

AMSER Case of the Month

September 2025

83 yo female presents with 3 days of nausea, vomiting,
and abdominal pain

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Patient Presentation

- **HPI:** Patient presented with 3 day history of acute onset abdominal pain, nausea, vomiting, and inability to pass gas or have any bowel movements. Denies fevers.
- **PMHx:** GERD, hypothyroidism, IBS, ventral hernia s/p repair, and left breast cancer
- **Past Surgical Hx:** Breast lumpectomy, hysterectomy, ventral hernia repair
- **Meds:** Levothyroxine 88 mcg, Docusate 50 mg, Famotidine 20 mg
- **Allergies:** Ciprofloxacin/Penicillins/Metronidazole (GI upset), Bacitracin/Latex (rash)
- **Physical Exam:** T: 36.5C, BP 167/83, HR 99, Abdomen mildly distended, soft, nontender, no guarding or rebound
- **Labs:** WBC 14.4, lipase negative, CMP unremarkable

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

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	☼☼☼
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	Usually Not Appropriate	○
Fluoroscopy small bowel enteroclysis	Usually Not Appropriate	☼☼☼
MR enteroclysis	Usually Not Appropriate	○

This imaging modality was ordered by the ER physician



Findings (unlabeled)



Topogram

Findings: (labeled)



Dilated loops of small
bowel (4 cm)

Topogram

Findings (unlabeled)



Axial

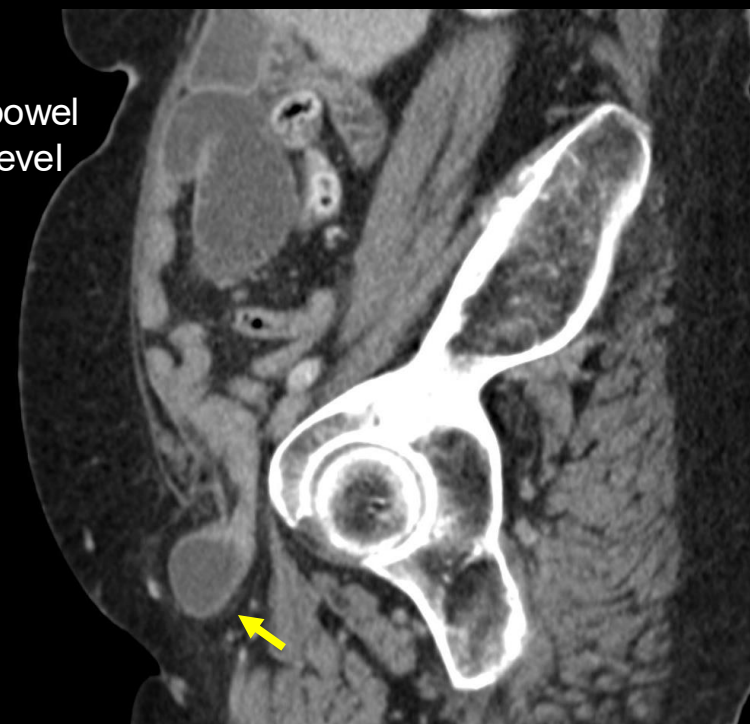
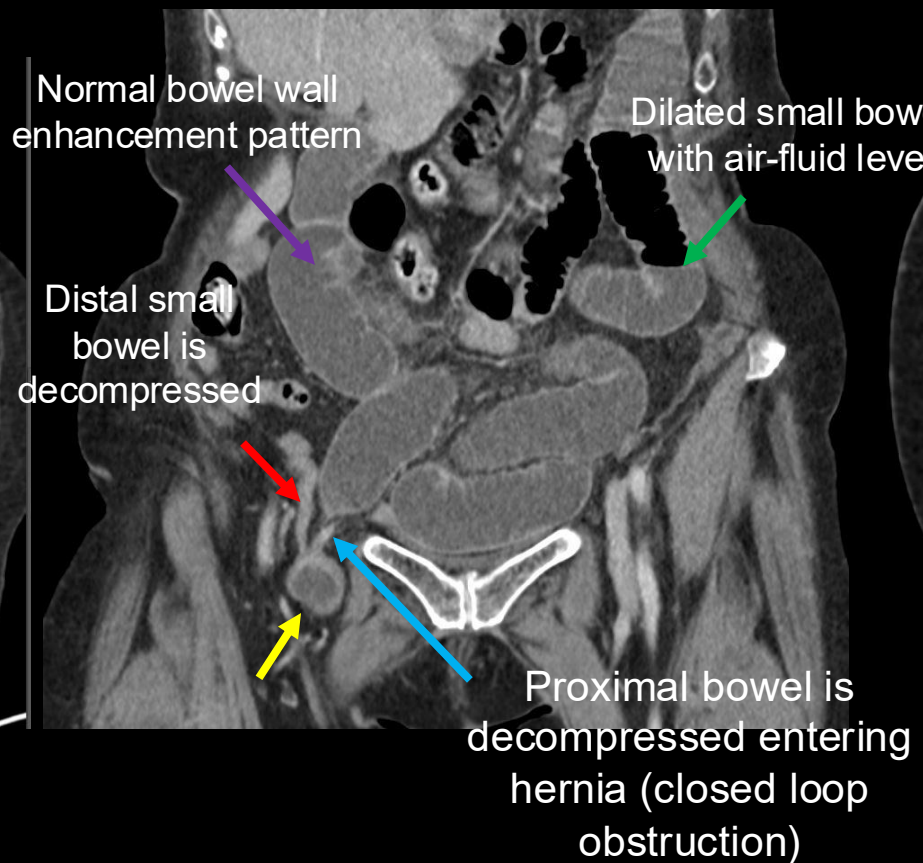
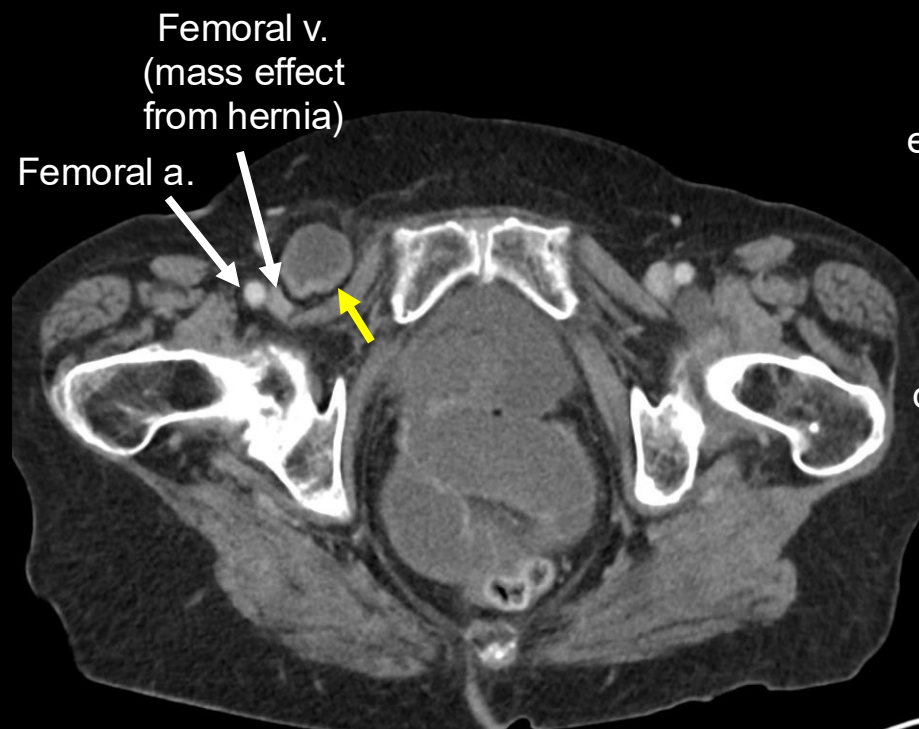


Coronal



Sagittal

Findings: (labeled)



Dilated loop of bowel displaced below the inguinal ligament (→)

Final Dx:

Small Bowel Obstruction
Strangulated Femoral Hernia

Case Discussion

- **Etiology:** A small bowel obstruction can be mechanical or functional
 - **Mechanical:** physical barrier to passage of bowel contents
 - Intraluminal – e.g. gallstone ileus
 - Intramural – e.g. malignancy
 - Extrinsic – e.g. adhesions/hernia
 - **Functional (ileus):** impaired peristalsis or metabolic disorders
- **Pathophysiology:** A mechanical small bowel obstruction can lead to increased intraluminal pressure, presenting with proximal bowel distention, a transition point, followed by distal bowel decompression
 - As bowel distends, it impairs venous outflow leading to bowel wall edema/inflammation
 - Can progress to bowel ischemia or perforation

Case Discussion

Small Bowel Obstruction

- **Epidemiology:** In the US, 15 of every 100 admissions for abdominal pain is due to SBO. Most common causes are adhesions (65-75%), hernias (10-20%), malignancy (10-20%)
- **Clinical Presentation:** Abdominal pain/distention, nausea, vomiting, dehydration, obstipation or decreased stool/gas passage
- Obstruction can be described as either partial or complete versus simple or strangulated.
- **Differential diagnosis:** Adhesions, hernia, malignancy, malrotation/volvulus

Case Discussion

- **Femoral Hernias**

- **Pathophysiology:** Femoral hernias occur due to a weakness or widening of the femoral ring, which can allow small bowel to protrude through
- **Epidemiology:** accounts for ~3% of all groin hernias. 4 times more likely in females than males.
- **Presentation:** Bulge or painful mass in the groin, often below the inguinal ligament that worsens with Valsalva. 1/3rd of patients are asymptomatic. Strangulation is a common complication of femoral hernias.

Radiology Pearl: Differentiating femoral hernia from inguinal hernia can be challenging. The finding of mass effect on the femoral vein can raise suspicion for femoral hernia

Case Discussion

Small Bowel Obstruction

- **Imaging:** Initial imaging can be a plain abdominal radiograph which can reveal dilated loops of small bowel, absence of gas in the colon, or signs of perforation.
- **Gold standard** is a CT Abdomen with contrast which is more sensitive and specific. It can reveal the **transition point** and detect signs of bowel ischemia/inflammation such as wall thickening, mesenteric stranding, pneumatosis intestinalis.
- **Management:** Initial management involves supportive treatment: IV fluids, NG tube decompression, bowel rest.
- For strangulated/complete SBO, urgent surgery is done to prevent bowel ischemia or perforation

References:

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