

AMSER Rad Path Case of the Month:

4-week-old male infant with emesis and bloody stool

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Patient Presentation

4-week-old male with no past medical/surgical history now with poor PO intake, multiple bloody stools, and a rectal temp of 100.3 in ED. The patient had been seen several days prior for multiple episodes of non-bilious emesis with no significant findings. He had been feeding well on a combination of breastmilk and Similac Advance.

On exam, patient was mildly distended and uncomfortable-appearing but overall nontoxic. Labs were concerning for sepsis, so a comprehensive workup was initiated.

Pertinent Labs

- Stool heme+
- Procalcitonin 5.36 ng/mL (normal ≤ 0.9)
- CRP 20.3 mg/dL (normal 0-1.5)
- CSF: normal protein/glucose. Bloody/traumatic tap
- CSF, blood, and urine cultures negative for infection

What Imaging Should Be Ordered?

ACR Appropriateness Criteria

Initial presentation was suspicious for intussusception, making abdominal US a reasonable first step in this pediatric patient.

Variant 1: Suspected small-bowel obstruction. Acute presentation. Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	May Be Appropriate <i>Ordered second</i>	⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate	○
Radiography abdomen and pelvis	May Be Appropriate (Disagreement)	⊕⊕⊕
Fluoroscopy small bowel follow-through	May Be Appropriate	⊕⊕⊕
MRI abdomen and pelvis without IV contrast	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕
CT enteroclysis	Usually Not Appropriate	⊕⊕⊕⊕
CT enterography	Usually Not Appropriate	⊕⊕⊕⊕
MR enterography	Usually Not Appropriate	○
US abdomen and pelvis <i>Ordered first</i>	Usually Not Appropriate	○
Fluoroscopy small bowel enteroclysis	Usually Not Appropriate	⊕⊕⊕
MR enteroclysis	Usually Not Appropriate	○

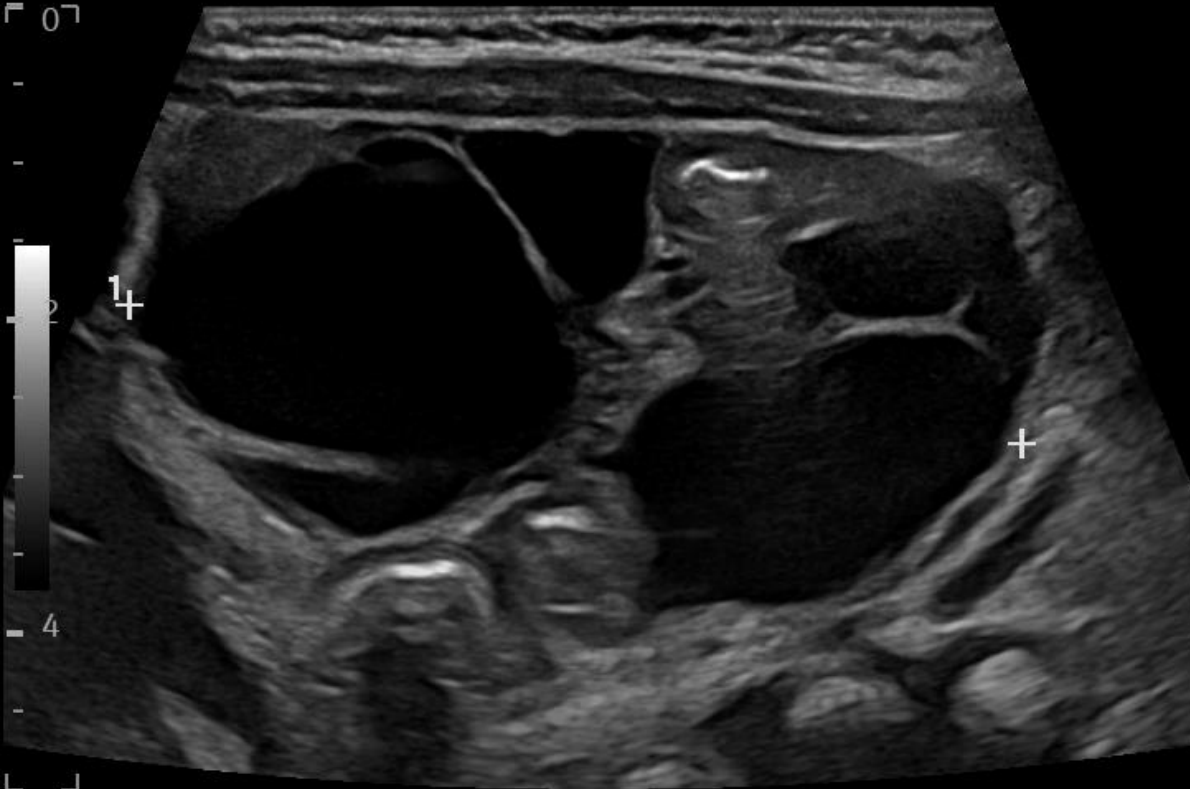
Subsequent findings pointed to a different etiology of SBO, requiring further characterization with contrast CT.

Ultrasound Findings (Unlabeled)

CHI	7
Frq	10.0
Gn	55
S+/A	3/3
Map	F/0
D	5.0
Zm	0
DR	63
AO%	100

LOGIQ

LOGIQ



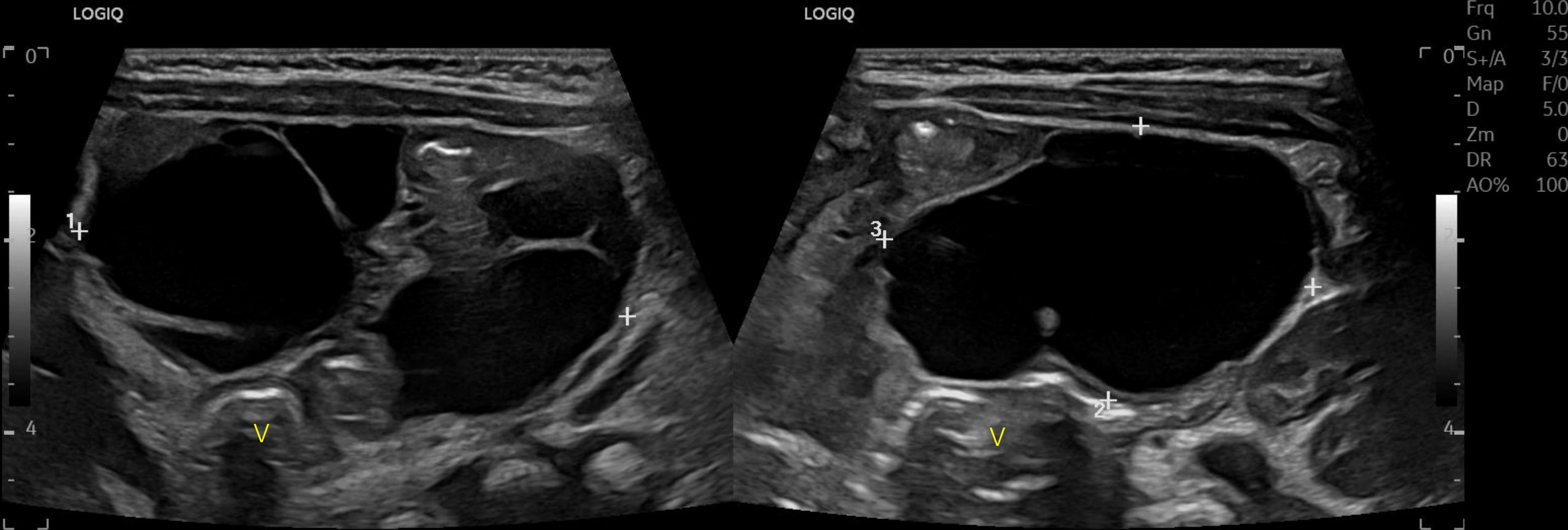
1 L	5.8 cm
2 L	2.9 cm
3 L	4.5 cm

LLQ

TRANS LLQ



Ultrasound Findings (Labeled)



Large septate cystic structure present in posterior LLQ near the vertebral body (V), clearly separate from kidneys and bladder on survey imaging (not pictured)

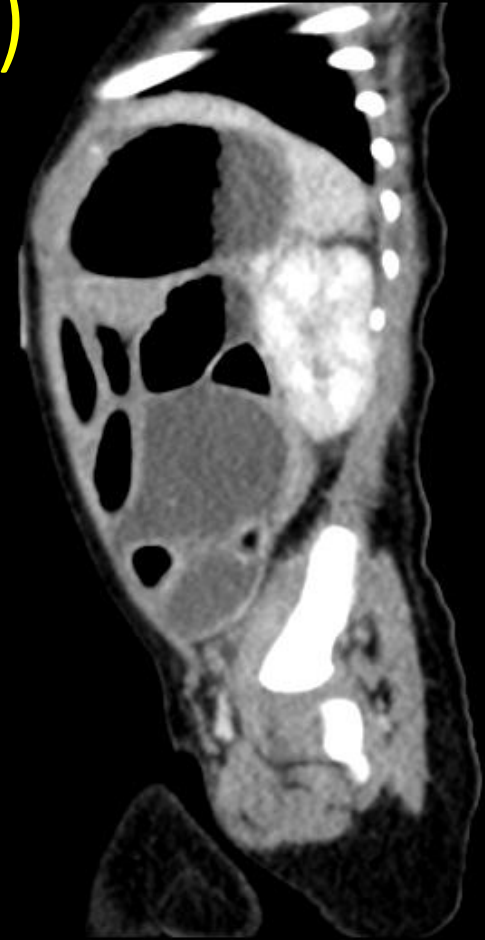
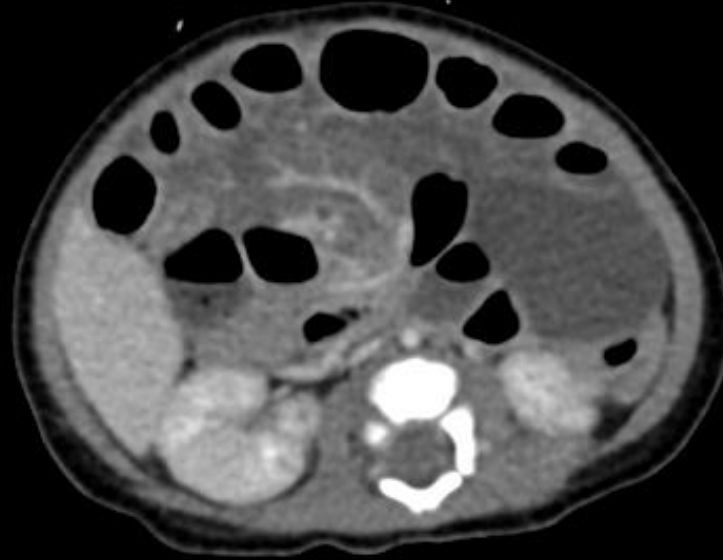
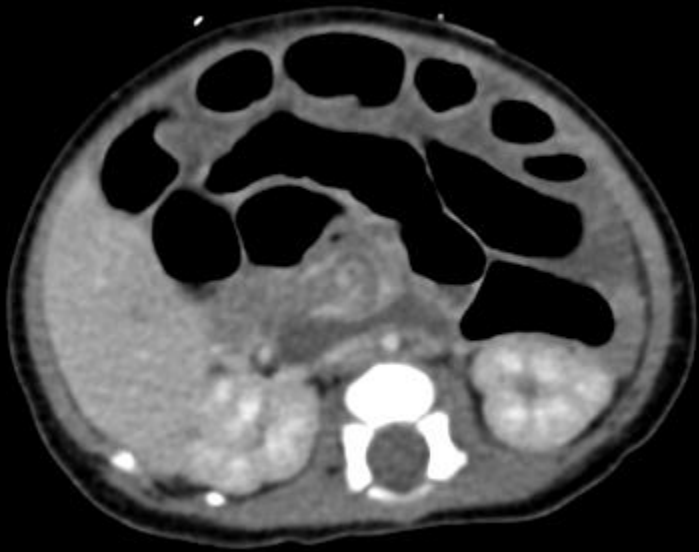
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LLQ

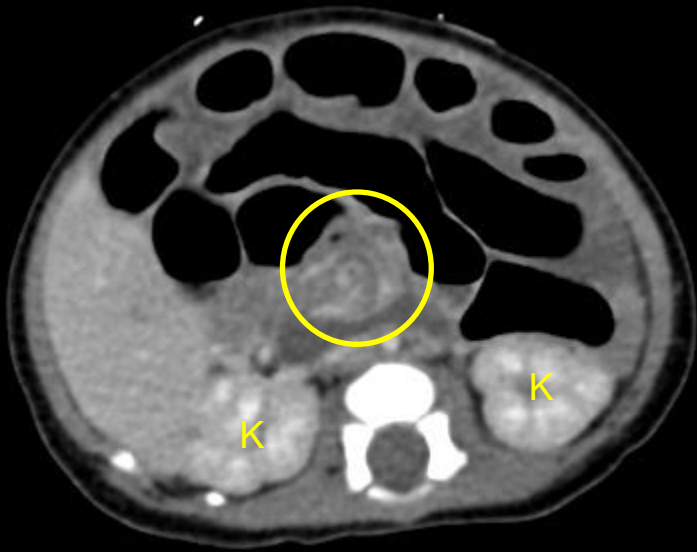
TRANS LLQ



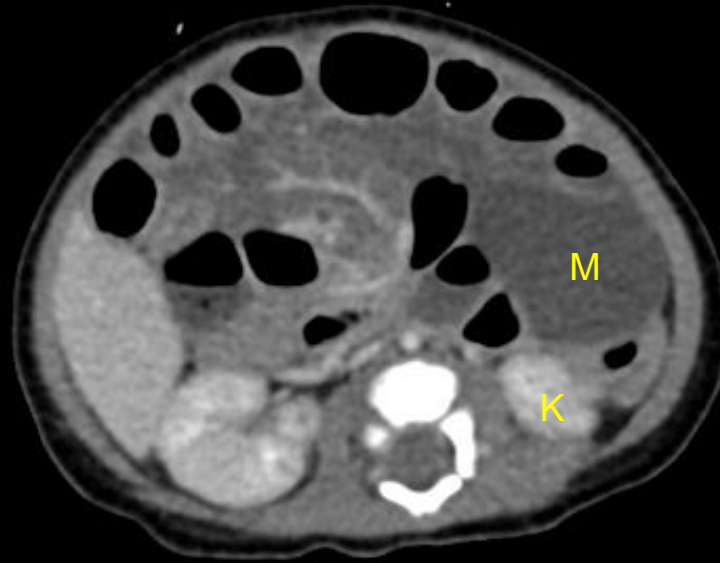
CT Findings (Unlabeled)



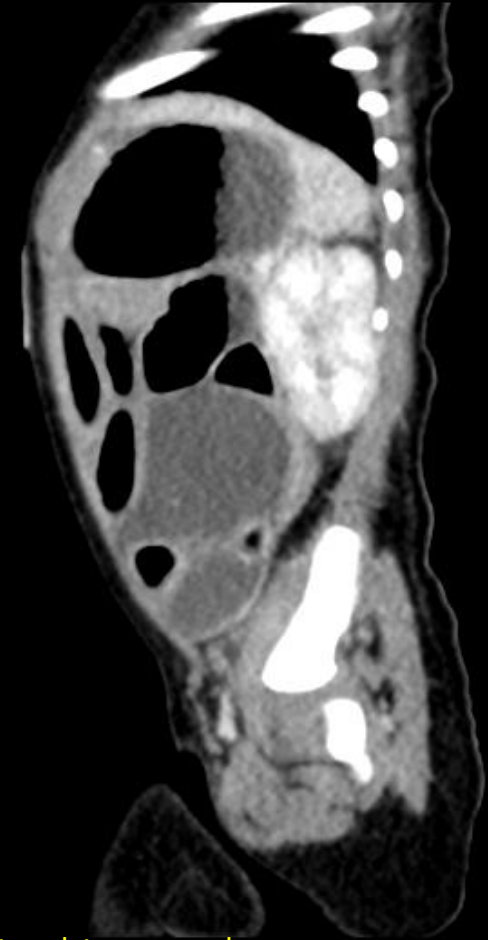
CT Findings (Labeled)



Whirlpool sign created by swirling of the mesentery and veins around the superior mesenteric artery seen at the level of the kidneys (K)



Large, cystic mass (M) demonstrated anterior to the lower pole of the left kidney (K)

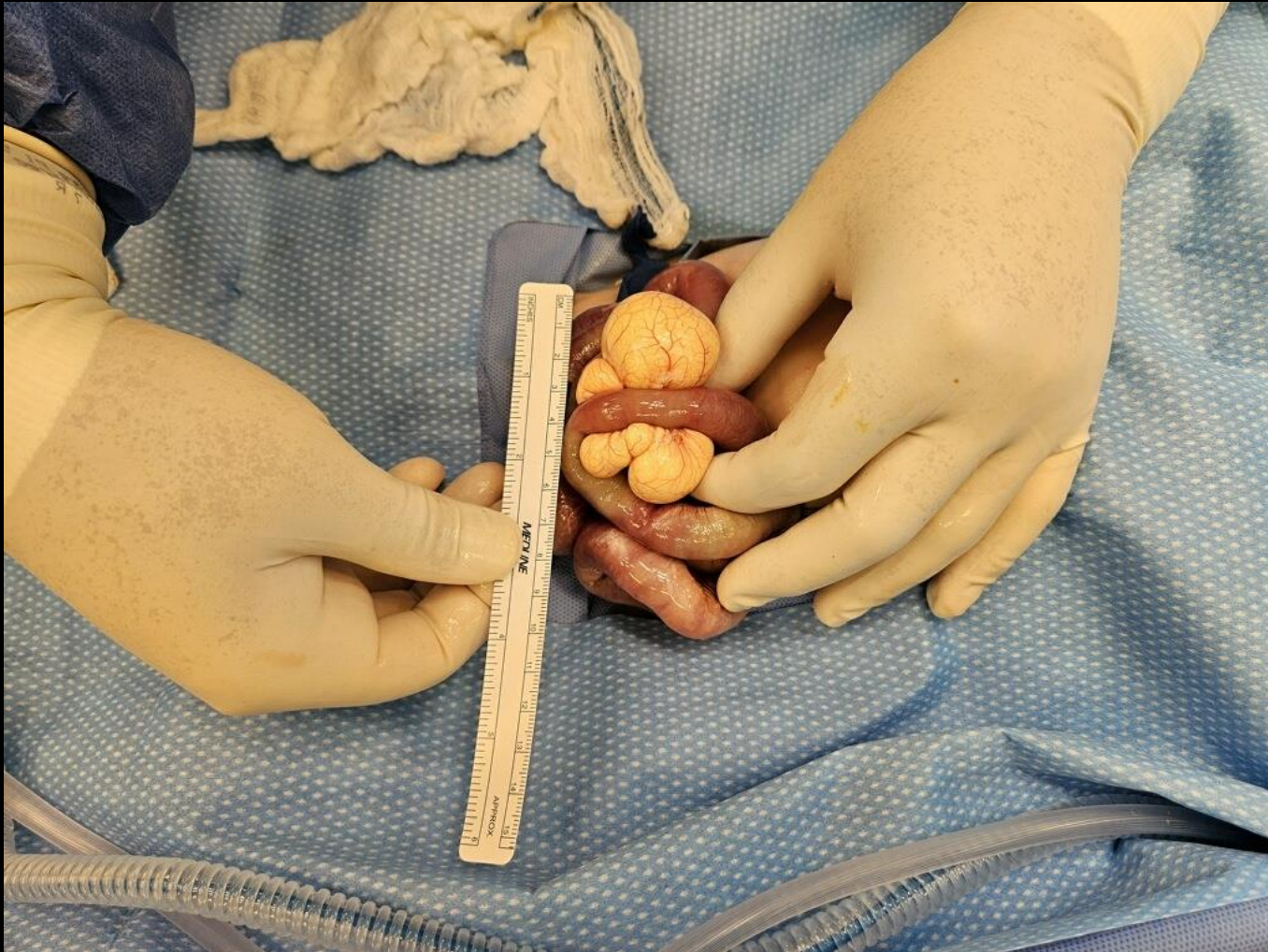


Sagittal image demonstrates mass clearly contained within the mesentery of the LLQ

Differential Diagnosis

- Intestinal duplication cyst
- Mesenteric cyst
- Lymphangioma

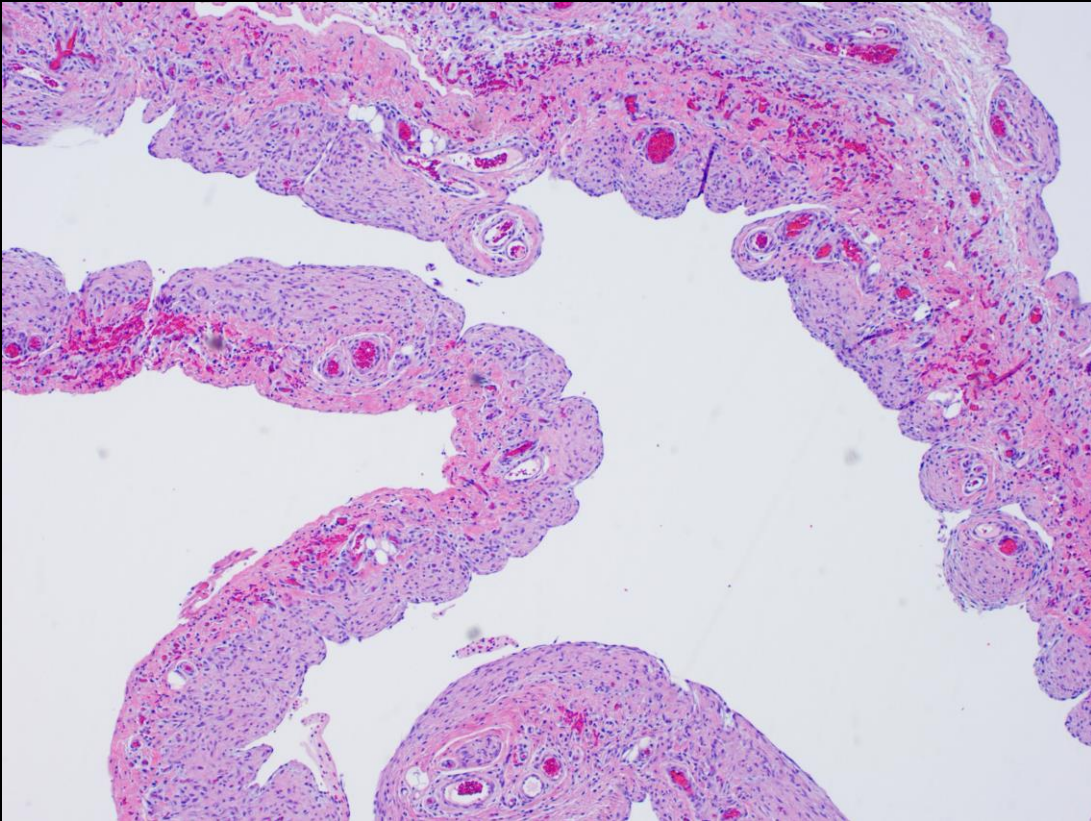
Gross Images



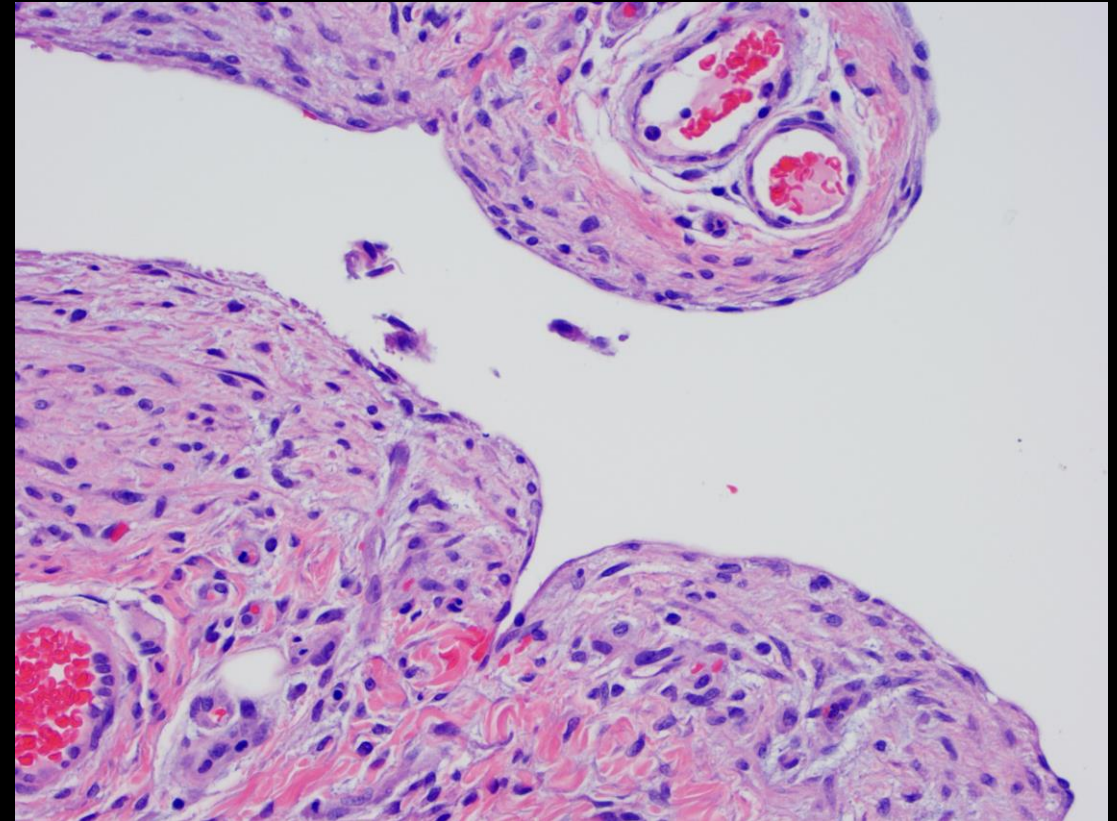
Large 6.5 cm mesenteric cyst intimately associated with the small bowel

Patient symptoms consistent with volvulus; some gross ischemic change present

Microscopic Images



Low power: dilated cystic space surrounded by moderate lymphoid aggregates, representative of a dilated lymphatic space



High power: better characterization of the epithelium as thin and attenuated, in keeping with lymphatic epithelium

Final Dx:

Mesenteric lymphangioma without atypia

Case Discussion

Mesenteric Lymphangioma (ML)

Epidemiology: rare benign malformation of abdominal lymphatic vessels

- Incidence: 1 in 250,000
- Represent 5-6% of benign pediatric tumors, M > F

Etiology: exact cause is unknown; embryological factors are suspected

- 65% of all tumors are present at birth and 90% by age 2
- Can also be caused by lymphatic obstruction, surgery, radiation, trauma

Presentation: can mimic appendicitis, pancreatitis, malignancy

- May present clinically with abdominal pain, distension, palpable mass
- Imaging: uni- or multilocular mass with or without septal enhancement

Case Discussion

Treatment: should undergo elective surgery if found incidentally, but may require emergency removal +/- intestinal resection if ischemia occurs

- Despite non-malignant nature, resection is generally recommended due to risk of bleeding, torsion, rupture, and extension into surrounding tissue
- Spontaneous regression has been observed but is highly unlikely
- Drainage is also an option in high-risk patients, but recurrence is more likely

Prognosis: chance of recurrence up to 40%. If tumor invades surrounding organs, resection with free margins will reduce recurrence

References

- Abdulraheem A, Al Sharie A, Al Shalakhti M, Alayoub S, Al-Domaidat H, El-Qawasmeh A. Mesenteric cystic lymphangioma: A case report. *International Journal of Surgery Case Reports*. 2021 Feb 19;80. doi:10.1016/j.ijscr.2021.105659
- Buenfil NR. Mesenteric cystic lymphangioma: Radiology case [Internet]. *Radiopaedia.org*; 2024 [cited 2024 Jun 29].
- Chen J, Du L, Wang D-R. Experience in the diagnosis and treatment of mesenteric lymphangioma in adults: A case report and review of literature. *World Journal of Gastrointestinal Oncology*. 2018 Dec 15;10(12):522–7. doi:10.4251/wjgo.v10.i12.522
- Gunadi, Kashogi G, Prasetya D, Fauzi AR, Daryanto E, Dwihantoro A. Pediatric patients with mesenteric cystic lymphangioma: A case series. *International Journal of Surgery Case Reports*. 2019 Oct 1;64:89–93. doi:10.1016/j.ijscr.2019.09.034
- Li Y-Y, Wang Q, Zhu J. Mesenteric cystic lymphatic malformation: A rare case report and review of the literature. *AME Case Reports*. 2023 Dec 18;8:23–23. doi:10.21037/acr-23-143