

IMAGES IN CLINICAL RADIOLOGY

Abdominal Lymphatic Malformation

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Keywords: cystic lymphangioma; lymphatic malformation

Clinical History

Ultrasound (US) was requested both to evaluate the biliary tree and characterize an intra-abdominal “cystic” mass detected on abdominal computed tomography (CT) (**Figure A1**, asterisk) in a 58-year-old woman who complained of recurrent pain of the right upper quadrant. US showed a well-delineated, 12 cm long and anechoic mass beneath the liver. In addition, there were uncomplicated gallbladder microlithiasis. Magnetic Resonance Imaging (MRI)-cholangiography confirmed the cystic nature of the lesion (**Figures A2** and **A3**) and showed no contrast enhancement. Additional anomalies with same imaging characteristics were depicted on T2-weighted images in the posterior mediastinum, the mesentery and the retroperitoneum (**Figure A2**). Other lesions with similar characteristics were detected in the spleen (on multiple locations, all measuring less than 10 mm) (**Figure A3**), and the liver (a single lesion of 16 mm) (**Figures A1** and **A2**). Based on multi-modality imaging findings, diagnosis of lymphatic malformations was proposed. During laparoscopic cholecystectomy, the surgeon confirmed the lymphatic anomalies. Rupture of the sub-hepatic lymphatic malformation occurred, but the follow-up was uneventful.

Comments

This case with multi-site lymphatic cystic lesions exemplifies that the term lymphatic malformation should be preferred to cystic lymphangioma [1]. Lymphatic malformation (LM) belongs to congenital vascular malformations (CVM) in the Hamburg classification system, relating to malformations of the lymphatic system. They can appear at any age, though 90% of cases are discovered under the age of two. They can occur in almost any location, but 95% of cases are found in the cervico-axillary regions. Intra-abdominal and thoracic locations account for less than 5% of cases. Mesenteric and retroperitoneal locations are more common, due to a rich lymphatic network. Visceral locations such as splenic or hepatic are very rare.

Clinical presentation ranges from asymptomatic incidental finding to abdominal mass or pain. It may be

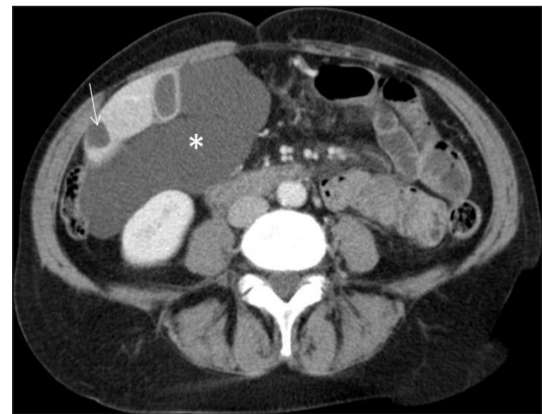


Figure A1.

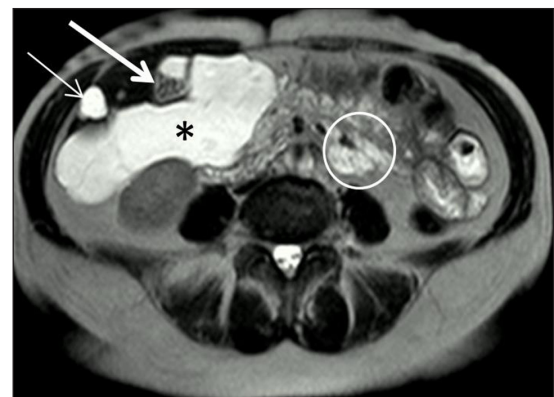


Figure A2.

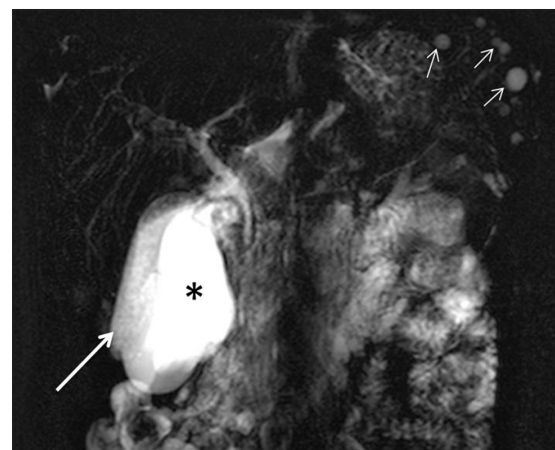


Figure A3.

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unveiled by mechanical (volvulus), hemorrhagic (hematemesis) or infectious (fever) complication. In rare cases, lymphatic malformation can present with cystic dissemination that mimics carcinomatosis (peritoneal cystic lymphangiomatosis).

On any imaging modality, the malformation is well-delimited, cystic, nodular or tubular-shaped. Lymphatic anomalies engulf other anatomic structures in relative good-neighboring.

On US, the tumor appears as a hypo-echogenic cystic mass or network with some internal septa. On CT, the density may vary depending on its proteinaceous, water, blood or lipid content. On MRI, lymphatic variants are hypo-intense T1 and hyper-intense T2 relative to the

surrounding viscera. MRI offers optimal evaluation of the tumor extent.

Splenic and hepatic lymphatic malformation may be impossible (based solely on imaging) to distinguish from other benign tumors, including cysts, haemangiomas and hamartomas.

Competing Interests

The authors have no competing interests to declare.

Reference

1. **Lee, BB.** Changing concept on vascular malformation: No longer enigma. *Ann Vasc Dis.* 2008; 1(1): 11–19. DOI: <https://doi.org/10.3400/avd.AVDsc00207>

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