AMSER Case of the Month June 2018

85 year old male with abdominal pain

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Patient Presentation
85 year old African American male

- CC: Nausea/vomiting of roughly 1 week duration with worsening lethargy and tachypnea
  - 2 days prior to presentation was discharged from the ED for nausea/vomiting attributed to lamotrigine prescription
- PMHx: PE, hypertension, hyperlipidemia, dementia, coronary artery disease, BPH, bundle branch block
- PSHx: Right inguinal hernia repair in 2012
- FamHx: Stroke in sister and brother
- Medications: docusate, risperidone, mirtazapine, melatonin, lidocaine, finasteride, ergocalciferol, doxazosin, cyanocobalamin, atenolol, aspirin, acetaminophen
- Social Hx: Former smoker quit in 1970, lives in nursing facility currently.
- Allergies: Lisinopril
- Vitals: BP 150/100 P 92 T 36.7 R 20 Pulse ox 92% BMI 20.5
- Physical Exam: Pertinent findings included tachypnea, and a large protruding scrotum with intestinal contents palpated on the left.
- Labs: Non-contributory

Which imaging should we order?

ACR Appropriateness Criteria

Table 1. Suspected complete or high-grade partial small-bowel obstruction

Radiologic Procedure	Appropriateness Rating	Comments
CT, abdomen and pelvis without oral contrast, with IV contrast	8	Imaging initially ordered by the ED
X-ray, supine and upright abdomen	7	
CT, abdomen and pelvis with oral water-soluble contrast, with IV contrast	5	Positive contrast in the bowel can obscure the cause of the obstruction and enhancement of the mucosal bowel lumen.
CT, abdomen and pelvis with oral dilute barium contrast, with IV contrast	5	Positive contrast in the bowel can obscure the cause of the obstruction and enhancement of the mucosal bowel lumen.
CT, enterography with IV and water or water-density contrast	4	
CT, enteroclysis	4	
X-ray, small-bowel follow-through	4	
X-ray, small-bowel enteroclysis	4	
MRI, abdomen	4	
Ultrasound, abdomen	2	

Note: *Appropriateness Criteria® scale*: 1 = least appropriate; 9 = most appropriate. CT = computed tomography; IV = intravenous; MRI = magnetic resonance imaging.

Findings on Scout Tomogram?

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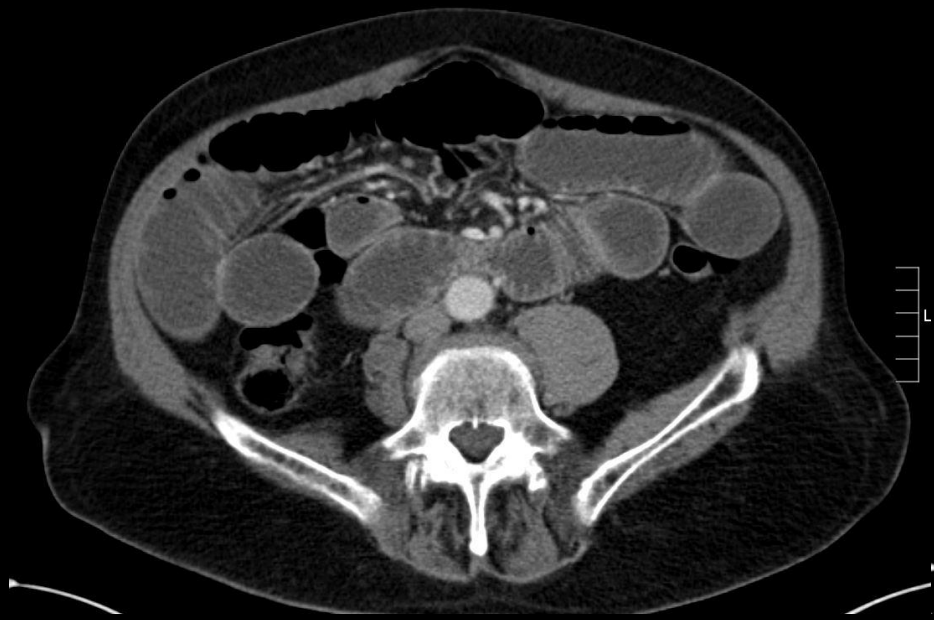

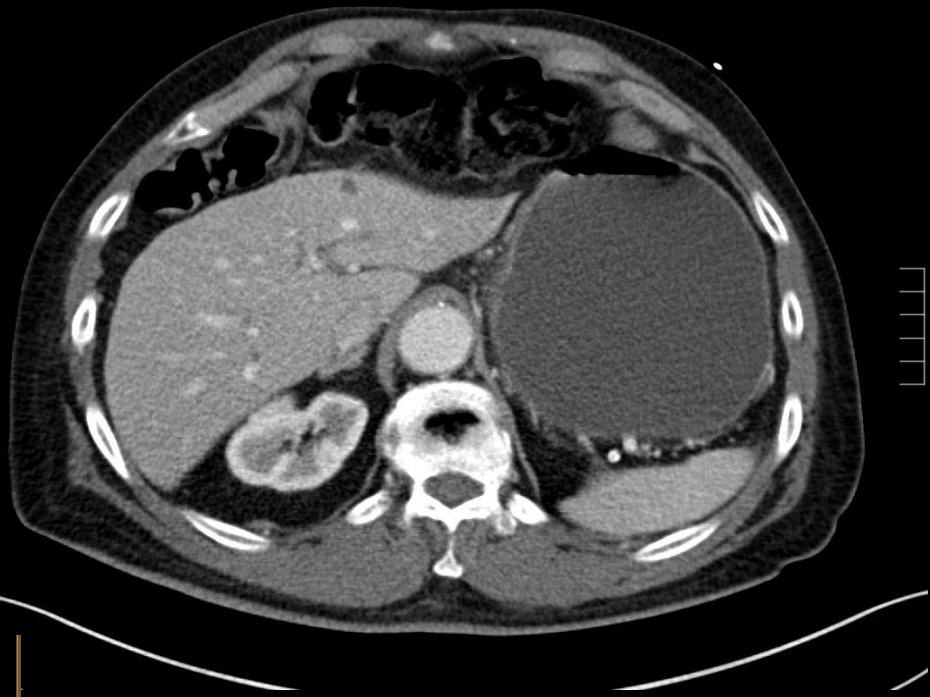

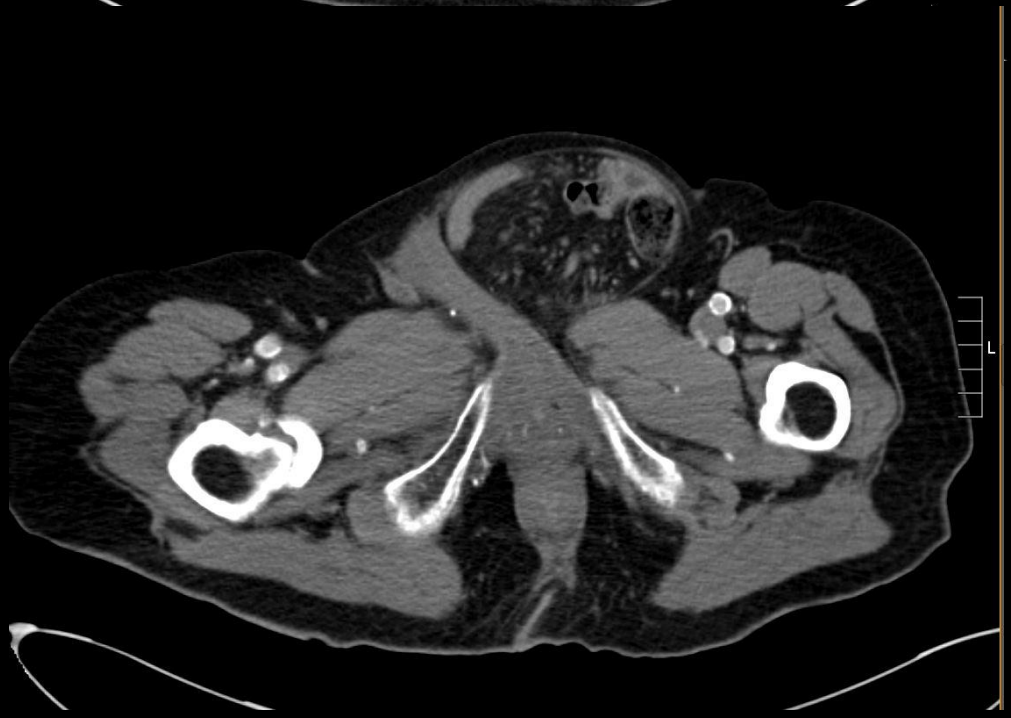

Findings on Axial CT slices?

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Arrows point to dilated loops of small bowel in the mid abdomen

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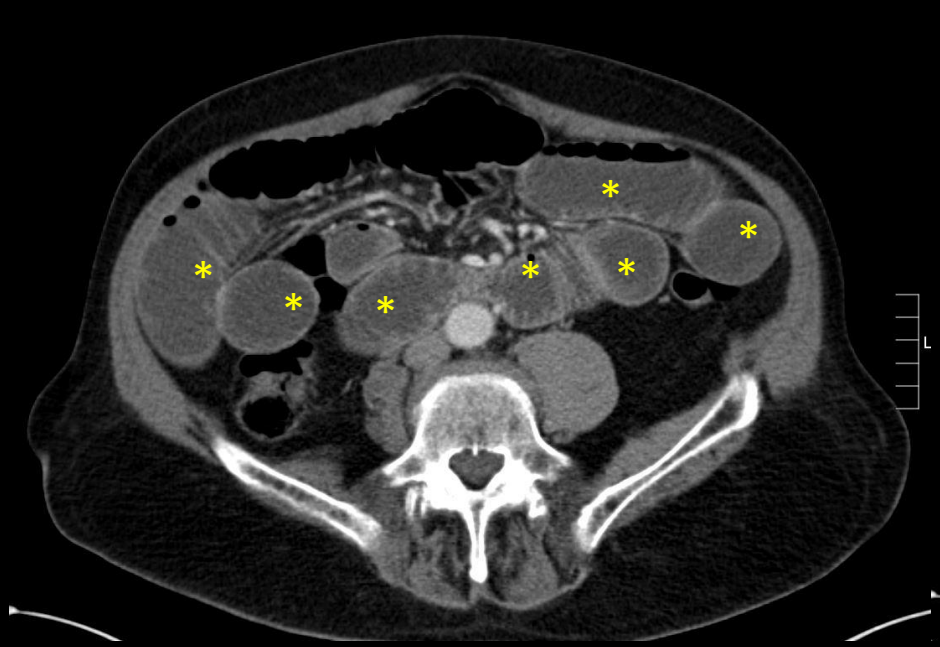

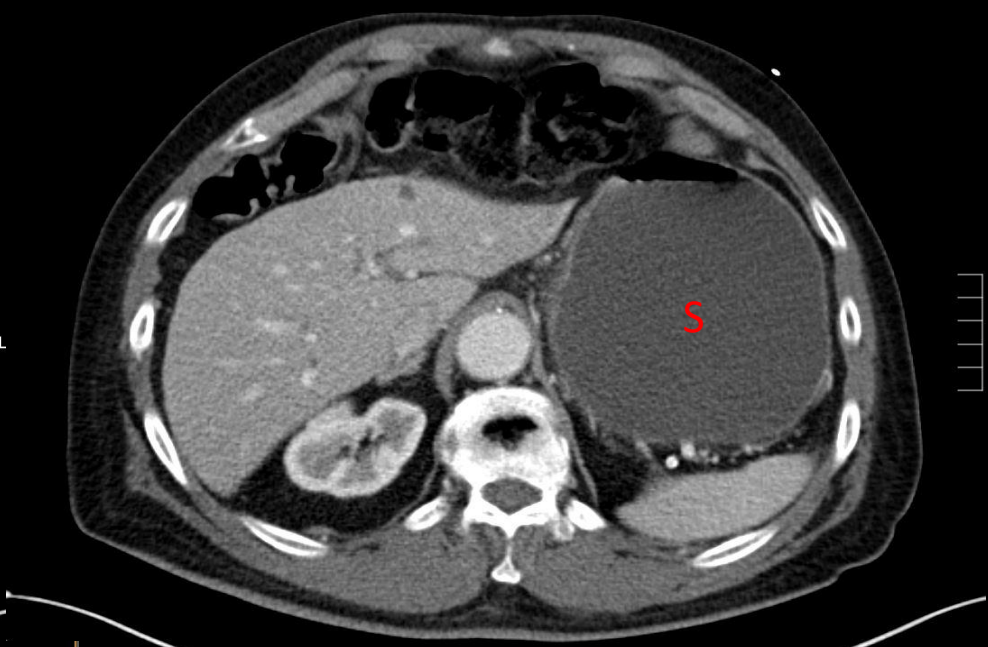

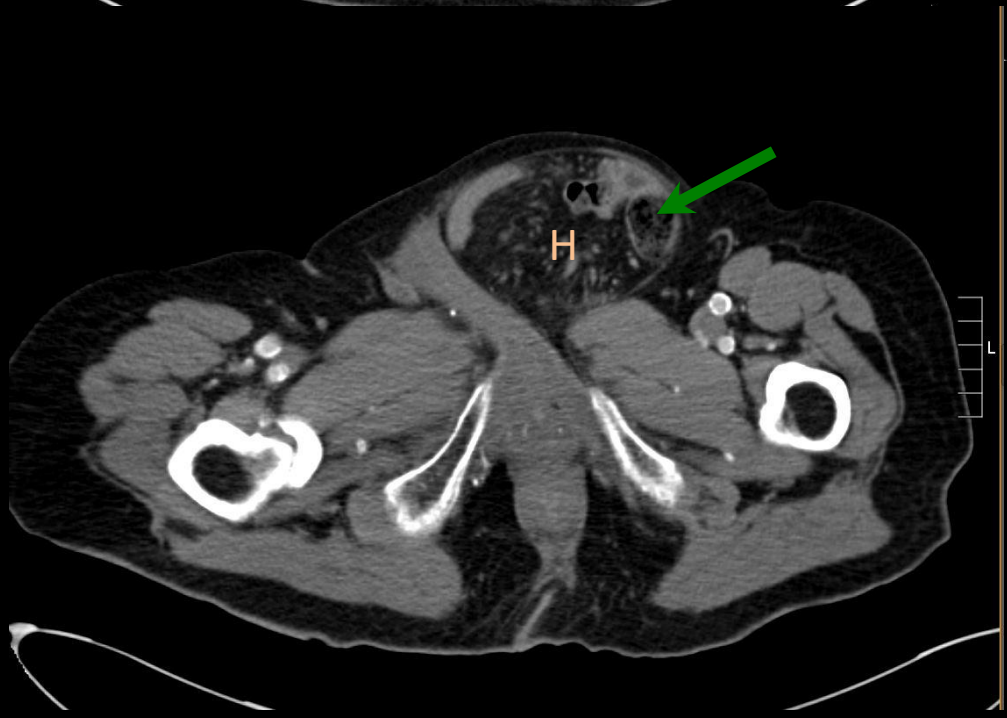

Key:

*** : Dilated small bowel loops

S: Dilated stomach

H: Hernia sac

→ : Fecalization of small bowel

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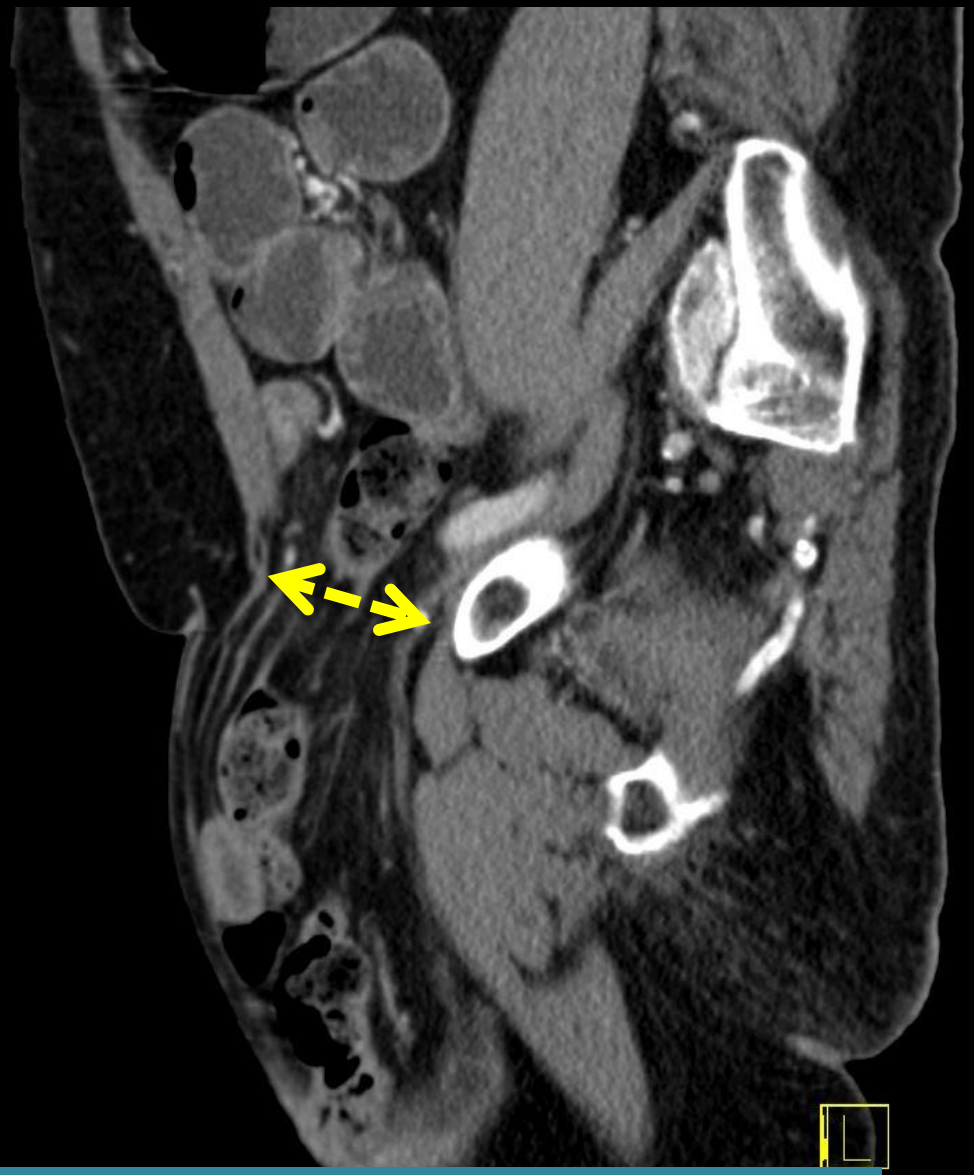

Sagittal CT shows the neck of the hernia sac (arrows)containing small bowel loops.

What are some other causes of small bowel obstruction?

Small Bowel Obstruction Etiology Ddx

- *AAIIMM Mnemonic*
  - *Adhesions (most common cause 65-75%)*
  - *Appendicitis*
  - *Inguinal Hernia (this case)*
  - *Intussusception*
  - *Malrotation*
  - *Meckel's Diverticulum*

SBO

Signs/symptoms: Nausea/vomiting (60-80%), Constipation/Absence of flatus (80-90%), Distention (60%), Fever/tachycardia

Risk Factors: Previous surgery, radiation or both. Hx of malignancy, or IBD

Pathophysiology:

Dilation → Fluid excess → Inc. bowel pressure → Third spacing of fluid

Pathophysiology continued..

- The bowel becomes dilated due to excess fluids and air. Cell secretory activity increases.
- Peristalsis increases above and below the obstruction. Results in increased pressure on the bowel wall
- Wall lymphedema results in massive third spacing of fluid, electrolytes and protein into the lumen
- In the case of strangulation, the mesenteric pedicle becomes twisted, causing arterial occlusion and resultant ischemia. Most commonly caused by adhesions.

Treatment

- Acute surgical care was utilized with this patient.
- Laparoscopy is shown to be safe and effective.
- Non-operative care would be indicated in absence of strangulation and with an inguinal hernia, manual reduction and observation can be attempted.
- Additional treatment includes aggressive IV fluid resuscitation, oxygen, telemetry, antibiotic coverage of gram neg/anaerobic, analgesia and antiemetics

References

- “Healthcare Bluebook.” *Healthcare Bluebook Home*, www.healthcarebluebook.com/.

- Ramnarine, Mityanand, and Steven Dronen. “Small-Bowel Obstruction.” *Practice Essentials, Background, Pathophysiology*, 6 Dec. 2017, emedicine.medscape.com/article/774140-overview.
- Ros, Pablo R., and James E. Huprich. “ACR Appropriateness CriteriaÂ® on Suspected Small-Bowel Obstruction.” *Journal of the American College of Radiology*, vol. 3, no. 11, 2006, pp. 838–841., doi:10.1016/j.jacr.2006.09.018.

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