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Mesentery, Retroperitoneum, and Spleen : Three Cases of Abdominal Cystic Lymphangiomas

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ABSTRACT

Background: Abdominal cystic lymphangiomas (ACLs) are rare, benign malformations of lymphatic origin, typically presenting in children and seldom encountered in adults. Their nonspecific clinical features and broad differential diagnoses often lead to diagnostic delays.

Case Presentations: We report three adult cases of ACLs with distinct anatomical locations—mesentery, retroperitoneal splenorenal space, and splenic parenchyma. All patients were symptomatic and underwent successful surgical excision. Histopathology confirmed cystic lymphangiomas in each case.

Conclusion: These cases highlight the clinical polymorphism and anatomical diversity of ACLs. Imaging plays a crucial role in preoperative assessment, but surgical excision remains the cornerstone of treatment. Clinicians should maintain a high index of suspicion when evaluating abdominal cystic lesions, especially in unusual locations.

KEYWORDS: Abdominal cystic lymphangioma, Mesenteric lymphangioma, Splenic lymphangioma, Retroperitoneal lymphangioma, Cystic tumor diagnosis, Rare abdominal tumors.

INTRODUCTION

Cystic lymphangiomas are rare, benign malformations of the lymphatic system that typically present during childhood and are believed to result from developmental anomalies in lymphatic vessel formation(1). While these lesions are most commonly found in the cervical and axillary regions, intra-abdominal locations account for fewer than 5% of cases(2). These lesions can remain asymptomatic and undetected for years, or they may present with nonspecific gastrointestinal or compressive symptoms depending on their size and location(3,4).

The rarity and nonspecific clinical features of abdominal cystic lymphangiomas (ACLs) often lead to delayed diagnosis or misdiagnosis. However, modern imaging techniques, particularly contrast-enhanced computed tomography (CT), have improved preoperative characterization of these lesions.

We report three surgically treated cases of abdominal cystic lymphangiomas with distinct anatomical locations—mesenteric, retroperitoneal (splenorenal space), and splenic parenchymal involvement—highlighting the clinical variability, diagnostic considerations, and surgical challenges associated with this rare entity.

CASE PRESENTATION 1

A 17-year-old female with no significant medical history was admitted to our department for evaluation of persistent right flank heaviness, unrelieved by conventional analgesics with no associated symptoms. Physical examination revealed a palpable, tender, and fixed abdominal mass extending from the right to the left flank, measuring approximately 15 cm in diameter.

Contrast-enhanced abdominopelvic computed tomography (CT) demonstrated a large intraperitoneal, polycystic mass measuring 210 × 90 mm, with thick fluid density, traversed by mesenteric vessels. The lesion occupied the majority of the peritoneal cavity, displacing adjacent small bowel loops and partially abutting the transverse colon without a discernible fat plane. Posteriorly, it was in contact with the aortocaval axis and the proximal iliac vessels. A minimal amount of peritoneal effusion was noted. (figure 1)

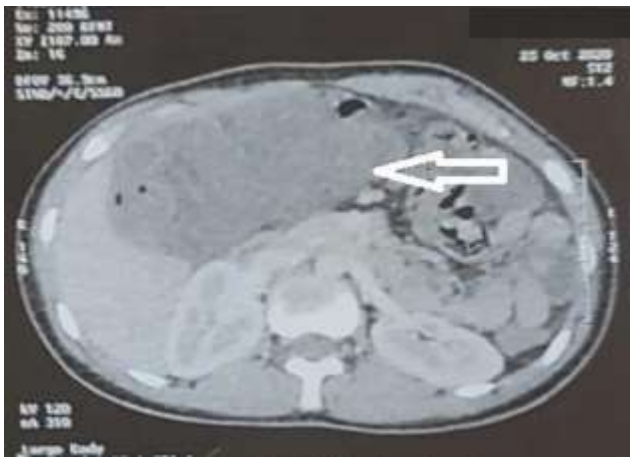

Figure 1 : Axial abdominal CT scan showing an intraperitoneal cystic mass.

Intraoperatively, a large multiloculated cystic mass was identified arising from the mesentery, extending from approximately 150 cm distal to the duodenojejunal flexure to 120 cm proximal to the ileocecal junction. The patient underwent segmental small bowel resection of approximately 30 cm, including the involved mesenteric segment, followed by end-to-end jejunoileal anastomosis. (figure 2)

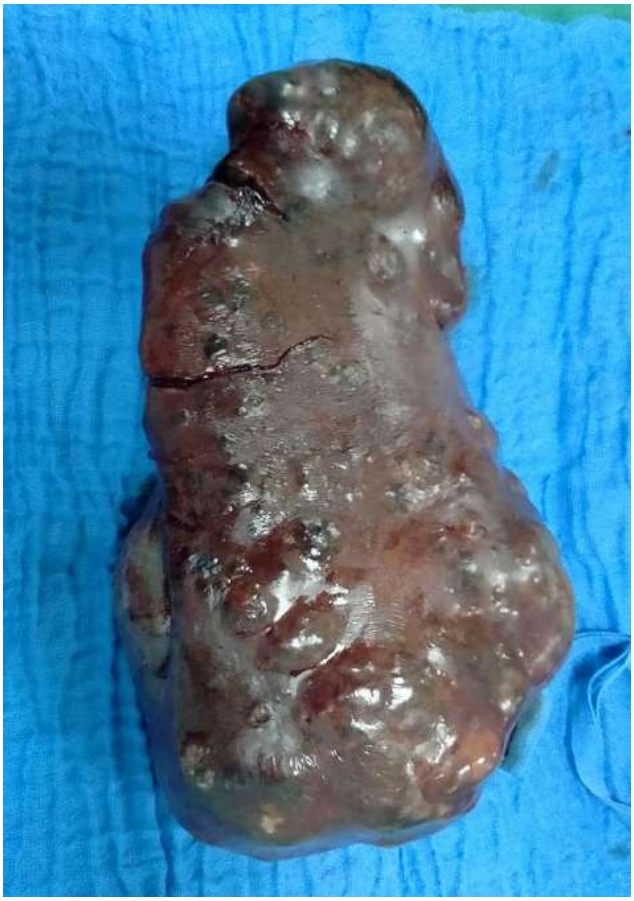

Figure 2 : Surgical specimen of the cystic mass arising from the mesentery.

Histopathological examination of the resected specimen (measuring 116.5 cm in length and 2.5 cm in diameter) confirmed the diagnosis of a mesenteric cystic lymphangioma.
The postoperative course was uneventful, and the patient was discharged on postoperative day 5.

CASE PRESENTATION 2

A 54-year-old female with a history of right breast surgery 20 years earlier for a histologically confirmed benign nodule was being followed at our institution for a left adrenal incidentaloma. She was admitted to our department for evaluation of a dull, non-radiating pain in the left hypochondrium with no other symptom associated. Physical examination revealed no abnormal findings.

Contrast-enhanced abdominal computed tomography (CT) revealed a well-circumscribed, homogeneous, hypodense nodule of the left adrenal gland, measuring 13 × 11 mm, with a spontaneous attenuation of 17 HU and a portal venous phase attenuation of 81 HU. In addition, a well-defined cystic lesion measuring 68 × 70 mm was identified in the intersplenorenal space, demonstrating fluid attenuation and no contrast enhancement. The lesion was adjacent to jejunal loops and the lumbar segment of the left psoas muscle, without obliteration of the surrounding fat planes. (figure 3)

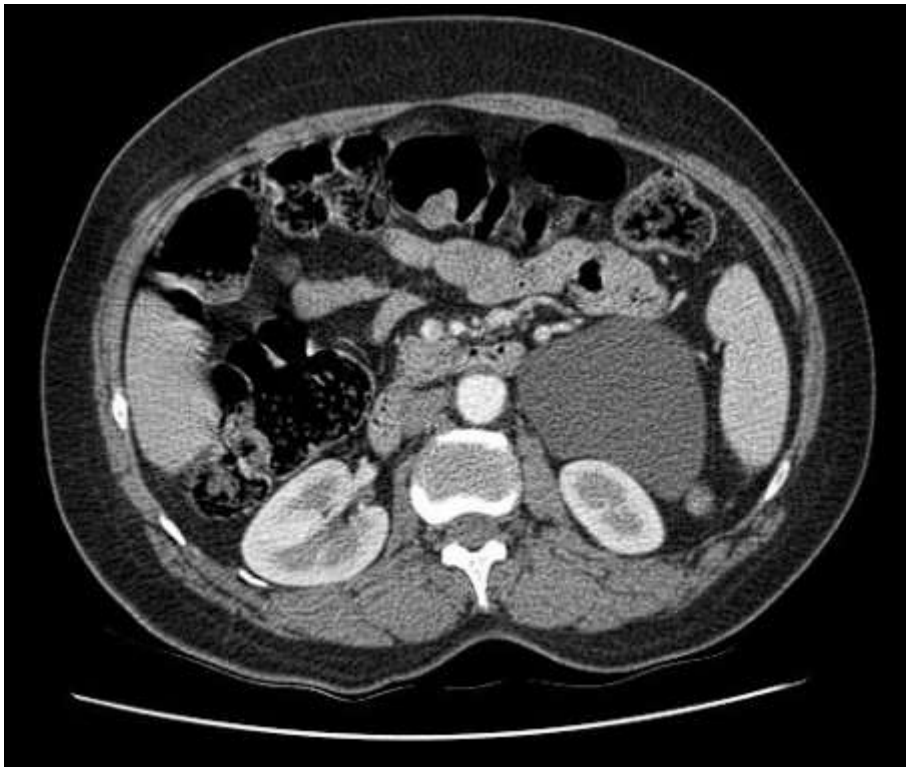

Figure 3 : Axial abdominal CT scan showing a cystic mass in the spleno-renal space.

Biological evaluation for adrenal function was within normal limits, including serum cortisol, urinary catecholamine metabolites, plasma aldosterone, and vanillylmandelic acid (VMA). Serology for Echinococcus was negative.
The patient underwent complete surgical excision of the intersplenorenal cystic mass. (figure 4)

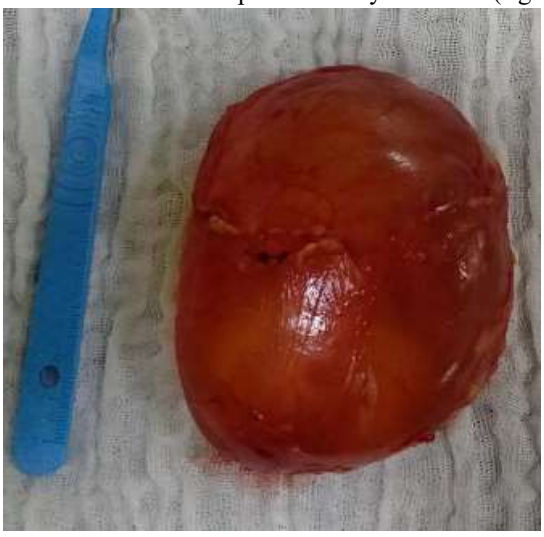

Figure 4 : Surgical specimen of the cystic mass in the spleno-renal space.

Histopathological examination confirmed the diagnosis of a retroperitoneal cystic lymphangioma.
The postoperative course was uneventful, and the patient was discharged on postoperative day 3.

CASE PRESENTATION 3:

An 18-year-old female with a known history of lymphangioma of the left upper limb, previously operated on four occasions due to functional impairment of the hand with visible deformity (figure 5), presented with abdominal pain in the left hypochondrium,

associated with intermittent vomiting with no other associated signs. Clinical examination revealed a large multilobulated mass in the left hypochondrium.

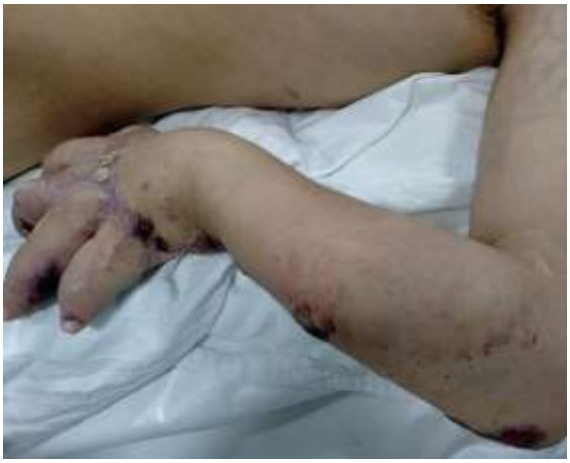

Figure 5 : Deformation of the left upper limb related to a lymphangioma of the left hand.

Contrast-enhanced abdominal computed tomography (CT) demonstrated multicystic splenomegaly, characterized by multiple non-enhancing cystic lesions of varying sizes throughout the splenic parenchyma, consistent with a vascular malformation. (figure 6)

Figure 6 : Axial abdominal CT scan showing a multicystic splenomegaly.

The patient underwent a total splenectomy. (figure 7)

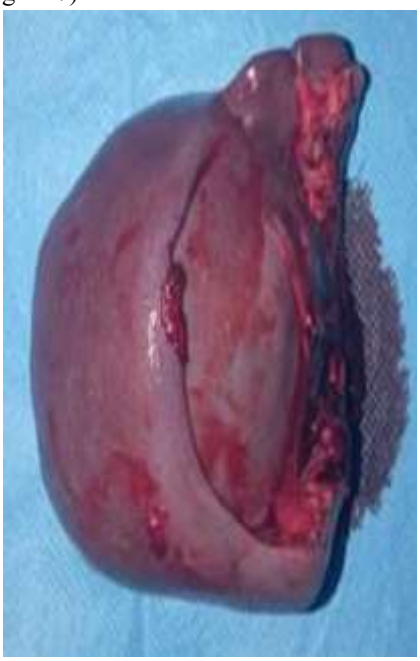

Figure 7 : Surgical specimen of the multicystic spleen

Histopathological examination confirmed the diagnosis of a splenic cystic lymphangioma.
This case has been previously published by our department in a separate case report highlighting the rarity of isolated splenic involvement(5). In the present series, we include it to compare with other abdominal locations and underscore the anatomical diversity of these tumors.
The postoperative course was uneventful, and the patient was discharged on postoperative day 4.

DISCUSSION

Cystic lymphangiomas are benign tumors that arise from lymphatic vessels and are most often identified during childhood. Their exact cause remains uncertain, but they are believed to result from a congenital anomaly where primitive lymphatic sacs fail to establish proper communication with the central lymphatic system. Some authors considered factors such as inflammation, trauma, or degeneration(1).
These lesions can occur in various anatomical regions, with a strong predilection for the cervical and axillary areas. Abdominal cystic lymphangiomas (ACLs) are uncommon, accounting for less than 5% of all lymphangioma cases(2). Abdominal cystic lymphangiomas most frequently occur in the mesentery, followed by the greater omentum, mesocolon, and retroperitoneum(6). This anatomical distribution is well illustrated in our cases, with one lymphangioma arising from the mesentery, one located in the splenorenal (retroperitoneal) space, and an exceptionally rare case involving the spleen.
Their clinical presentation is often variable and non-specific, making accurate diagnosis challenging. However, recent advancements in imaging modalities have greatly enhanced the ability to identify these lesions preoperatively(3,4). In many cases, these tumors are asymptomatic and discovered incidentally. When symptoms are present, they are influenced by the lesion's size and anatomical location and may include abdominal distension, nausea, vomiting, weight loss, or acute abdominal pain(4). In our series, all three patients were symptomatic, but with differing complaints—ranging from nonspecific abdominal heaviness to localized pain and vomiting—reflecting the polymorphic nature of abdominal lymphangiomas.
On computed tomography (CT), cystic lymphangiomas typically appear as well-circumscribed, low-attenuation, homogeneous cystic masses with thin, smooth walls and no contrast enhancement. Magnetic resonance imaging (MRI) is generally not required as a first-line investigation but may be helpful in uncertain cases to better characterize the cyst's internal content and anatomical relationships(4). In each of our cases, CT imaging revealed multilocular cystic masses with characteristic features, guiding surgical planning despite differences in location and size.
The differential diagnosis includes lymphoma, enteric duplication cysts, ovarian cysts, hydatid cysts (especially relevant in endemic areas such as Morocco), mucinous cystadenomas, and other mesenteric cysts(7). These differential diagnoses were carefully considered in our patients, particularly in the second case, where the lesion's proximity to the adrenal gland and kidney raised concerns for other retroperitoneal cystic entities.
In asymptomatic individuals, a conservative strategy involving periodic imaging follow-up is often appropriate, as spontaneous regression of some lesions has been documented(8). Symptomatic lymphangiomas, however, may require intervention—either surgical or percutaneous. Although minimally invasive approaches such as aspiration and sclerotherapy have been proposed due to the benign nature of the disease, their use remains controversial given the high recurrence rates, with some studies reporting relapse in nearly all cases(8,9).
When treatment is indicated, complete surgical excision is considered the gold standard. This procedure should be performed with care to avoid damage to surrounding structures and is preferred over partial resection due to the significantly lower risk of recurrence(3,10). Both open (laparotomy) and laparoscopic techniques have demonstrated satisfactory outcomes in the management of abdominal cystic lymphangiomas(9). Given the well-established benefits of minimally invasive surgery—including reduced postoperative pain, faster recovery, and shorter hospital stay—many authors advocate for the laparoscopic approach as the first-line option in most cases(4). Importantly, the size of the lesion is not a limiting factor, since intraoperative cyst decompression by fluid aspiration can reduce the mass volume and facilitate a safer and more spacious operative field. Our experience confirms this surgical perspective: all three patients underwent total excision, and all had favourable postoperative outcomes without recurrence.
One of the cases—splenic cystic lymphangioma—has been previously reported in a separate article by our department(5). Its inclusion here allows us to provide a comparative analysis of different intra-abdominal locations in the same institutional context, emphasizing the variability in clinical presentation and surgical management. These cases highlight the importance of considering cystic lymphangioma in the differential diagnosis of abdominal cystic masses and underscore the efficacy of surgical excision as a definitive treatment.

CONCLUSION

Abdominal cystic lymphangiomas are rare and often present with nonspecific symptoms that pose a diagnostic challenge. Our series underscores the diversity of clinical presentations and anatomical locations, emphasizing the importance of including lymphangiomas in the differential diagnosis of intra-abdominal cystic masses. Imaging plays a pivotal role in identifying and characterizing these lesions, although histopathology remains the definitive diagnostic method. Complete surgical excision remains

the treatment of choice and can be safely achieved through open or laparoscopic approaches. The favorable outcomes observed in our patients reinforce the curative potential of surgery and highlight the importance of individualized management strategies based on anatomical location and clinical presentation.

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Consent
As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

Ethical approval
As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Conflicts interests
Authors have declared that no competing interests exist.

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