An 18-month-old male presented with abdominal distension. His mother had noted increasing abdominal girth for approximately six months. Growth and development were otherwise normal, as were his appetite and feeding patterns. There was a history of diarrhea since infancy with approximately 3 to 4 stools per day but no emesis or hematochezia. Stool was described as “peanut butter-like” in color and consistency. The family history was unremarkable. The patient was not on any medications and had no known allergies.

Laboratory workup (including CBC, liver function tests, IgA, and sweat chloride test) was normal. Evaluations for celiac disease and malabsorption were negative. Esophagogastroduodenoscopy was performed to obtain biopsies to exclude lymphangiectasia. Cardiac failure was also considered as a possible etiology for ascites, but echocardiography results were normal.

At the time of his initial presentation, ultrasound showed multilocular fluid throughout the abdomen (Fig. 1), but no hepatosplenomegaly or other secondary signs of portal hypertension. CT confirmed a large amount of low-attenuation intra-abdominal fluid. The thin septations seen on ultrasound were not visible on CT (Fig 2). The clinical service caring for the child believed that he had a large volume of free ascites due to the presence of fluid surrounding the liver. Fluid aspiration was performed, and analysis showed clear yellow fluid with no significant laboratory or cytologic abnormalities. The patient’s abdominal distension improved for a short time after the fluid aspiration and while he was maintained on diuretic therapy along with a low-sodium diet. However, the distension progressively returned over the next few months. No other physical or laboratory abnormalities were discovered during this interval until he presented again with worsening abdominal distension and acute anemia. The patient’s hematocrit had dropped to 26.8 (SI units) (normal value, 34-40).
Repeat CT, approximately nine months after the initial study, showed a recurrent and larger volume of low-attenuation intra-abdominal fluid exerting mass effect upon the bowel loops, which were displaced to the right and downward (Fig. 3A). As was seen in the first CT study, the appearance of the perihepatic fluid suggested the presence of free peritoneal fluid (Fig. 3B).

A followup ultrasound again showed multiple cystic structures or loculations (Fig. 4A) as well as posteriorly displaced bowel loops in the right lower quadrant (Fig. 4B).

A repeat aspiration procedure revealed old bloody fluid. Exploratory laparoscopy was then pursued to identify the source of the fluid and to resect the presumed intra-abdominal multiloculated cysts. During laparoscopy, multiloculated hemorrhagic-appearing fluid collections were present in both paracolic gutters and above the liver. The extent of the process and unclear origin of the lesion led to open laparotomy. This made possible the recognition that the lesion was a multiloculated hemorrhagic omental cyst and was not adherent to any other intra-abdominal structures. The omentum with the cyst was completely resected; it contained approximately half a liter of bloody fluid. There was no perioperative complication, and the child has done well since the procedure with no recurrence of his abdominal distension.

Figure 3A. Axial CT image performed later in the patient’s course demonstrate mass effect in the left abdomen as well as central bowel displacement.

Figure 2A. Axial CT with IV and oral contrast demonstrates a large amount of low-attenuation intra-abdominal fluid. The mass effect on the bowel and kidney on the left abdomen suggest a cystic mass lesion. The apparently free fluid also present along the liver persuaded the clinicians to evaluate extensively for a cause for ascites.

Figure 2B. Coronal CT with IV and oral contrast demonstrates a large amount of low-attenuation intra-abdominal fluid. The mass effect on the bowel and kidney on the left abdomen suggest a cystic mass lesion. The apparently free fluid also present along the liver persuaded the clinicians to evaluate extensively for a cause for ascites.
Discussion

Omental and mesenteric cysts are rare intra-abdominal lesions in the pediatric population, with an incidence of approximately 1 in 140,000 (1). These lesions are essentially the same entity, differing only in location.

While these lesions often present in young children, they may go undiagnosed and be asymptomatic until adulthood (2). The most common presentation is abdominal distension, with pain, vomiting, and an abdominal mass also representing common findings (1). When these lesions are large, they can be mistaken for free-flowing ascites (3-6), as in this case during the child’s initial evaluation. Mass effect can lead to intestinal obstruction, infection, or hemorrhage (1, 5). Because of this, patients may occasionally present with an acute abdomen.

Omental and mesenteric cysts can be characterized histologically by the makeup of the cyst wall. Overlapping findings often prevent this type of characterization by imaging, but the most common type of cyst is lymphatic malformation, followed by nonpancreatic pseudocyst, duplication cyst, mesothelial cyst, and enteric cyst (7).

Ultrasound is often the initial choice for imaging. These lesions are frequently multilocular with many thin septations, usually not present with simple ascitic fluid. The septations can be appreciated on ultrasound but may not be resolved on CT, as in this case. Content of the cysts is usually simple fluid, but if hemorrhage or infection is present, low-level internal echoes may also be seen.

CT imaging may initiate the diagnosis of mesenteric or omental cysts, with the key finding being mass effect on abdominal structures. Ascites does not typically cause mass effect on abdominal organs and or bowel, as was present in this case. Bowel loops normally are free-floating in ascitic fluid with fluid insinuating between the loops of bowel themselves. In conclusion, careful attention to these imaging findings may prevent unnecessary workup and procedures before arriving at the correct diagnosis.

Figure 3B. 18-month-old male with large omental cyst. Coronal CT image performed later in the patient’s course demonstrates mass effect in the left abdomen as well as central bowel displacement.

Figure 4A. 18-month-old male with large omental cyst. Ultrasound images again show a multilocular fluid collection in the abdomen.

Figure 4B. 18-month-old male with large omental cyst. Ultrasound images again show a multilocular fluid collection in the abdomen with nondependent bowel loops in the right lower quadrant.
Large omental cyst

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