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Confirmed Giant Abdominal Lymphangioma Originating from the Splenic Ligament in a 4-Year-Old Girl: A Rare Case Report

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ABSTRACT

Cystic lymphangioma is a rare benign malformation of the lymphatic system, and its abdominal forms especially those originating from the splenic ligament—are exceptionally uncommon in children. A 4-year-old girl, from Afghanistan, presented with progressive abdominal distention, constipation, and irritability in 2025. Imaging (ultrasound and CT) revealed a giant multilocular cystic lesion arising from the splenic ligament. She underwent successful complete surgical excision with spleen preservation. Histopathological analysis confirmed cystic lymphangioma. Early diagnosis and complete resection of abdominal lymphangiomas, even in rare locations like the splenic ligament, are essential for favorable outcomes.

Keywords: Lymphangioma, Pediatric, Abdominal mass, Splenic ligament, Cystic lesion

Introduction

Cystic lymphangiomas are rare benign malformations of the lymphatic system arising from congenital failure of lymphatic-venous communication during embryogenesis (1). While the majority are found in the head and neck regions (approximately 95%), less than 5% are intra-abdominal, typically originating from the mesentery, omentum, or retroperitoneum (1). Localization to the splenic ligament is exceptionally rare, with few cases documented globally, particularly in pediatric populations (2). These lesions are usually asymptomatic until they enlarge to a point where they compress adjacent structures, leading to symptoms such as abdominal distention, pain, vomiting, or bowel obstruction (3). Due to their nonspecific presentation, they are often

misdiagnosed as mesenteric or duplication cysts, gastrointestinal tumors, or abscesses.
Diagnostic imaging, especially ultrasound and CT scan, is essential for preoperative assessment and localization. On CT, they typically appear as well-demarcated, thin-walled, multilocular fluid-filled lesions without solid components or enhancement (4). However, final diagnosis relies on histopathological examination revealing dilated lymphatic channels lined by endothelial cells, sometimes containing lymph or hemorrhagic fluid (5).
We present a rare case of a giant cystic lymphangioma arising from the splenic ligament in a 4-year-old girl from Afghanistan. The case highlights the importance of including lymphangioma in the differential diagnosis of large pediatric abdominal masses and demonstrates successful diagnosis and surgical management in a low-resource setting.

Case Presentation

A 4-year-old girl was referred to Aria Hospital in Herat, Afghanistan with progressive abdominal distention, recurrent constipation, and increasing irritability over one month. According to her parents, the abdominal swelling had first been noticed around 6 to 8 months of age coinciding with the introduction of complementary feeding and gradually worsened, becoming visible even with minimal food intake. During the two weeks prior to presentation, the child developed severe abdominal pain and persistent constipation. On examination, the abdomen was grossly distended and more prominent than the chest, with the umbilicus in a normal position and no surgical scars. Palpation revealed a soft, tender, semi-mobile mass occupying the entire abdomen, while rectal examination showed an empty rectum and normal bowel sounds (Figure 1).
Revealed a large multilocular cystic lesion, and contrast-enhanced abdominal CT scan (Figure 2).

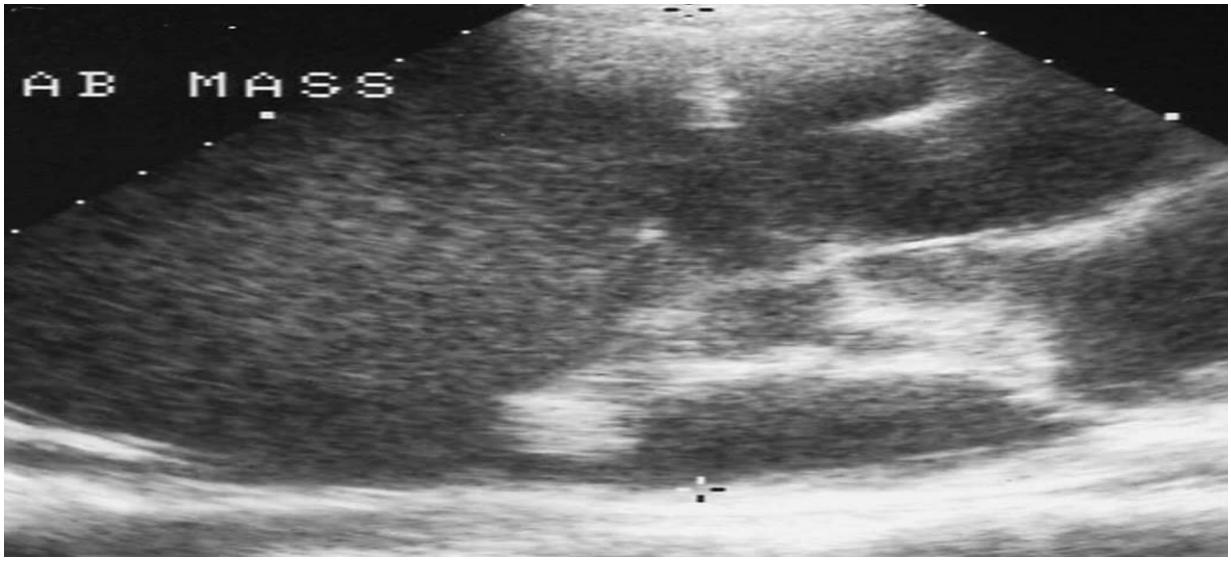

Figure 1: Abdominal ultrasonography.

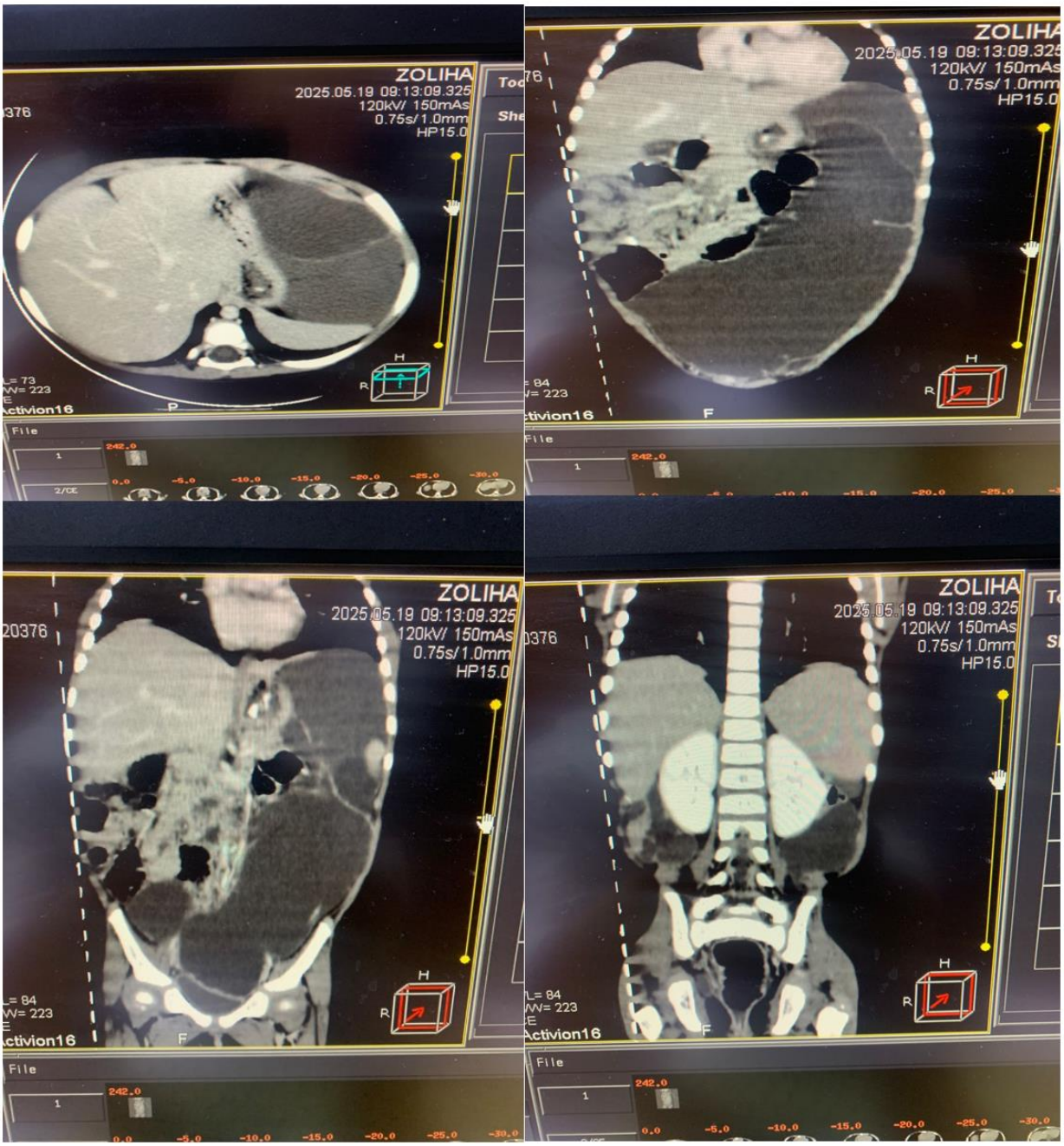

Figure 2: Abdominal CT scan.

Confirmed a well-defined cystic mass without solid components, suggestive of lymphangioma. Routine laboratory investigations were unremarkable. The patient underwent midline laparotomy under general anesthesia. Intraoperatively (Figure 3).

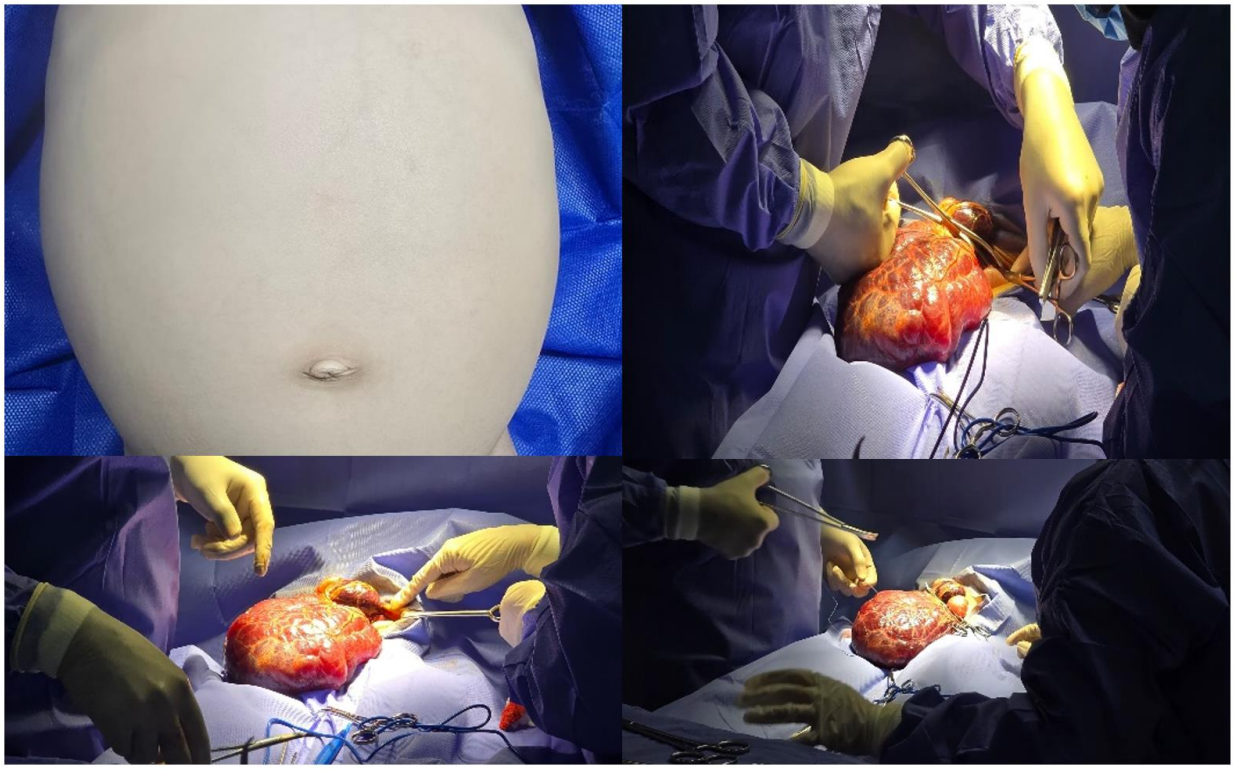

Figure 3: Intraoperative View of Cystic Mass**.**

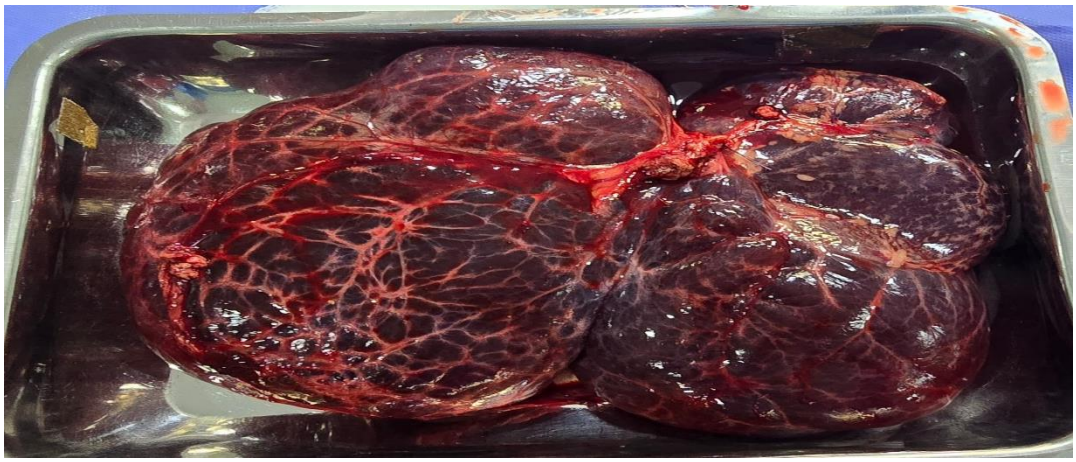

Figure 4: Excised Cystic Mass.

A giant cystic mass weighing approximately 5 kg and filled with hemorrhagic fluid was identified, originating from the splenic ligament, with intact spleen and no signs of invasion into surrounding structures. The mass was successfully excised in total (Figure 4), and the spleen was preserved. Anatomical closure of abdominal layers was achieved without complications. The patient's postoperative recovery was uneventful. She was closely monitored in the intensive care unit for two days, during which no complications were observed, and vital parameters remained stable. Oral intake was initiated on the sixth postoperative day and was well tolerated. She was discharged on the

eighth day in stable condition with complete resolution of symptoms. On the tenth postoperative day, follow-up abdominal ultrasonography revealed no signs of fluid accumulation, recurrence, or organ injury. Final histopathological analysis of the excised mass confirmed the diagnosis of benign cystic lymphangioma, showing dilated lymphatic spaces lined by flattened endothelial cells with no evidence of malignancy. This pathological confirmation aligned with the preoperative imaging and intraoperative findings, thereby solidifying the diagnosis. The patient has remained asymptomatic during follow-up, with no clinical or radiologic signs of recurrence.

Discussion

Abdominal cystic lymphangiomas, especially those involving the splenic ligament, are extremely rare in children and present unique diagnostic and management challenges. The etiology is considered congenital, resulting from developmental sequestration of lymphatic tissue (1). Although benign, these lesions may cause severe complications including hemorrhage, infection, rupture, or intestinal obstruction when they attain massive size.

Our case shares common features with several reported cases in literature. For instance, Suthiwartnarueput et al. described a large retroperitoneal lymphangioma in a pediatric patient, with similar imaging and intraoperative findings, managed by complete excision without organ loss (2). Similarly, Beuran et al. emphasized that lymphangiomas may mimic other cystic or solid abdominal masses, stressing the role of radiological differentiation and histopathological confirmation (1).

CT and ultrasonography remain the diagnostic cornerstones. The characteristic multiloculated appearance with thin septations and fluid content enables differentiation from abscesses or neoplasms. In our case, imaging revealed a well-demarcated cyst arising from the splenic ligament, which is extremely rare. While MRI could add further tissue contrast, CT was sufficient for surgical planning (3).

Complete surgical excision is the treatment of choice. The goal is to remove the cyst intact to prevent recurrence, reported in up to 10%–15% of cases when incomplete excision occurs (4). In our case, the cyst was excised entirely, preserving the spleen and avoiding intraoperative rupture.

Histology confirmed the diagnosis, showing lymphatic spaces lined by flattened endothelial cells filled with proteinaceous fluid (5).

Our case demonstrates that with timely imaging and meticulous surgical planning, even large and rare lymphangiomas can be effectively managed in resource-constrained environments. It adds to the limited pool of reported splenic ligament lymphangiomas and underlines the need for inclusion of this diagnosis in pediatric abdominal mass differentials.

Conclusion

Giant abdominal lymphangiomas, although rare, should be considered in the differential diagnosis of persistent abdominal distension in children. Localization to the splenic ligament is extremely uncommon but can be managed successfully through complete excision with spleen preservation. Early diagnosis and surgical intervention are key to optimal outcomes and preventing complications.

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Ethical Considerations

This case was managed according to the institutional ethical standards, and informed consent was obtained from the patient's guardian for publication and use of clinical images.

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Conflict of interest

The authors declare that there is no conflict of interests.

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