

Chylo-lymphatic Mesenteric Cyst in a 7-Year-Old

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Abstract

Mesenteric cysts are rare intra-abdominal masses that usually remain asymptomatic and present incidentally on radiological imaging. As the incidence is low, with paucity of data, careful pre-operative assessment and execution of surgical procedure often present a challenge to the treating clinician. A 7-year-old female child presented with gradual distention of abdomen and dull abdominal ache. On clinical examination, a huge mass measuring 18×12 cm was detected in the lower abdomen. On radiological imaging, a diagnosis of mesenteric cyst was made. Intra-operative findings were consistent with mesenteric cyst, and complete surgical excision was carried out by laparotomy. The histopathology report revealed a chylo-lymphatic type of mesenteric cyst. Huge, benign abdominal masses in pediatric patient may represent mesenteric cysts, and the

diagnosis can be confirmed by radiological imaging modalities such as abdominal contrast-enhanced computed tomography. Complete surgical removal of the cyst remains the treatment of choice, as the literature is against marsupialization or aspiration of cyst owing to a higher chance of infection and morbidity.

Keywords: Mesenteric cyst, Chylo-lymphatic, Tillaux sign

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Introduction

Mesenteric cysts are rare benign pathologic entities with an incidence of 1:100,000 in adults and 1:20,000 in pediatric hospital admissions (1). The anatomical location is along the root of the mesentery, beginning from the duodeno-jejunal junction up to the rectum. Mesenteric cysts usually remain asymptomatic but may present as an incidentaloma or with abdominal distention, pain, or obstruction of bowel. Depending upon the histopathologic classification, six types of cysts have been described: chylo-lymphatic, mesothelial, enteric, urogenital, dermoid, and pseudocysts (2). Chylo-lymphatic cysts represent 7.3% to 9.9% of all mesenteric cysts (3). We present a case of a large chylo-lymphatic cyst in a pediatric patient that was managed by en bloc surgical excision. The report not only highlights the rare presentation but also mandates an

index of clinical suspicion for such type of surgical pathologies.

Case report

A 7-year-old female child presented with gradual abdominal distention and generalized dull ache for 8 months. There were no features of bowel obstruction. On clinical examination, a well-defined, non-tender, non-mobile lump was found occupying almost all of the middle and lower quadrants of the abdomen with a size of 18x12cm. Her vital parameters and systemic examination were unremarkable. A provisional diagnosis of mesenteric cyst was considered along with the probability of other differential diagnosis such as hydatid cyst, pseudocyst of the pancreas, ovarian or para-ovarian cyst, enteric duplication cyst, cystic

Wilm’s tumor, and Prune-Belly syndrome. Abdominal ultrasound revealed a well-defined cystic mass, with a size 17x12 cm, with mixed echogenicity and few septations. Contrast-enhanced computed tomography scan of the abdomen showed a huge cystic mass, with a size of 17.5x11x9 cm and approximate volume of 1500 mL, extending from the greater curvature of the stomach to the pelvis, displacing the bowel loops laterally. The ovaries and broad ligament were separate from the cyst, and there was no organomegaly or lymphadenopathy (Figure 1A and B).

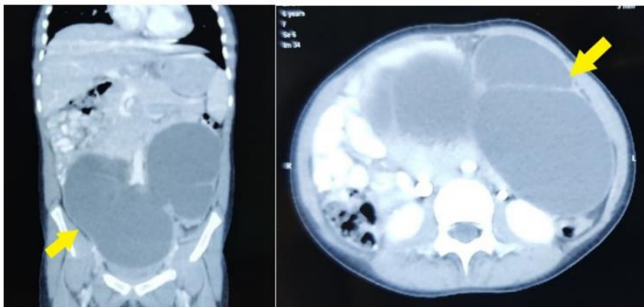


Figure 1A and B. CECT abdomen showing a huge cystic mass of 17.5 cms x 11 cms x 9 cms showing few septations (arrows).

The diagnosis was consistent with mesenteric cyst. An exploratory laparotomy was planned by a midline incision (Figure 2).

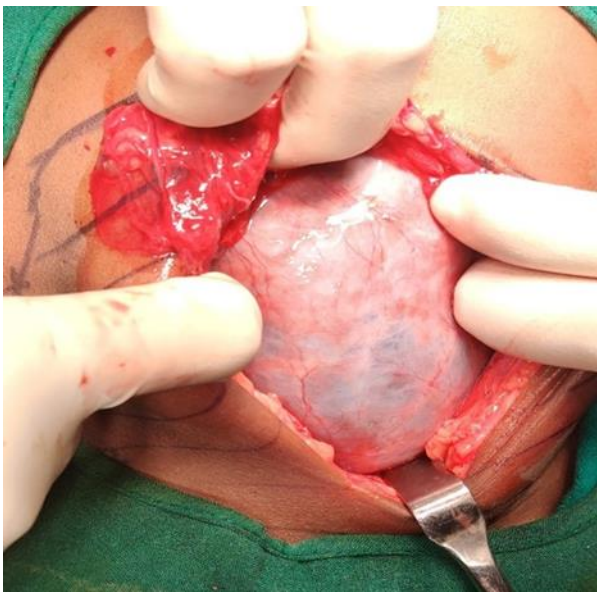


Figure 2. Thin-walled cyst exposed after midline laparotomy

The cyst was found to be thin-walled arising from lymphatic chain near the root of mesentery with dilated lymphatic channel extending along the lesser curvature of stomach and the para-caval and para-aortic areas near the origin of celiac trunk. The cyst was found to be filled with a sticky, brownish-yellow chylous fluid with approximate volume of 1.2 L. It was carefully dissected and excised en-bloc (Figure 3A–C).



Figure 3A. Extension of cyst into precaval area posterior to lesser curvature of stomach showing dilated lymphatic channels and spaces (arrow-head).

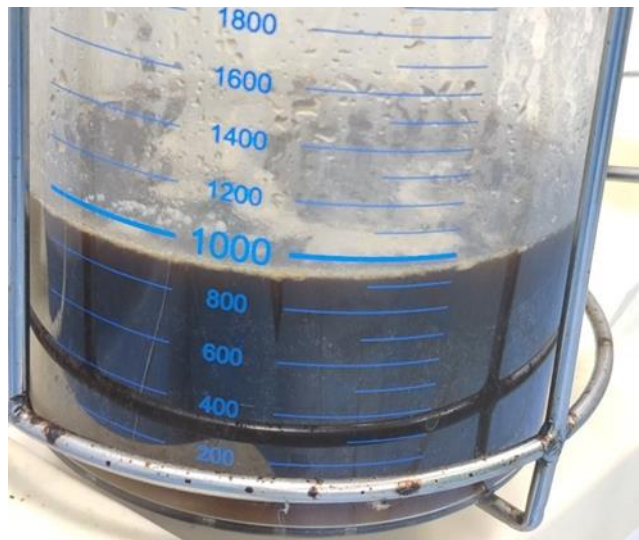


Figure 3B. Content of the cyst showing sticky, brownish-yellow chylous fluid.

The surgery did not necessitate bowel resection, and the rest of the abdominal viscera was normal. The post-operative course was uneventful, and she was discharged on the 7th post-operative day. The histopathology report was consistent with chylo-lymphatic mesenteric cyst.

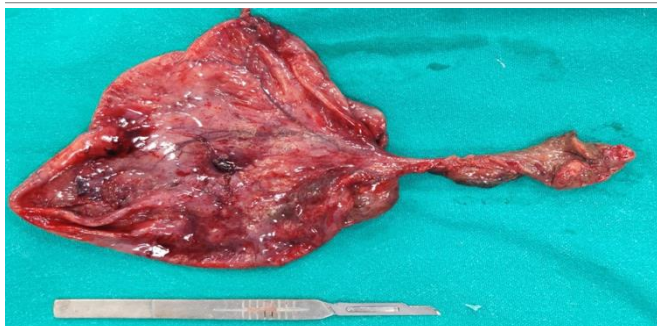


Figure 3C. Excised specimen of Mesenteric cyst

Discussion

Mesenteric cysts are rare benign abdominal tumors in the mesentery of the gastrointestinal tract. According to literature, it was first illustrated by Benevanni, an Italian anatomist, in 1507, while performing an autopsy on an 8-year-old boy. In 1842, von Rokitsky defined chylous mesenteric cyst, and in 1880, Tillaux achieved the first successful surgical excision of a cystic mass in the mesentery (4). Based on their etiology, Beahrs et al. classified mesenteric cysts into four groups: embryonic and developmental cysts (enteric, urogenital, lymphoid, and dermoid cysts), traumatic or acquired cysts, neoplastic cysts (benign and malignant cysts), and infective and degenerative cysts (mycotic, parasitic, or tuberculous origin) (4). The case described here was classified as a developmental lymphoid cyst. The most accepted theory in formation of mesenteric cyst suggests its origin from abnormal proliferation of lymphatic tissue that fails to communicate to either lymphatic or venous system and develops into retention cyst (5). Mesenteric cysts can be solitary or multiple and may have septations with serous, chylous, hemorrhagic, chylo-lymphatic, or purulent fluid component (6). Biochemical composition shows chylomicrons, cholesterol, and triglycerides in the chylous variety of mesenteric cysts (7). It is mostly asymptomatic, but few cases may present with pain (82%), vomiting (45%), constipation (27%), diarrhea (6%), and abdominal lump (61%), as seen in the present case (8). Sometimes, the abdominal lump may show mobility in the direction perpendicular to the line along the root of the mesentery (Tillaux sign). Clinical manifestations are often due to the compression of surrounding viscera, and sometimes, complications in the form of volvulus, rupture, infection,

peritonitis, shock, hemorrhage, and death can occur. Mesenteric cysts are usually benign, with malignant cysts occurring in less than 3% of cases (9). Ultrasound, computed tomography scan, and magnetic resonance imaging can aid in the diagnosis, with reference to size, location, wall thickness, and the relationship of the cyst to adjacent organs.

Although various procedures such as marsupialization, sclerotherapy, percutaneous aspiration, or drainage have been described in literature, complete surgical (open or laparoscopic) en-bloc resection of the cyst is the treatment of choice, as the chylo-lymphatic cyst is independent of the blood supply. If enucleation cannot be performed safely, owing to adhesions of the cyst wall to surrounding mesenteric tissue and/or other structures, resection of adjacent organs such as the bowel, spleen, or pancreatic tail may be necessary. In an enterogenous cyst, or cyst densely adhering to the bowel, resection of the involved bowel may be warranted (10). Laparoscopic surgery is an alternative technique for cyst removal and has many advantages over the open approach, including minimal trauma, less post-operative pain, shorter hospital stays, and earlier return to normal activity (11).

Conclusion

Mesenteric cysts are benign cysts that present mainly in pediatric patients as distention of abdomen or mostly as incidentalomas having a relatively benign course and subtle symptoms. Clinicians should maintain an index of suspicion for ovarian cyst in female patients. Pre-operative radiological imaging helps in accurately localizing these lesions. En bloc surgical excision, either by open or minimal access approach, is the gold standard offering complete cure.

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