www.jmscr.igmpublication.org
Impact Factor (SJIF): 6.379
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v6i9.05

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Case Report

Persistent vitelline duct fibrotic band causing axially rotated gangrenous Meckel's diverticulum with small bowel obstruction in an adult

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Abstract
Symptomatic Meckel's diverticulum may present as gastrointestinal bleeding, diverticulitis, and intestinal obstruction. Here we report an extremely rare case of axially rotated gangrenous Meckel's diverticulum with acute intestine obstruction due to persistent vitelline duct. Resection of gangrenous Meckel's diverticulum along with the involved ileum was done followed by anastomosis. Early diagnosis and timely surgery in such cases can prevent the morbidity and mortality.
Keywords: *Gangrene, Meckel's diverticulum, Obstruction.*

Introduction

Meckel's diverticulum (MD) is the most commonly encountered congenital anomaly of the small intestine. Only 4% of patients develop complications such as gastrointestinal bleeding, diverticulitis, perforation or obstruction[1]. Small bowel obstruction is mostly reported secondary to intussusception or a volvulus. Here we report an extremely rare case of axially rotated gangrenous MD with small bowel obstruction caused by persistent vitelline duct fibrotic band.

Case Presentation

A 17-year old boy was presented with two days history of central abdominal pain, abdominal distention, several episodes of bilious vomiting and fever. There is no history of similar episodes in the past. Clinically patient was febrile with sign of acute intestinal obstruction with peritonitis. On laboratory examination total leukocyte counts was raised. X- Ray abdomen revealed features of acute intestinal obstruction with no evidence of pneumoperitonium (Figure 1A). Abdominal

Ultrasonography revealed dilated bowel loops with minimal fluid in the pelvic cavity without any evidence of appendicitis. Due to the suspicion of intestinal perforation on clinical grounds an urgent exploratory laparotomy was planned. On exploration, a minimal amount of intraperitoneal fluid was found; cecum and appendix appeared to be normal. A part of the small intestine was entrapped between an axially torted gangrenous MD and a fibrotic band connecting the tip of the diverticulum to the umbilicus (Figure 1B). The gangrenous MD, measuring 7x5x5cm with 1.0 cm base, was found 50 cm proximal to the ileocecal valve. The gangrenous MD along with the involved small bowel resected and end to end anastomosis was done. We also did appendectomy during that procedure. The patient did well after surgery and was discharged uneventfully on sixth post-operative day.

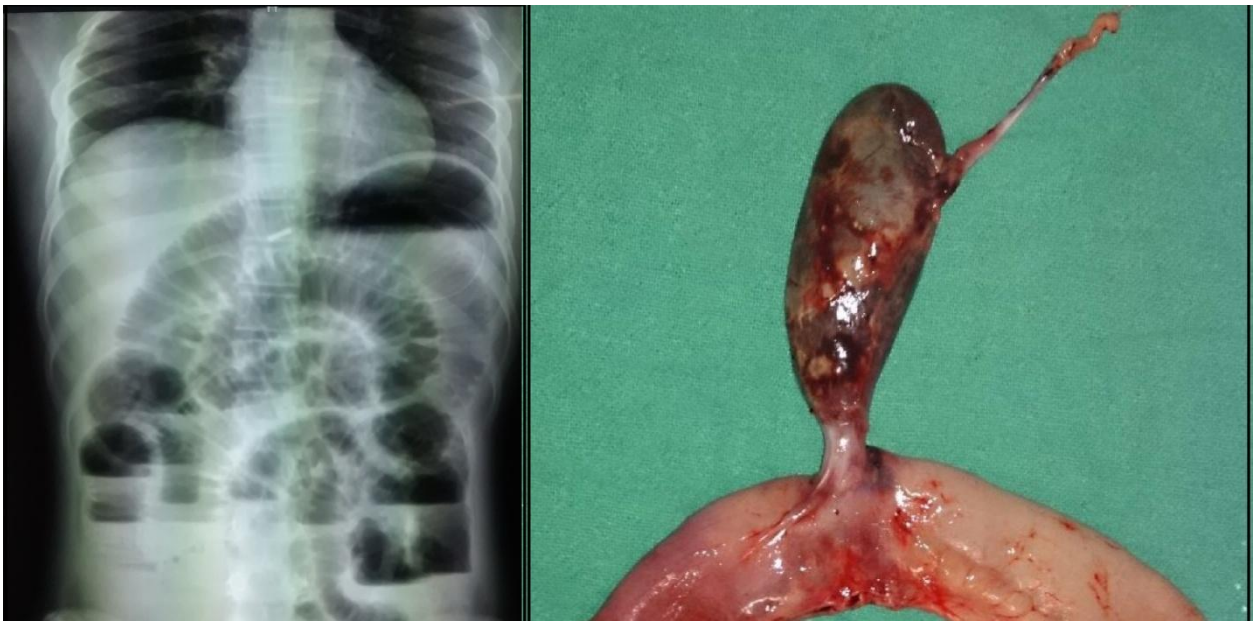

Figure 1 X-rays abdomen erect view revealed dilated small bowel loops with multiple air fluid levels (A). Resected specimen of gangrenous Meckel's diverticulum with small bowel and fibrotic band (B)

Discussion

MD is the most commonly encountered congenital anomaly of the small intestine, occurring in about 2% of the population.[1] MD is a true diverticulum. Cells lining the vitelline duct are pluripotent; so heterotopic tissue may be found in MD.[2]

Most of the MD are asymptomatic. Symptomatic MD (4%) is more common in men. The most common clinical presentation of MD is gastrointestinal bleeding.[3] Our patient presented with acute intestinal obstruction with sign of peritonitis and septicemia. The most common cause for obstruction is intussusceptions. Other cause for obstruction includes adhesions, Littre's hernias, diverticular strictures, enteroliths, and loop formations with the end of a MD and adjacent mesentery.[4]

Axial torsion with gangrene of the MD is an extremely rare complication that results from axial twisting of the MD around its narrow base. The size is variable, on an average it is 2.9 cm long and 1.9 cm wide[5]. In our case there was the coexistence of giant gangrenous MD with small intestine obstruction due to entrapment of bowel around the persistent vitelline duct fibrotic band; this is a very rare co-occurrence. Post-inflammatory gangrene is uncommon and occurs only if the diagnosis is delayed. Preoperative definitive diagnosis of the MD is difficult because it is clinically indistinguishable from other intra abdominal pathology such as acute appendicitis, inflammatory bowel disease, or other causes of small bowel obstruction. Ultrasonography, computed tomography and diagnostic laparoscopy

may be helpful in detecting a MD.[6] Delay in the diagnosis can lead to significant morbidity and mortality.

Surgical treatment options include simple diverticulectomy or ileal resection. In our case small bowel with gangrenous MD resected and anastomosis was done. Results of surgical excision are generally excellent. Postoperative complications in patients operated for complicated MD include wound infection (3%), prolonged ileus (3%), and anastomosis leak (2%).[7] There were no post-operative complications and patient was discharged in stable condition with uneventful follow-up.

Conclusion

The preoperative diagnosis of MD is often difficult and presumed to be appendicitis or small bowel obstruction of unclear etiology. The diagnosis could only be made during surgery. MD should be kept in mind in patients with atypical presentations and an early surgery can prevent the complication like gangrenous bowel, perforation peritonitis and septicemia.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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