International Surgery Journal
Shetty SS et al. Int Surg J. 2024 Aug;11(8):1377-1379
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20242138

Case Report

Mesodiverticular hernia: a rare cause of intestinal obstruction

Shravya S. Shetty*, Neha N. Masrani, Ameya S. Muzumdar, Kshitij A. Mane, Suraj R. Gandhi, Neha S. Shenoy, Hemanshi S. Shah

Department of Paediatric Surgery, Topiwala National Medical College and B.Y.L Nair Hospital, Mumbai, Maharashtra, India

Received: 03 June 2024
Revised: 03 July 2024
Accepted: 09 July 2024

***Correspondence:**
Dr. Shravya S. Shetty,
E-mail: shravyas99@gmail.com

ABSTRACT

A mesodiverticular band is a rare embryological remnant of arterial supply to the Meckel's diverticulum in utero. A persistent mesodiverticular band can cause bowel compression leading to obstruction. Internal herniation through a mesodiverticular band is very rare. We report a case of an 8yr old boy who presented with intestinal obstruction secondary to a mesodiverticular band and internal herniation. Internal herniation with a mesodiverticular band is a rare complication of Meckel's diverticulum.

Keywords: Internal herniation, Mesodiverticular band, Meckel's diverticulum

INTRODUCTION

A child presenting with sudden abdominal distension and bilious vomiting is a frequent finding in paediatric surgical practice. This could be secondary to obstructive etiology, inflammatory changes and congenital causes. Meckel's diverticulum is the most common congenital malformation of the GI tract, however Meckel's complicated by mesodiverticular band associated with internal herniation is rare.[1] Mesodiverticular band is an embryological remnant of the vitelline circulation that carries arterial supply to the Meckel's diverticulum.[2] Meckel's diverticulum can present with complications in the form of ulceration, hemorrhage leading to lower gastro intestinal bleed, intussusception, intestinal obstruction or perforation.

CASE REPORT

An 8-year-old male child presented with acute onset periumbilical pain, abdominal distension and 5-6 episodes of non-bilious vomiting since one day. On examination, there was abdominal distension with generalized tenderness, hyperperistaltic bowel sounds and no palpable mass. Patient's blood investigations were normal. Plain radiography of abdomen revealed multiple air fluid levels.

Figure 1: X-ray erect abdomen- suggestive of multiple air fluid levels.

Ultrasound abdomen was suggestive of small bowel obstruction. Contrast enhanced CT scan of the abdomen showed evidence of small bowel obstruction in distal ileal loops. Emergency laparotomy revealed intestinal obstruction in the distal ileum. At the site of obstruction, ileal loops were ensconced within an internal hernia.

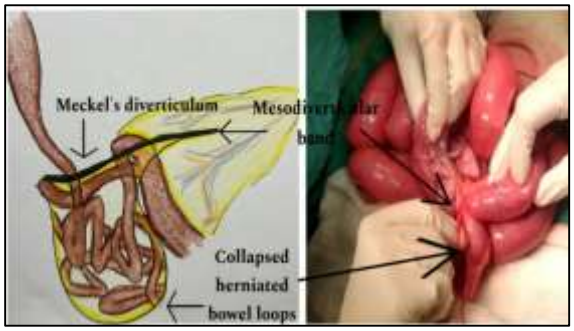

Figure 2: Herniation of bowel loops though mesodiverticular snare formed by the diverticulum and mesodiverticular band.

The collapsed small bowel loops were reduced from the internal hernia revealing a narrow-based Meckel's diverticulum with a mesodiverticular band. This band was extending from the tip of the Meckel's diverticulum upto the ileal mesentery, forming a triangular window allowing internal herniation.

Figure 3: Meckel's diverticulum with mesodiverticular band.

A segmental resection of the Meckel's with ileoileal anastomosis was performed. The patient recovered well after surgery. The child had an uneventful postoperative follow up and is thriving well. Histopathology report was suggestive of Meckel's diverticulum with gastric metaplasia at the tip of the diverticulum.

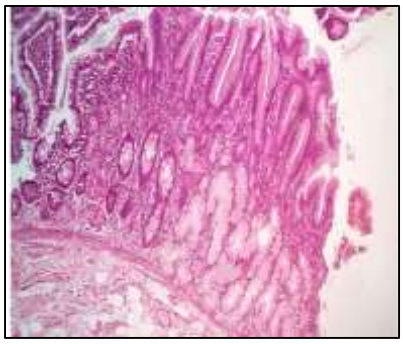

Figure 4: Histopathological image of gastric metaplasia in Meckel's diverticulum.

DISCUSSION

During the initial weeks of gestation, the area of communication between the yolk sac and primitive bowel narrows, elongates, and becomes the omphalomesenteric duct. Obliteration of this duct normally occurs by the fifth to seventh week.[1] Failure of this duct to atrophy leads to formation of Meckel's diverticulum. The diverticulum derives its blood supply from the superior mesenteric artery by its vitelline branches; these branches can be persistent in 5-18% of the cases of Meckel's diverticulum.[3] This persistent branch is known as mesodiverticular band. The vascular cord at the outer edge of the mesodiverticulum creates a triangular defect under which a loop of bowel can herniate and entrap leading to internal herniation with obstruction. According to a systemic review of mesodiverticular bands by Bamarni et al, of the 20 cases studied in adults, the most common presentation was small bowel obstruction followed by hemoperitoneum.

They reported one death due to a missed internal herniation through the band.[3] Mesodiverticular bands often present as small bowel obstruction, but rarely can also present as hemoperitoneum or a traumatic rupture of the band as reported. Thus, such a band when left undiagnosed can present in adulthood with fatal complications. Meckel's is usually known to be asymptomatic. It represents a lifetime risk of 4–6% of developing a complication.[4] When in the form of an obstruction, it is usually due to an intussusception, volvulus or adhesive bands due to an episode of diverticulitis. It is extremely rare to come across an obstruction due to small bowel loops herniating through a mesodiverticular band associated with this diverticulum as seen in our case.[5,6] Bertozzi et al found only 8 cases in the paediatric age group of symptomatic mesodiverticular band in 50 years with a male: female ratio of 3:1.[7] All the cases presented as intestinal obstruction, of which 6 were due to internal herniation and 2 were due to direct compression of the band. Surgical intervention with reduction of internal herniation and diverticulectomy is the treatment for this presentation. Open surgery has been widely reported in the management of obstruction due to mesodiverticular bands. However, laparoscopy has been attempted by a few authors.[7]

CONCLUSION

Mesodiverticular band is a remnant of the vitelline vessels, which mainly presents in the form of obstruction. Even though a rare phenomenon an early intervention with a high degree of suspicion can prevent future complications of strangulation and gangrene.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Jain V, Sahi S. A rare fatal case of internal hernia caused by Meckel's diverticulum in a paediatric patient. Open J Pediatr. 2011;1(2):17-9.
2. Bertozzi M, Melissa B, Magrini E, Di Cara G, Esposito S, Apignani A. Obstructive internal hernia caused by mesodiverticular bands in children: two case reports and a review of the literature. Medicine. 2017;96(46).
3. Lemke C, Biedermann U. A persistent vitelline artery in an adult. Case report and review of literature. Translational Res Anatomy. 2021;22:100080.
4. Sharma RK, Jain VK. Emergency surgery for Meckel's diverticulum. World J Emerg Surg. 2008;3(1):1-8.
5. Pessanha I, Scuglia M, Correia-Pinto J, Lamas-Pinheiro R. Meckel's mesodiverticular band causing an internal hernia. J Pediatr Surg Case Reports. 2020;59:101526.
6. Bamarni S, HungFong S, Mino J, Misra S. Systematic review of mesodiverticular band: a rare cause of small bowel strangulation and hemoperitoneum in adults. IJS Short Reports. 2021;6(4):33.
7. Bertozzi M, Yildiz A, Appignani A. Symptomatic mesodiverticular bands in children. Ann Pediatr Surg. 2018;14(1):21-3.

Cite this article as: Shetty SS, Masrani NN, Muzumdar AS, Mane KA, Gandhi SR, Shenoy NS, et al. Mesodiverticular hernia: a rare cause of intestinal obstruction. Int Surg J 2024;11:1377-9.