

Laparoscopic management of an adult abdominal cystic lymphangioma presenting as a retroperitoneal mass with sepsis

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Abstract

Abdominal cystic lymphangiomas are rare entities that can manifest as retroperitoneal cystic lesions, presenting a diagnostic and therapeutic challenge. Managing these cases often requires laparotomy, laparoscopy, or percutaneous intervention, with outcomes varying in terms of success. Here, we present a case of an infected abdominal cystic lymphangioma that was successfully managed through laparoscopy, following thorough preoperative planning.

Keywords: retroperitoneal cyst, abdominal lymphangioma, laparoscopy

Introduction

The retroperitoneal space is an anatomical area between the posterior parietal peritoneum and the posterior abdominal wall. Surgeons face diagnostic and therapeutic challenges when dealing with retroperitoneal masses. While many retroperitoneal masses (RPMs) originate from a specific organ within the retroperitoneum, the exact organ of origin may sometimes be difficult to ascertain. Primary RPMs, on the other hand, do not stem from a specific retroperitoneal organ. They can be classified as either solid or cystic lesions. Primary retroperitoneal neoplasms are extremely rare, accounting for only 0.1–0.2% of all malignancies [1].

This case report presents a rare occurrence of an infected abdominal cystic lymphangioma manifesting as a RPM accompanied by sepsis. The patient was successfully treated using a laparoscopic approach.

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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.

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Case presentation

A 52-year-old female presented with a 6-month history of abdominal swelling accompanied by diffuse abdominal pain. The swelling had rapidly increased in size over the past 2 weeks and was accompanied by fever.

The patient exhibited a pulse rate of 110 beats per minute during the examination. A diffuse swelling was observed, encompassing the epigastric, left hypochondriac, and umbilical regions. A complete hemogram revealed an elevated leukocyte count of 18,000/ μ L, while the remaining blood parameters were within normal ranges.

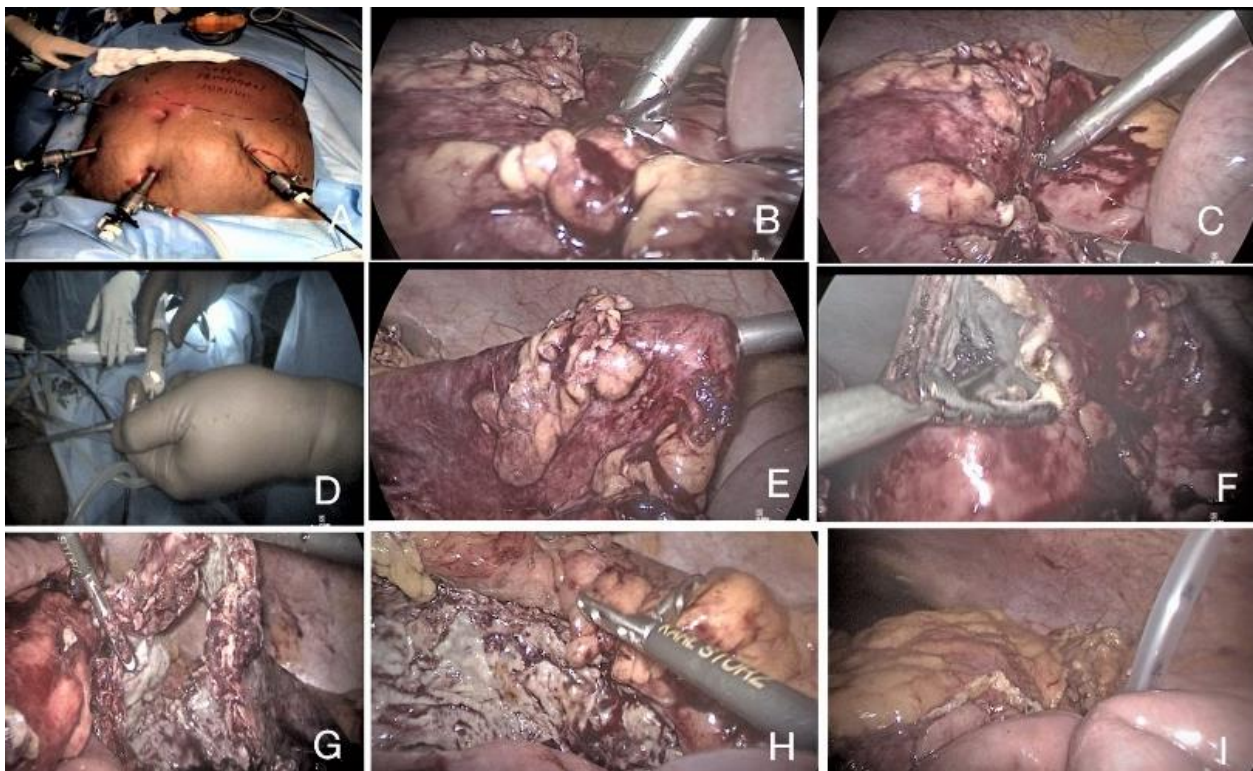
An abdominal MRI was performed, revealing a retroperitoneal cystic mass (Figure 1A) located close to the Aorta and causing compression of the Left Renal vein and Left Ureter, leading to left hydronephrosis. The posterior wall of the cyst was closely adhered to the Aorta, Left renal vein, and lumbar veins (Figure 1B). The cyst wall measured 0.66 cm in thickness and exhibited enhancement, although there was no evident extension to adjacent organs or signs of malignancy.

The patient received IV fluids for resuscitation and was initiated on broad-spectrum IV antibiotics, analgesics, and supportive care. Bilateral DJ stenting was performed, followed by laparoscopy. The laparoscopic examination revealed a large cystic swelling (Figure 2) close to the mesentery of the transverse colon, splenic flexure, and descending colon. Dense omental adhesions were noted along the anterior and lateral walls of the cyst. A 5-mm trocar was used to puncture the cyst, and approximately 700 ml of purulent content was aspirated and sent for culture. Harmonic shears were employed to release the omental attachments, and the splenic flexure and descending colon were mobilized by dividing the gastrocolic ligament. The thick-walled cyst was marsupialized, and the cyst itself was excised, while the posterior wall, which was adherent to the Aorta, left renal vein, and lumbar veins, was left in place.

Figure 1: A: MRI showing the thick-walled cyst(*) measuring 10.9 x 12.6 cm displacing the Aorta (red arrow) to the right, B: Axial section showing the posterior wall of the cyst (*) which is intimately adhered to the lumbar veins (blue arrow) and displacing the Aorta (red arrow)



Figure 2: A: Port positions, B: Trocar entry into the cyst cavity, C: Aspiration of contents using suction cannula, D: Sample taken using syringe for culture & sensitivity, E: Complete aspiration of cyst contents, F: Marsupialization of cyst wall using Harmonic shears, G: Exposed cyst cavity, H: View after Complete marsupialization, I: Placement of Drain in the cyst cavity



The specimen (Figure 3) was extracted using an endobag, necessitating the upsizing of the 5-mm port to a 10-mm port. Following the achievement of complete hemostasis, a drain was inserted into the abscess cavity, and the ports were closed.

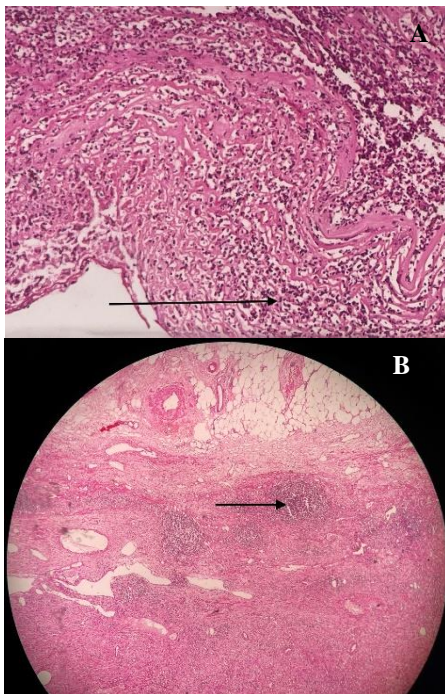
Figure 3: Specimen which was extracted via the 10mm port



The patient's postoperative course was uncomplicated. On the first postoperative day (POD), the patient experienced postoperative ileus, but oral feeds were gradually introduced and well tolerated thereafter. The patient was discharged on POD5. The abdominal drain was removed on POD8. Pus culture results showed no growth after two days of aerobic incubation.

Histopathological examination revealed a fibrous cyst wall with prominent inflammatory infiltrates (Figure 4A), the presence of foamy macrophages, hemorrhage, and lymphoid aggregates (Figure 4B), without any indications of malignancy. The DJ stents were removed after a period of 4 weeks, and a subsequent 6-month follow-up showed no notable events or complications.

Figure 4: A: Histopathology of showing fibrous cyst wall with dense inflammatory infiltrates (black arrow), B: Sections from the cyst wall showing foamy macrophages, hemorrhage, neutrophilic infiltrates and lymphoid aggregates (black arrow)



Discussion

Lymphangiomas arise from abnormal connections within the lymphatic channels, leading to impaired lymphatic drainage and subsequent cystic dilatations of the lymphatic vessels [2]. Although most documented cases of cystic lymphangiomas are observed in the pediatric population, the clinical presentation and characterization of these lesions in adults remain unclear [3].

While axial and cervical regions are commonly affected by cystic lymphangiomas, abdominal cystic lymphangiomas are considered rare entities. Given the mesentery's dense lymphatic network, it is the preferred location for the development of lymphangiomas.

Typical manifestations of abdominal cystic lymphangiomas often involve abdominal pain and compressive symptoms. In rare cases, these cysts may become infected, leading to the development of sepsis. Infections can occur either as primary infections or secondary infections via hematogenous spread or involvement of adjacent organs [4].

The initial investigation for abdominal lymphangioma typically involves an ultrasonogram, which can detect a cystic mass characterized by anechoic areas but may also exhibit echogenic debris. These cysts can present as multilocular structures with septations or as uniform unilocular cysts. Contrast-enhanced CT scans can enhance the visualization of the cyst wall and septations. MRI, with its high soft tissue resolution and the ability for multiplanar reconstruction, is valuable for preoperative planning, particularly in cases involving large cysts that exert pressure on adjacent structures [5].

Treatment options for abdominal lymphangiomas encompass percutaneous aspiration, laparotomy, and laparoscopic surgery. Percutaneous aspiration and injection of sclerosants have been attempted; however, they are associated with high rates of recurrence [3]. Laparotomy involves making a large incision to access the entire cyst and is linked to morbidity and wound complications.

Complete resection of the cyst may not always be feasible due to its location and close adherence to major vessels and colonic vasculature. In this particular case, the posterior wall of the cyst was intentionally left in place due to its adherence to the abdominal Aorta, left renal vein, and lumbar veins. At the 6-month follow-up, the patient remains asymptomatic.

Conclusion

The laparoscopic management of large retroperitoneal cystic masses is technically feasible, but it necessitates meticulous preoperative planning.

References

1. Mota MM, Bezerra RO, Garcia MR. Practical approach to primary retroperitoneal masses in adults. *Radiol Bras.* 2018 Nov-Dec;51(6):391-400. doi: 10.1590/0100-3984.2017.0179.
2. Levy AD, Cantisani V, Miettinen M. Abdominal lymphangiomas: imaging features with pathologic correlation. *AJR Am J Roentgenol.* 2004 Jun;182(6):1485-91. doi: 10.2214/ajr.182.6.1821485.
3. Xiao J, Shao Y, Zhu S, He X. Characteristics of adult abdominal cystic lymphangioma: a single-center Chinese cohort of 12 cases. *BMC Gastroenterol.* 2020 Jul 29;20(1):244. doi: 10.1186/s12876-020-01388-8.
4. Mouthon L, Melin Y, Girard T, Enjolras M, Mainardi JL. Intraabdominal macrocystic lymphatic malformation (lymphangioma) infected with *Salmonella enteritidis*: case report and review. *Clin Infect Dis.* 1997 Sep;25(3):751-2. doi: 10.1086/516948.
5. Hegazi TM, Al-Sharydah AM, Lee KS, Mortelet K. Retroperitoneal cystic masses: magnetic resonance imaging features. *Abdom Radiol (NY).* 2020 Feb;45(2):499-511. doi: 10.1007/s00261-019-02246-2.

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