J Surg Med. 2026;10(3):95-97.
https://doi.org/10.28982/josam.8317

JOSAM

Journal of Surgery and Medicine

e-ISSN: 2602-2079

Case report
https://jsurgmed.com/

Mesenteric cyst as a rare cause of acute abdomen in a young adult: A case report

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
No conflict of interest was declared by the authors.

Financial Disclosure
The authors declared that this study has received no financial support.

Published
2026 March 17

Abstract

Mesenteric cysts are uncommon intra-abdominal lesions that are often overlooked or only briefly noted in medical textbooks. Mesenteric cysts comprise a diverse group of intra-abdominal lesions, defined by cystic structures that develop within the mesentery. This term encompasses a broad spectrum of pathological entities, including lymphangiomas (both benign and malignant), enteric duplication cysts, dermoid cysts, and pseudocysts. Mesenteric cysts are frequently asymptomatic and are most often discovered incidentally during routine clinical examination or radiologic assessment. In uncommon instances, they may present with acute abdominal symptoms resulting from complications such as infection, hemorrhage, torsion, rupture, or intestinal obstruction. Here, we describe a rare case of intestinal obstruction secondary to a mesenteric cyst in a healthy 24-year-old male. The patient underwent exploratory laparotomy, followed by segmental small bowel resection and primary anastomosis. The patient's postoperative recovery proceeded without complication. Oral intake was resumed on day three, and the patient was discharged on day seven in stable condition. Follow-up assessments at one and three months revealed no complications. The diagnosis of a mesenteric cyst was confirmed via histopathological analysis. Mesenteric cysts are infrequently documented in the literature, and cases presenting with intestinal obstruction are even more uncommon. The diagnostic and therapeutic approach to mesenteric cysts should be individualized, taking into account the specific clinical features of each patient.

Keywords: mesenteric cyst, intestinal obstruction, acute abdomen, lymphatic tissue

Introduction

Mesenteric cysts are rare intra-abdominal lesions with an incidence of 1/100,000 admissions in adults and 1/20,000 admissions in children. Mesenteric cysts most commonly occur in association with the small intestine, accounting for approximately 60% of cases, and are less frequently observed in the colon [1]. These cysts may originate at any point along the gastrointestinal tract from the duodenum to the rectum. The contents of mesenteric cysts vary and may be serous, chylous, or hemorrhagic, with the latter typically presenting as dark brown fluid in cases of intra-cystic bleeding.

The clinical presentation of mesenteric cysts is highly variable and often nonspecific, ranging from asymptomatic cases to, albeit rarely, acute abdominal emergencies. Presentations are generally categorized into three categories: (1) patients exhibiting nonspecific abdominal symptoms, (2) cases identified incidentally through abdominal imaging, and (3) cases presenting with signs of acute abdomen. Symptomatology is largely influenced by the cyst's size and anatomical location and occasionally by complications such as intestinal obstruction, volvulus, hemorrhage, or peritonitis. Here, we report a rare case of intestinal obstruction secondary to a mesenteric cyst in a 24-year-old male. Given the apparent paucity of similar cases reported regionally, this case adds valuable insight. The clinical presentation and management approach of this condition are presented with the aim of raising awareness of this uncommon entity and promoting timely diagnosis and intervention.

How to cite: Ramasamy S, Praemanathan H. Mesenteric cyst as a rare cause of acute abdomen in a young adult: A case report. J Surg Med. 2026;10(3):95-97.

Case presentation

A 24-year-old male with no prior history of abdominal surgery or significant medical conditions was referred to our department presenting with a primary complaint of severe abdominal pain, predominantly localized to the right lower quadrant. His pain had been progressively worsening over the preceding four days. Additionally, he reported non-bilious vomiting and a one-day history of obstipation, with no passage of stool or flatus. He denied experiencing any constitutional symptoms. The patient remained normotensive during the evaluation; his blood pressure ranged from 120/65 to 110/50 mmHg. However, he demonstrated tachycardia, with a heart rate between 100 and 105 beats per minute, and was febrile with a recorded temperature of 38°C. A physical examination revealed abdominal distension with focal tenderness in the right lower quadrant. No palpable masses were detected, and the hernial orifices were intact. Evidence of systemic inflammation was present, as shown by a CRP of 102 mg/L and leukocytosis with a white blood cell count of 15.0 × 10⁹/L. Renal impairment was evident, with a urea level of 26 mg/dL and serum creatinine of 170 µmol/L, corresponding to an estimated GFR of 43 mL/min/1.73 m² using the MDRD equation, consistent with moderately reduced kidney function. Hemoglobin level, platelet count, coagulation profile, and urinalysis were all within normal limits. Plain abdominal radiography showed no radiographic evidence of mechanical bowel obstruction. Computed tomography (CT) imaging was deferred due to the patient's compromised renal function and the associated risk of contrast-induced acute kidney injury (CI-AKI). In emergency settings, such concerns frequently prompt extensive discussions between referring clinicians and radiologists, often resulting in delays in imaging and diagnosis [1]. Ultrasonography was considered suboptimal in this case, given the patient's significant abdominal distension and the modality's operator-dependent nature, which may limit diagnostic accuracy in such presentations. Owing to the acute nature of the presentation, a provisional diagnosis of perforated appendicitis was made. The patient was initially managed with intravenous fluid resuscitation and empirical intravenous antibiotic therapy. Subsequently, he was scheduled for an urgent exploratory laparotomy. An intraoperative assessment identified a sizable cystic lesion originating from the mesentery of the small bowel (Figure 1). The cystic lesion was situated in the jejunal segment, approximately 60 cm distal to the duodenojejunal flexure exhibiting areas of sloughed tissue (Figure 2). Multiple enlarged mesenteric lymph nodes were palpable in the vicinity. The other intraabdominal organs were normal. Surgical management involved en bloc resection of the affected mesenteric tissue along with a 20 cm segment of the jejunum. Restoration of intestinal continuity was achieved via primary end-to-end anastomosis. Although laparoscopic surgery was a feasible option, an open laparotomy approach was undertaken due to logistical constraints, including the surgeon's expertise and staffing availability at the time of the emergency procedure.

The patient experienced an uncomplicated postoperative course; he initiated oral nutrition by postoperative day 3 and was discharged in good condition on day 7. Subsequent follow-up evaluations one and three months post-surgery showed no evidence of adverse outcomes. A histopathological evaluation confirmed the diagnosis of a mesenteric cyst; there were no evidence of dysplasia or malignancy.

Figure 1: Intraoperative exploration revealed a large cystic mass arising from the small bowel mesentery

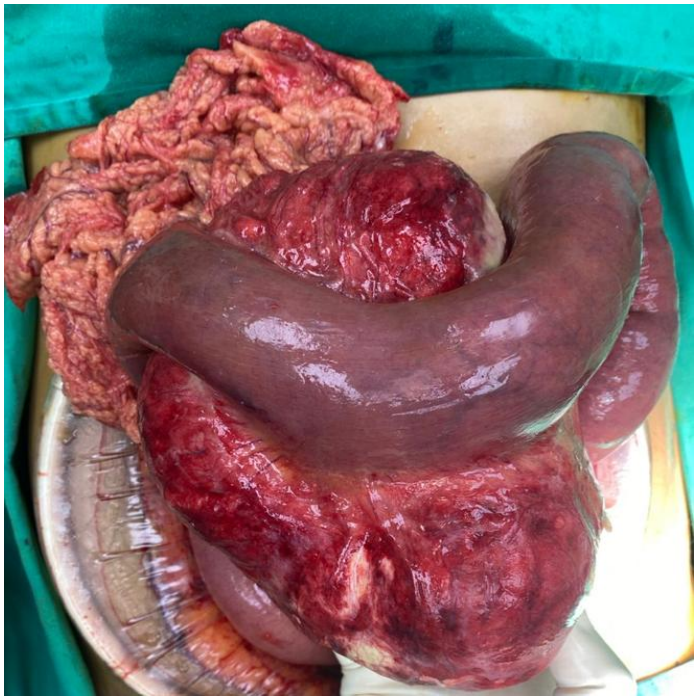
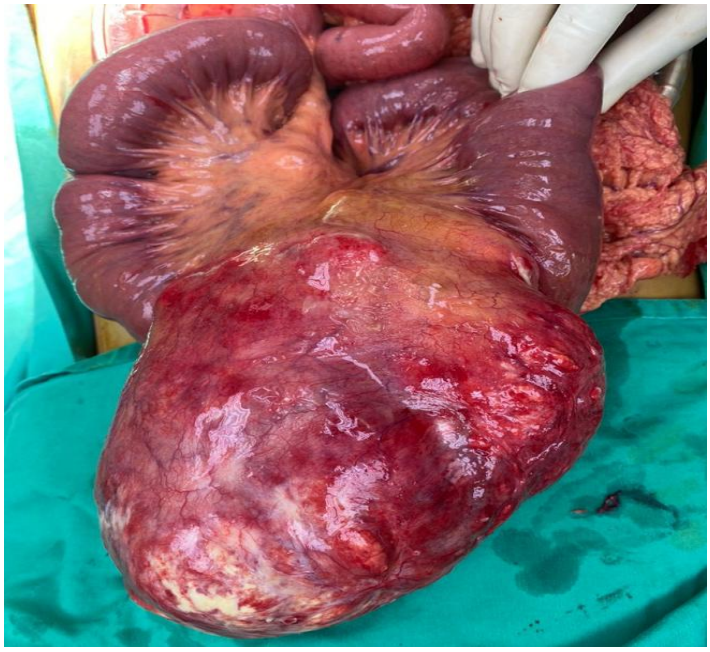


Figure 2: The mass was located in the jejunal segment, roughly 60 cm distal to the duodenojejunal flexure, and contained regions of sloughed tissue



Discussion

Mesenteric cysts have been recognized since the 16th century; however, their precise origin continues to be debated. One theory proposes that these cysts result from the gradual expansion of lymphatic tissue that is congenitally malformed or abnormally located [1]. Conversely, some authors attribute the development of mesenteric cysts to secondary causes, including traumatic injury, lymph node involution, or failure of proper fusion of the mesenteric layers during embryogenesis [2]. Various classification systems for mesenteric cysts have been proposed, primarily based on their content and underlying etiology. Among these, the most widely accepted is the classification introduced by de Perrot et al. [1], which categorizes mesenteric cysts into four

main types: (1) embryonic and developmental, (2) traumatic, (3) neoplastic, and (4) infectious, based on clinical presentation and presumed origin. Malignant mesenteric cysts are uncommon, accounting for fewer than 3% of all cases, with a higher prevalence in the adult population [1]. These malignancies are most often sarcomas, reflecting their derivation from mesodermal tissues; however, occasional cases of adenocarcinoma have also been reported [3]. Mesenteric cysts lack specific signs or symptoms that are pathognomonic for diagnosis. They are often asymptomatic and incidentally discovered during routine imaging studies. When symptomatic, patients may present with chronic abdominal discomfort, a palpable mass, abdominal bloating, nausea, vomiting, and changes in bowel habits such as constipation or diarrhea. In these cases, there is ongoing discussion regarding whether radiological intervention or surgical management is most appropriate [4]. Alternatively, some patients may initially present with acute gastrointestinal symptoms, such as severe abdominal pain resulting from bowel obstruction, peritonitis, or volvulus, which can necessitate urgent surgical intervention.

Mesenteric cysts are frequently asymptomatic and often exhibit characteristic mobility in the transverse plane, rotating around the mesenteric axis. However, in some cases patients may present with vague or nonspecific symptoms such as abdominal discomfort or nausea. Symptomatology is not solely dependent on the size of the cyst; rather, its anatomical location within the abdominal cavity plays a more critical role in determining its clinical presentation. The primary mechanism behind symptom development is the exertion of external pressure on adjacent structures [4]. Advancements in imaging modalities such as ultrasonography (US) and CT have facilitated preoperative diagnoses of abdominal cystic lesions. Ultrasonography is effective at differentiating cystic from solid masses; CT imaging provides detailed information regarding the lesion’s extent and internal composition. Key imaging features that aid in the identification of mesenteric cysts include cyst wall thickness, fluid characteristics, and the presence of internal septations, calcifications, and fat components [1]. Surgical excision remains the definitive treatment for complicated mesenteric cysts, with complete removal of the lesion being the primary objective. Such management may be achieved via either an open (laparotomy) or minimally invasive (laparoscopic) approach. While laparoscopy offers benefits such as reduced postoperative hospitalization, it may be technically challenging and more time consuming, particularly in cases involving large or infected cysts [4]. In such scenarios, laparotomy is generally preferred. Depending on the cyst’s characteristics, its anatomical relationships with surrounding structures, and intraoperative findings, segmental bowel resection may be warranted, especially when critical mesenteric vessels cannot be preserved. Simple aspiration or drainage is discouraged due to the high risk of recurrence and potential for secondary infection [5]. In the present case, the patient presented with an acute abdomen accompanied by clinical signs of sepsis and impaired renal function. The provisional diagnosis was perforated appendicitis. Following adequate resuscitation, an urgent laparotomy was planned. Additional imaging modalities such as US or CT were not pursued. Ultrasound was considered suboptimal due to significant abdominal distension, which could obscure accurate visualization, in addition to its inherent operator dependency. CT imaging was also avoided given the patient's renal impairment, as administration of contrast material could potentially exacerbate renal dysfunction.

Had the patient presented in a non-acute setting with normal renal function, a CT scan would have been advantageous; such scans provide detailed anatomical visualization and accurately define the relationship of the lesion to adjacent vital structures. Surgical intervention consisted of an en bloc resection of the involved mesenteric tissue together with a 20 cm segment of the jejunum. Intestinal continuity was restored via a primary end-to-end anastomosis. While laparoscopic resection was a potential option, an open laparotomy was performed due to logistical limitations, including the availability of experienced personnel and appropriate surgical support during the emergency setting.

Conclusion

Mesenteric cysts are uncommon intra-abdominal lesions that arise from various origins and etiologies. As a result, they may develop at multiple locations within the abdominal cavity. Symptomatic cases are ideally managed with surgical excision, which can be performed via either open laparotomy or minimally invasive laparoscopy. Diagnosing mesenteric cysts can be challenging and is primarily established using CT and US. In some instances, mesenteric cysts may present as an acute abdomen due to complications such as bowel obstruction, peritonitis, or volvulus and can require prompt surgical intervention. There is no single solution that fits all; management of mesenteric cysts should be adapted to the unique aspects of each case.

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