Original Research Article

Mesenteric cyst(s) presenting as acute intestinal obstruction in children: Three cases and literature review

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KEYWORDS
Mesenteric cyst; Acute obstruction; Pediatric; Enucleation; Marsupialization

Abstract

Background and objectives: Mesenteric cysts are rare in paediatric age group and usually present as asymptomatic abdominal lumps. Acute presentations are uncommon and their preoperative diagnosis is difficult.

Design and settings: This is a retrospective observational study describing three children with mesenteric cysts who presented with symptoms and signs of acute intestinal obstruction.

Patients and methods: Three children with mesenteric cysts who presented with acute abdomen are described as per their age, presenting symptoms and signs, investigations, management, and outcome.

Results: The three children presented in emergency with symptoms and signs of acute intestinal obstruction. On exploration, all had mesenteric cyst and were managed by deroofing, marsupialisation and excision. All patients recovered uneventfully.

Conclusions: Presentation of mesenteric cyst as acute obstruction in paediatric age group is rare and preoperative diagnosis is difficult. The larger cysts are more likely to have an acute presentation.

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1. Introduction

Mesenteric cysts are rare intra-abdominal benign masses. Their incidence is estimated to be approximately 1/20,000 in the pediatric population [1]. More than half of mesenteric cysts involve the mesentery of the terminal ileum [2].
Mesenteric cysts usually present as an asymptomatic lump. Acute presentations are uncommon. The absence of obvious pathognomonic symptoms and signs makes diagnosis difficult. Abdominal ultrasound and computed tomography may aid in diagnosis. Complete surgical excision is the treatment of choice; the alternative treatment is excision or marsupialization of the cyst [1]. We describe three children with mesenteric cysts who presented with acute intestinal obstruction.

2. Patients and methods

Of a total of 6 patients diagnosed with mesenteric cysts, 3 patients presented with symptoms and signs of acute intestinal obstruction (50%).

**Case 1**: A 4-year-old male presented with a 5-day history of abdominal pain and distention, fever, and intermittent episodes of non-bilious vomiting. On admission, the abdomen appeared distended and the patient reported generalized tenderness. No lump was palpable. Erect abdominal X-ray and abdominal ultrasound suggested the presence of a small bowel obstruction (Fig. 1). During emergency laparotomy by supra-umbilical right transverse incision, a mesenteric cyst of $10 \times 6$ cm in size containing serous fluid was uncovered between the leaves of the mesentery of the terminal ileum (Fig. 2). The small bowel proximal to the cyst was grossly distended. The cyst was deroofed, and the patency of the bowel was confirmed. Histopathology confirmed the diagnosis of a mesenteric cyst.

**Case 2**: A 1.5-year-old male child was referred with complaints of abdominal pain, distention, constipation, and intermittent episodes of bilious vomiting for 3 days. Abdominal distention was apparent, and the patient presented with mild tenderness all over the abdomen. No lump could be felt. The rectum was empty on digital rectal examination. Blood tests revealed the presence of anemia. Erect X-ray of the abdomen and abdominal ultrasound suggested the presence of a small bowel obstruction. During emergency exploratory laparotomy by supra-umbilical right transverse incision, two mesenteric cysts $8 \times 7$ cm in size containing chylous fluid were detected in the mesentery of the small bowel approximately 20 cm and 30 cm distal to the duodeno-jejunal flexure. The proximal small bowel was dilated. The cysts were marsupialized, and excess cyst wall was excised. Histopathology confirmed the diagnosis of mesenteric cyst.

**Case 3**: A 5-day-old female neonate presented with abdominal distention and multiple episodes of non-bilious vomiting for 2 days. Her abdomen was massively distended. The rectum was empty on digital rectal examination. Abdominal X-ray revealed multiple air fluid levels, and ultrasound suggested dilated small bowel loops with to and fro movements indicative of obstruction. During emergency surgical exploration by supra-umbilical right transverse incision, a mesenteric cyst $8 \times 8$ cm in size was detected at the terminal ileum. The cyst was completely excised. Postoperative recovery was uneventful. The diagnosis of mesenteric cyst was confirmed by histopathology.

3. Discussion

Benivieni, an anatomist, first reported on the mesenteric cyst in 1507 [1]. Mesenteric cysts are rare intra-abdominal masses with an incidence of approximately 1:100,000 in adults and 1:20,000 in the pediatric population [1]. They may occur anywhere in the mesentery of the gastrointestinal tract from the duodenum to the rectum, but they are most commonly located in the mesentery of the ileum followed by localization in the sigmoid mesocolon [1].

Approximately one-third of mesenteric cysts occur in children younger than 15 years of age and are slightly more common in males [1]. The size of mesenteric cysts may vary from 2 cm to 35 cm [2]. In the current study, the three cysts that were associated with obstructive symptoms and signs were 8 cm or more in size. The other three cysts were smaller.

The exact etiology of the development of mesenteric cysts is unknown. The most commonly accepted theory as proposed by Gross states that cysts result from benign...
proliferation of ectopic lymphatic tissue in the mesentery that lacks communication with the remainder of the lymphatic system [1].

Patients are usually asymptomatic unless complications arise. Symptoms are variable and are related to the size and the position of the cyst, with no pathognomonic signs observed in uncomplicated patients. Patients may also present with acute symptoms secondary to complications such as obstruction, rupture, hemorrhage into a cyst, infection, or abscess formation. Intestinal obstruction is a surgical emergency and requires urgent attention. It is usually produced by compression of the intestine adjacent to the cyst, volvulus or entrapment in the pelvis [3]. In a report of 17 cases of mesenteric cysts by Prakash A et al, nine patients presented with acute small intestinal obstruction [4].

Abdominal ultrasound and computed tomography are the methods of choice to diagnose mesenteric cysts preoperatively [3]. However, the confirmation of this diagnosis may not be possible in all cases. The differential diagnosis of mesenteric cysts includes cystic lymphangioma, cystic teratoma, ovarian cyst, enteric duplication cyst, and hydatid cyst [5].

Mesenteric cysts are most commonly single and multilocular, and the cystic fluid is generally serous when the cyst involves the distal small bowel or colonic mesentery; cystic fluid is usually chylous when the cyst is located in the proximal small bowel mesentery [1]. Histopathological examination can confirm these observations [5].

Complete surgical excision is the preferred treatment for mesenteric cysts and leads to excellent outcomes. Surgery can be performed laparoscopically [6]. Bowel resection and anastomosis may be required along with excision of the mesenteric cysts [7]. In children, resection and anastomosis may be required in up to 50–60% of cases [1]. Rattan KN et al reported 8 cases of mesenteric cysts, two of which presented with intestinal obstruction, both were treated by exploratory laparotomy, and complete excision of the cyst required bowel resection [8].

If enucleation or resection is not possible, then partial excision with marsupialization of the remaining cyst into the abdominal cavity is recommended [1]. The cyst lining could be sclerosed with electrocautery, tincture iodine, or OK432 after marsupialization to prevent recurrence [1].

4. Conclusion

Mesenteric cysts, though invariably asymptomatic, can occasionally be associated with an acute presentation. Mesenteric cysts can rarely cause acute intestinal obstruction in children, especially cysts that are larger in size. Surgical excision of the mesenteric cyst is the mainstay of treatment. Resection and anastomosis of the bowel may be required depending on individual patient anatomy.

Ethical clearance

Not applicable in this because the patients in this study were managed according to the existing protocols. No new investigations and intervention was done on the patient.

Source of funding

Nil.

Conflict of interest

The authors have no conflicts of interest relevant to this article to disclose.

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