AMSER Case of the Month October 2025

8-month-old female presenting with abdominal pain, bloody stool, and emesis

McKayla Vliem, MS4, Penn State College of Medicine
Michael Hulse, MD, Penn State College of Medicine
James Brian, MD, Penn State College of Medicine
Sosamma Methratta, MD, Penn State College of Medicine

PennState College of Medicine

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Patient Presentation

- 8-month-old F presenting with abdominal pain, bloody stool, and emesis
- Previously healthy, no chronic medical conditions or prior surgeries
- Unvaccinated
- Pertinent Physical Exam:
  - Vitals: hemodynamically stable
  - General: intermittent crying but consolable by parents
  - Abdomen: soft, mild diffuse tenderness, mild distension

Pertinent Labs

- Hgb 9, but labs were otherwise unremarkable

What Imaging Should We Order?

ACR Appropriateness Criteria

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Vomiting, poor feeding, initial imaging	3191958	Radiography abdomen	0.1-1mSv ☢☢	0.03-0.3 mSv [ped] ☢☢	Usually appropriate
		US abdomen (UGI tract)	0 mSv O	0 mSv [ped] O	Usually not appropriate
		Fluoroscopy contrast enema	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	Usually not appropriate
		Fluoroscopy upper GI series	1-10 mSv ☢☢☢	0.3-3 mSv [ped] ☢☢☢	Usually not appropriate
		Nuclear medicine gastroesophageal reflux scan		0.3-3 mSv [ped] ☢☢☢	Usually not appropriate

These imaging modalities were ordered by the ER physician

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Appendicitis suspected, intermediate clinical risk, initial exam	3149302	US abdomen	0 mSv O	0 mSv [ped] O	Usually appropriate
		US abdomen RLQ	0 mSv O	0 mSv [ped] O	Usually appropriate
		Radiography abdomen	0.1-1mSv ☢☢	0.03-0.3 mSv [ped] ☢☢	May be appropriate (Disagreement)
		MRI abdomen and pelvis without and with IV contrast	0 mSv O	0 mSv [ped] O	May be appropriate (Disagreement)
		MRI abdomen and pelvis without IV contrast	0 mSv O	0 mSv [ped] O	May be appropriate (Disagreement)
		CT abdomen and pelvis with IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	May be appropriate (Disagreement)
		CT abdomen and pelvis without IV contrast	1-10 mSv ☢☢☢	3-10 mSv [ped] ☢☢☢☢	May be appropriate (Disagreement)
		US pelvis	0 mSv O	0 mSv [ped] O	Usually not appropriate
		CT abdomen and pelvis without and with IV contrast	10-30 mSv ☢☢☢☢	10-30 mSv [ped] ☢☢☢☢	Usually not appropriate

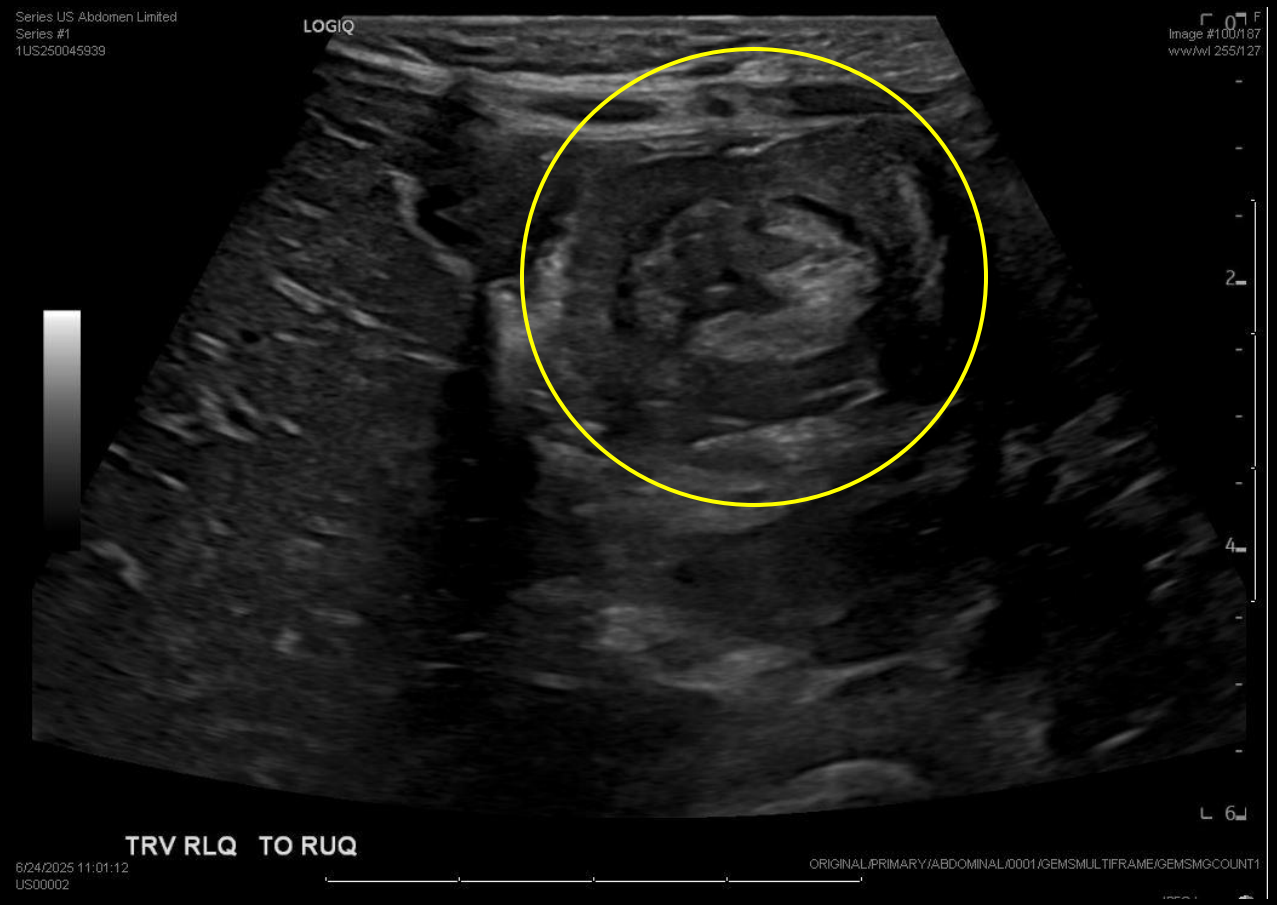
Abdominal Radiography

Radiography Findings:

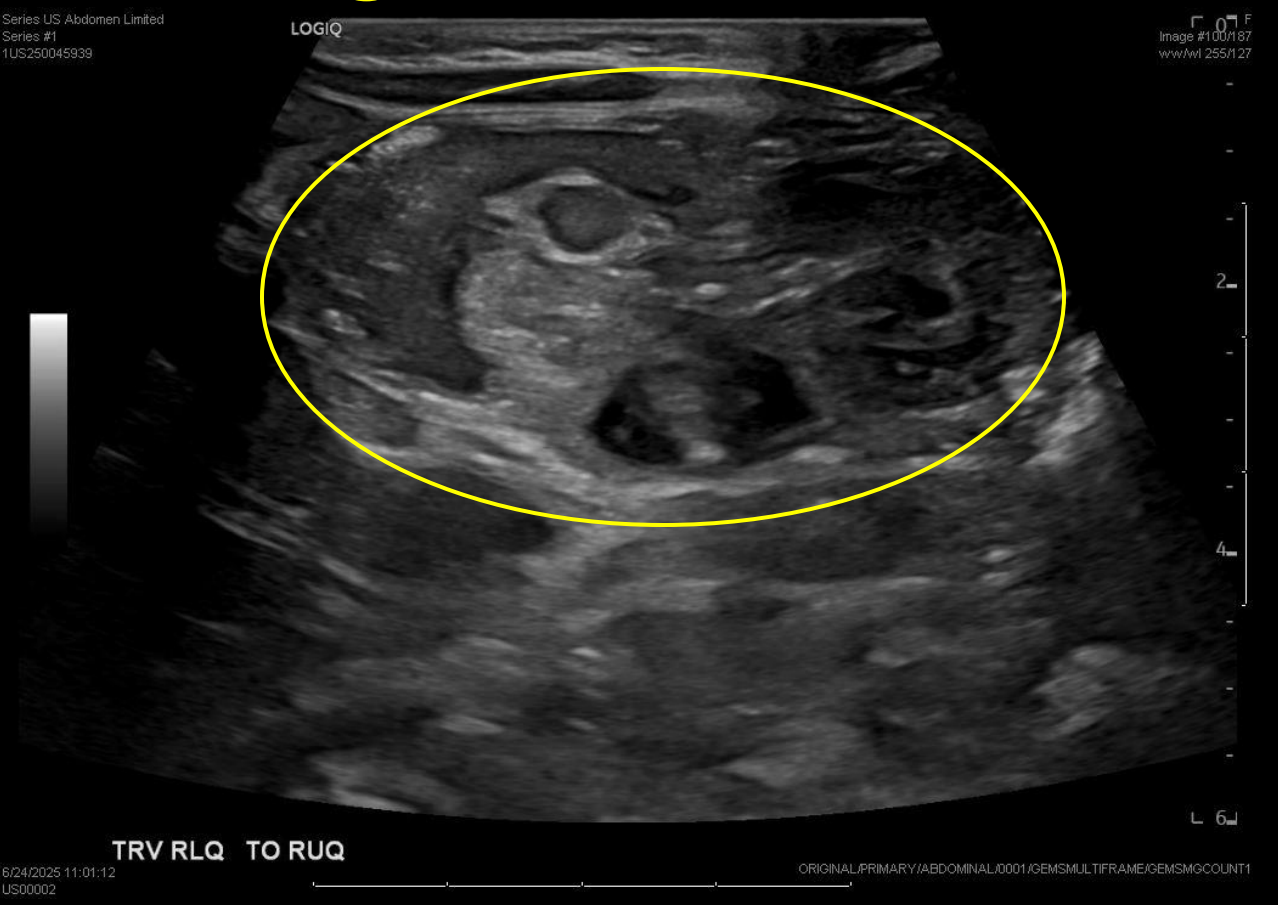
- Non-specific bowel gas pattern

Abdominal Ultrasound

Ultrasound Findings:



Doughnut sign = target sign = bull's eye sign



Pseudokidney sign (circled)

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Final Dx:

Ileocolic intussusception

Case Discussion

- Definition of intussusception: When one part of the bowel slides or "telescopes" into another portion, causing an obstruction
  - Intussusceptum: a portion of proximal bowel (often the ileum) that telescopes into more distal bowel (often the cecum)
  - Intussuscipiens: a portion of distal bowel (often the cecum) that the proximal bowel (often the ileum) telescopes into
  - Lead point acts like a mechanical anchor that initiates the telescoping of one segment of bowel into another
- Classic triad of symptoms: colicky abdominal pain and vomiting, palpable abdominal mass, and bloody "currant jelly" stool
  - Less than 50% patients present with full triad, must have colicky abdominal pain and vomiting

Intussusception Imaging Considerations

- There is no specific “suspected intussusception” ACR Appropriateness Criteria
- Radiography and ultrasound are commonly performed during diagnostic workup

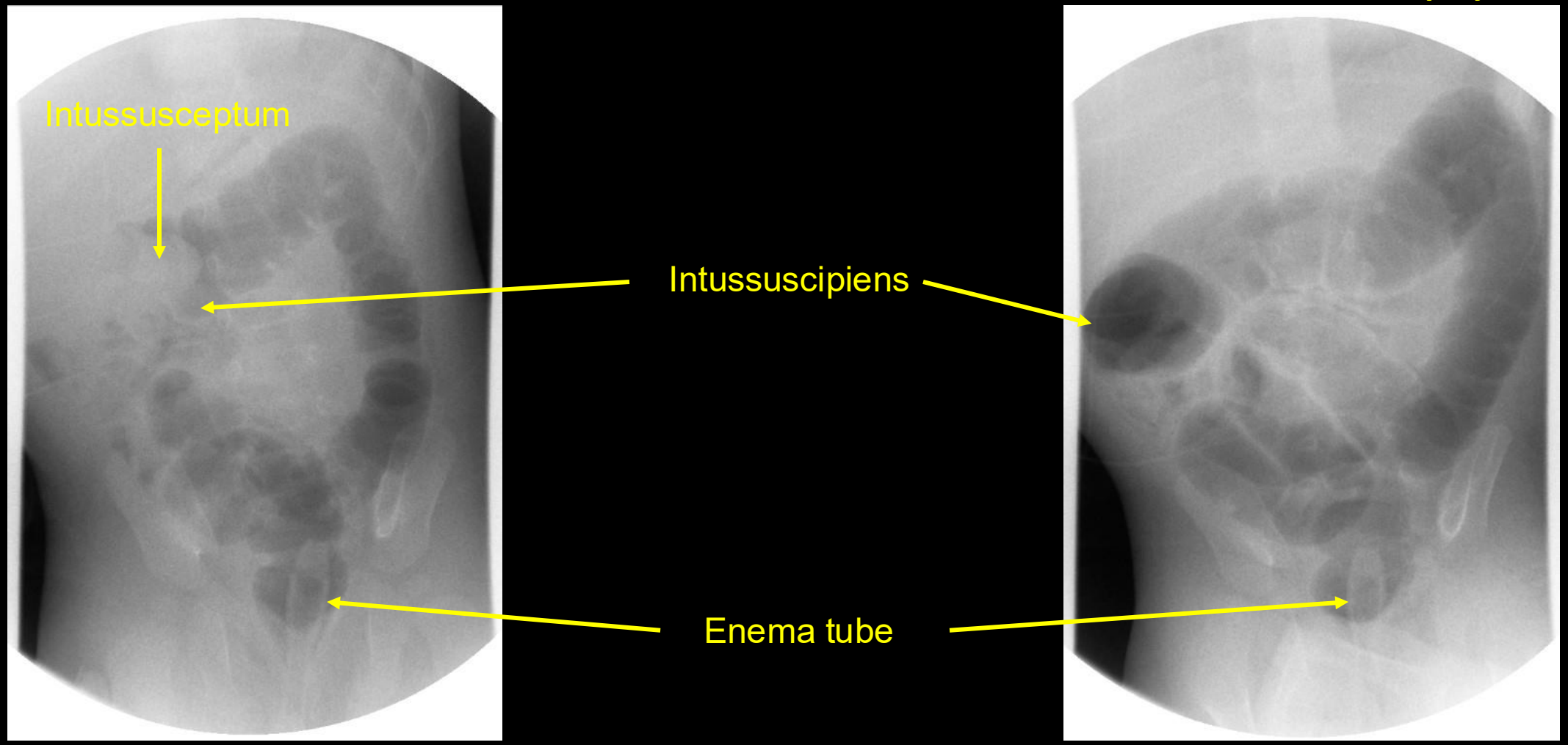
Radiography:

- Purpose: rule out free air and bowel obstruction
- For diagnosing intussusception: Sensitivity 48%, Specificity 21%

Ultrasound:

- Avoids radiation exposure, which increases safety
- Doesn’t require sedation like an MRI, which avoids the risks of anesthesia and also increases safety
- For diagnosing intussusception: high sensitivity (98%) and specificity (98%)
- Readily available

Treatment: Air Enema Under Fluoroscopy



- To perform the air enema, an enema tube is inserted into the rectum then air is insufflated via a Shiels device under fluoroscopic monitoring. The air is administered gradually, which reduces the Intussusceptum back to its normal position. Success is identified when air fills the distal small bowel and the filling defect resolves.
- Right image - intussusception in right upper quadrant. Left image – intussusception partially reduced, but no air refluxing into the small bowel, indicating incomplete intussusception reduction. This patient was transferred to pediatric surgery for complete laparoscopic reduction.

References:

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- American College of Radiology. ACR Appropriateness Criteria® Vomiting in Infants. Variant 1: Vomiting within the first 2 days after birth. Poor feeding or no passage of meconium. Initial imaging. Revised 2020. Available at: https://acsearch.acr.org/docs/69445/Narrative
- Carroll AG, Kavanagh RG, Ni Leidhin C, Cullinan NM, Lavelle LP, Malone DE. Comparative effectiveness of imaging modalities for the diagnosis and treatment of intussusception: A critically appraised topic. *Acad Radiol*. 2017;24(5):521-529. doi:10.1016/j.acra.2017.01.002
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