time on unneeded laboratory testing or radiological imaging. Almost all the cases managed early, including this case, had a good prognosis and fast recovery with no complications.

IRB approval

The IRB at the hospital does not require further documentation if the data will be shared anonymously.

Previous presentation

This manuscript has not been previously published and is not being concurrently submitted elsewhere.

Patient consent

The patient signed an informed consent and granted approval of the publication.

REFERENCES

[1] Vinocur DN, Lee EY, Eisenberg RL. Neonatal intestinal obstruction. Am J Roentgenol 2012;198(1):W1–10.
[2] Juang D, Snyder CL. Neonatal bowel obstruction. Surg Clin 2012;92(3):685–711.
[3] Galván-Montano A, Trejo-Ávila M, García-Moreno S, González AP. Banda congénita anómala una patología rara de obstrucción intestinal en niños. Caso clínico. Cirugía Cirujanos 2017;85(2):164–7.

[4] Weledji EP, Monono N. Congenital adhesion bands causing distal duodenal obstruction in a 6-year old child. J Pediatr Surg Case Rep 2021;72:101966.
[5] Akgür FM, Tanyel FC, Büyükpamukçu N, Hiçsönmez A. Anomalous congenital bands causing intestinal obstruction in children. J Pediatr Surg 1992;27(4):471–3.
[6] Sozen S, Emir S, Altinsoy HK, Topuz O, Vurdem UE, Cetinkunar S, et al. Small bowel obstruction due to anomalous congenital peritoneal bands-case series in adults. Bratisl Lek Listy 2012;113(3):186–9.
[7] Catania VD, Olivieri C, Nanni L, Pintus C. Extrinsic colonic obstruction by congenital fibrous band in an infant. Case Rep 2013;2013:bcr2012007897.
[8] Nicolas G, Kfoury T, Shimlati R, Koury E, Tohme M, Gharios E, et al. Diagnosis and treatment of small bowel strangulation due to congenital band: three cases of congenital band in adults lacking a history of trauma or surgery. Am J Case Rep 2016;17:712.
[9] 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):1–6.
[10] Liu C, Wu TC, Tsai HL, Chin T, Wei C. Obstruction of the proximal jejunum by an anomalous congenital band: a case report. J Pediatr Surg 2005;40(3):E27–9.
[11] Gourishetti S, DeMeo SD. Neonatal segmental small bowel volvulus with normal intestinal rotation. J Pediatr Surg Case Rep 2021;64:101721.
[12] Etensel B, Özkısacık S, Döger F, Gürsoy H. Anomalous congenital band: a rare cause of intestinal obstruction and failure to thrive. Pediatr Surg Int 2005;21:1018–20.
[13] Wu JM, Lin HF, Chen KH, Tseng LM, Huang SH. Laparoscopic diagnosis and treatment of acute small bowel obstruction resulting from a congenital band. Surg Laparosc Endosc Percutan Techn 2005;15(5):294–6.