



# GI Tract Volvulus

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# Financial Disclosures

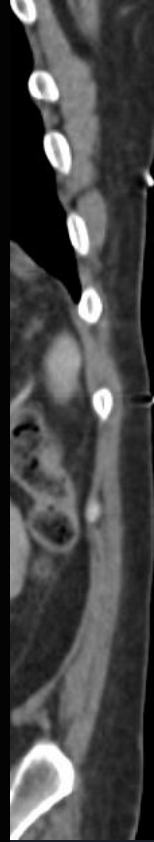
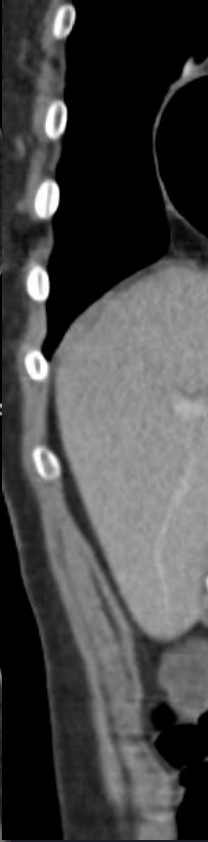
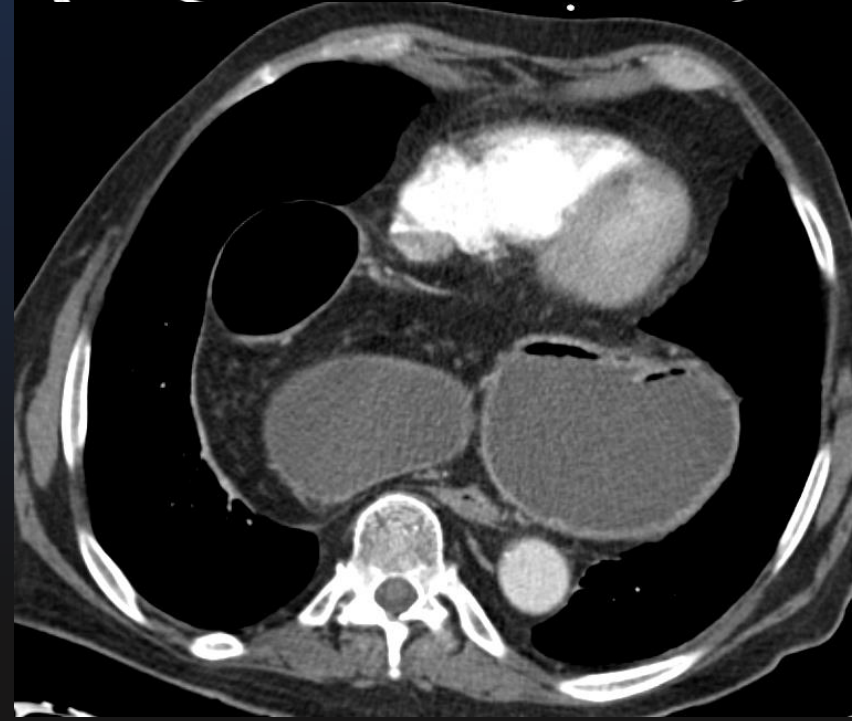
- I have no relevant financial disclosures.

# Introduction

- Volvulus can affect multiple segments of the GI tract:
  - Stomach
  - Small Bowel
  - Colon
- Differing presentations and patient populations
- Similarities:
  - Often emergent, at risk for ischemia
  - Axis of rotation
  - Have important mimics

# Goals and Objectives

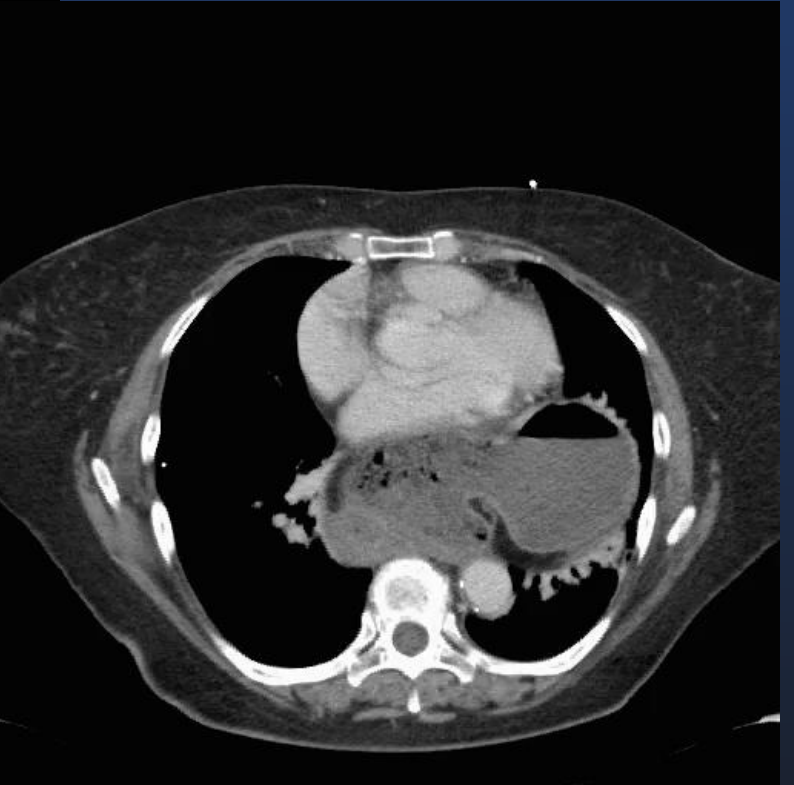
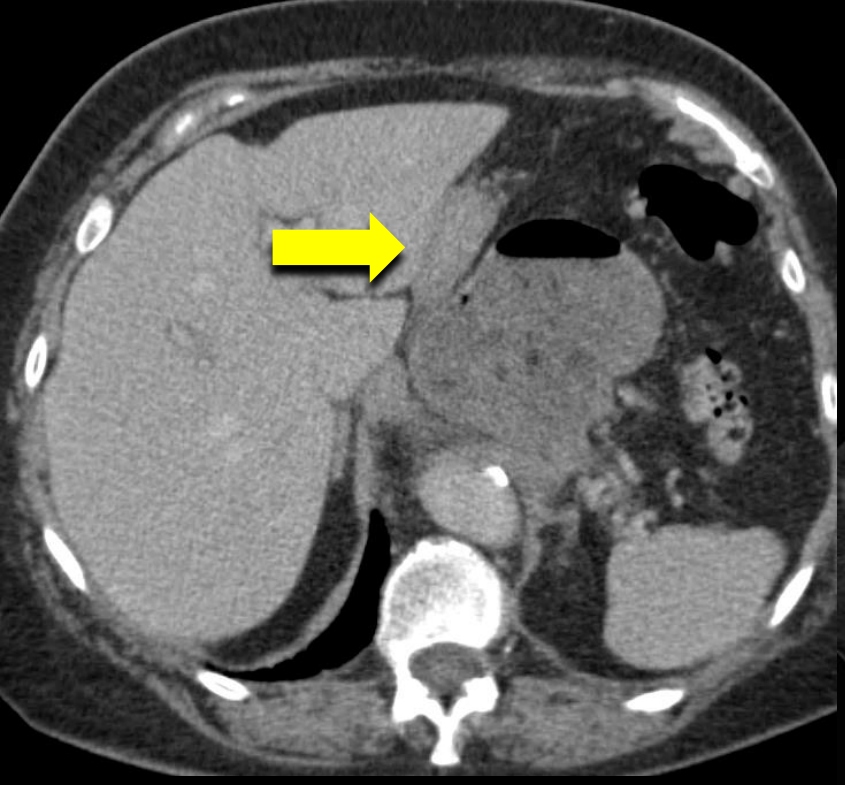
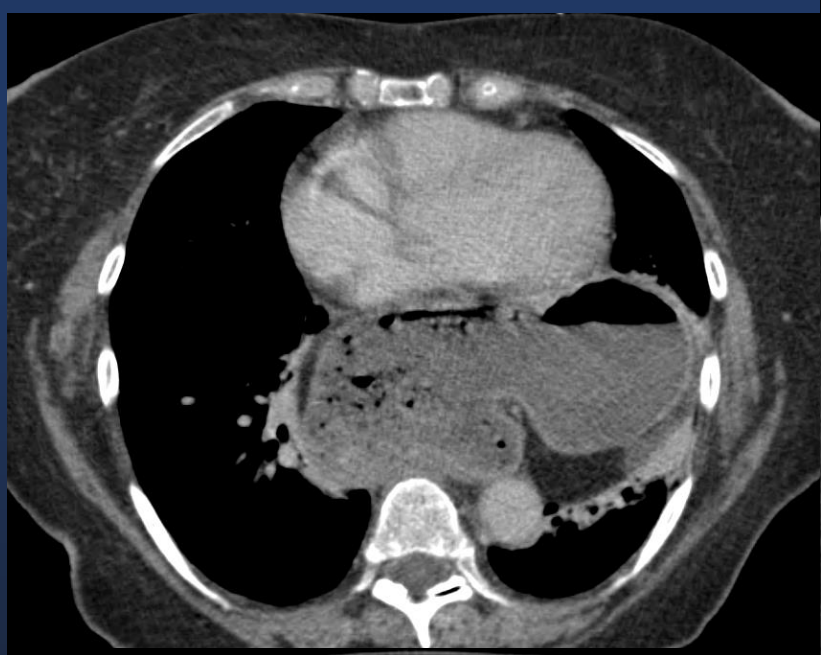
- This talk will focus on effectively:
  - Diagnosing GI tract volvulus
  - Identifying cases complicated by ischemia/perforation
  - Recognizing spectra of disease and mimics
  - Guiding further workup and management



# Gastric Volvulus

- Uncommon cause of gastric outlet obstruction
- **Borchardt triad:**
  - Sudden epigastric pain
  - Intractable retching
  - Inability to pass NG tube
- Two subtypes, though may be combination:
  - **Organoaxial**
  - **Mesenteroaxial**





# Gastric volvulus signs on CT

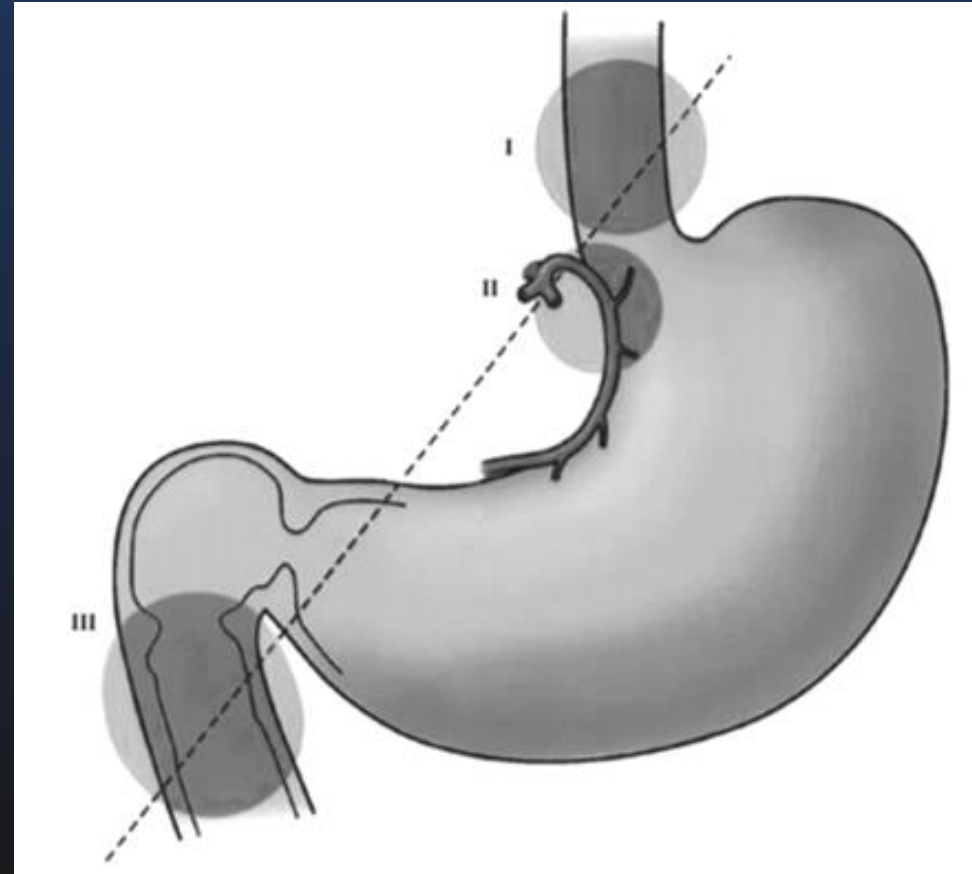
- Gastric distention\*
- Transition point at the pylorus
- Stenosis at the hernia neck
- Non-passage of contrast/tube
- Ischemic signs specific but not sensitive:
  - Gastric wall edema
  - Perigastric fluid
  - Pleural effusion
  - Pneumatosis
  - Decreased gastric wall enhancement

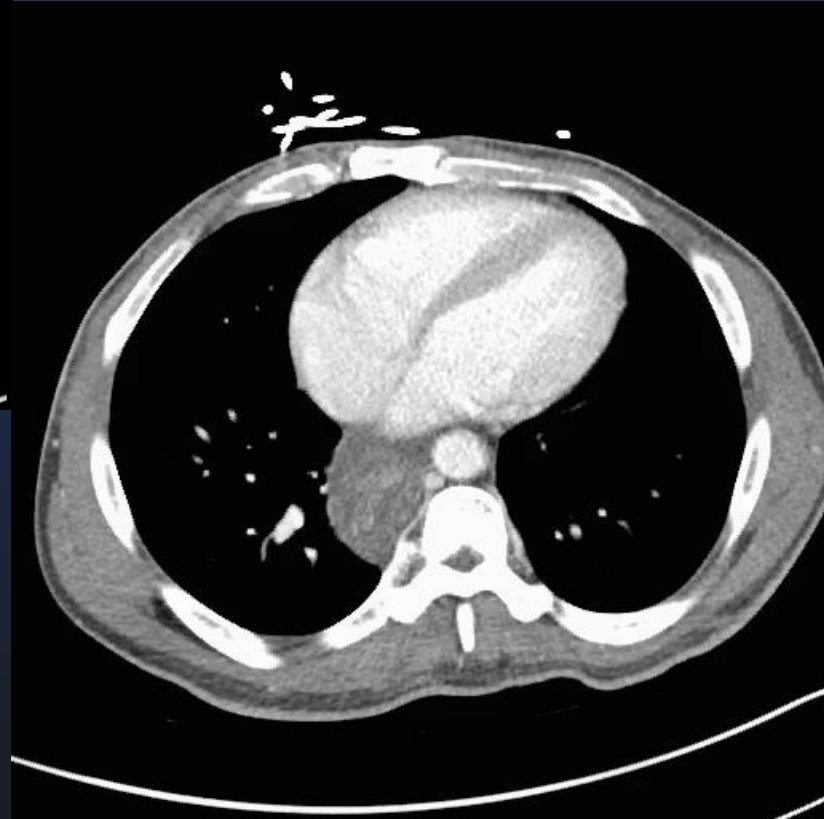
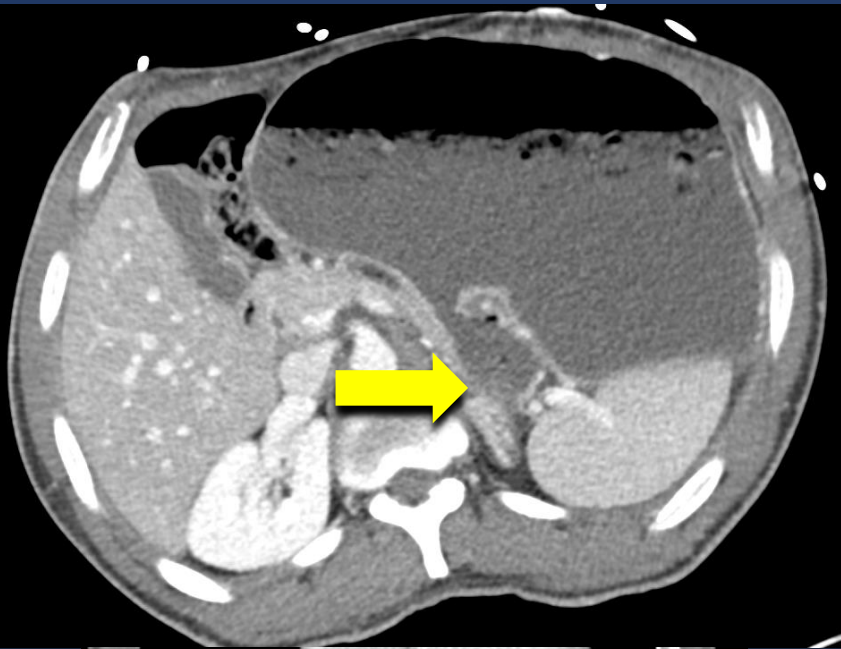




# Gastric Volvulus

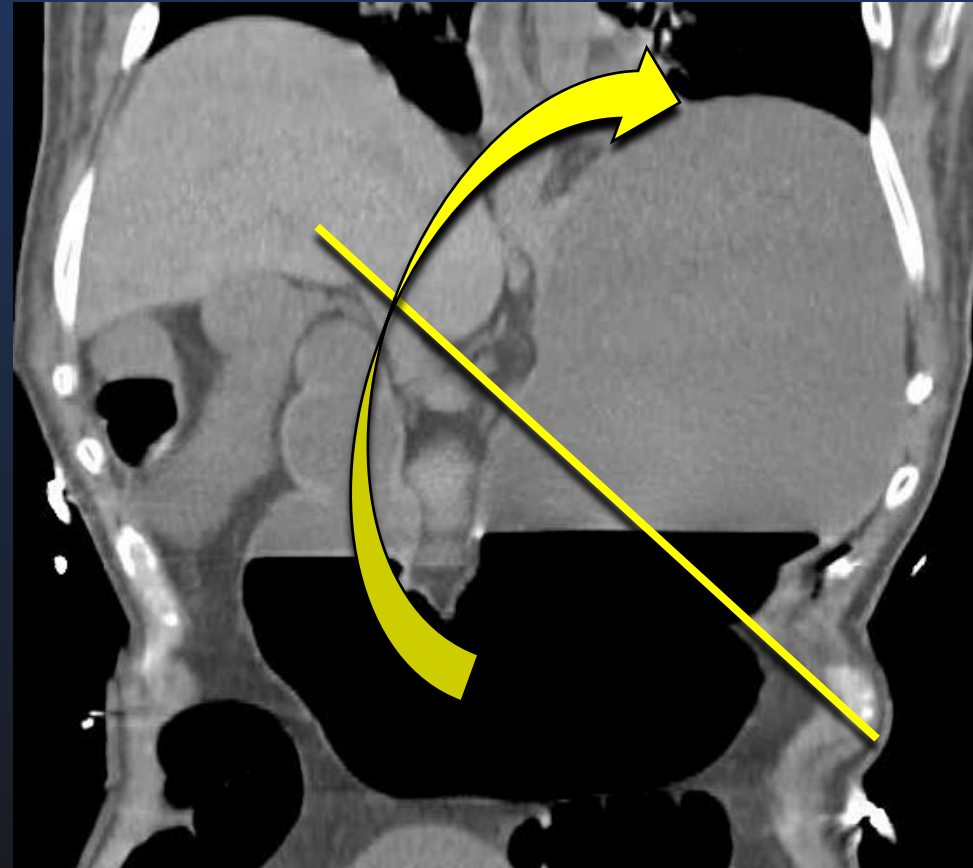
- **Organoaxial Volvulus:**
  - Most common type
  - Along long axis, **antrum rotates anterosuperiorly**, fundus posteroinferiorly
  - Commonly associated with diaphragmatic hernias
  - More common to see vascular compromise

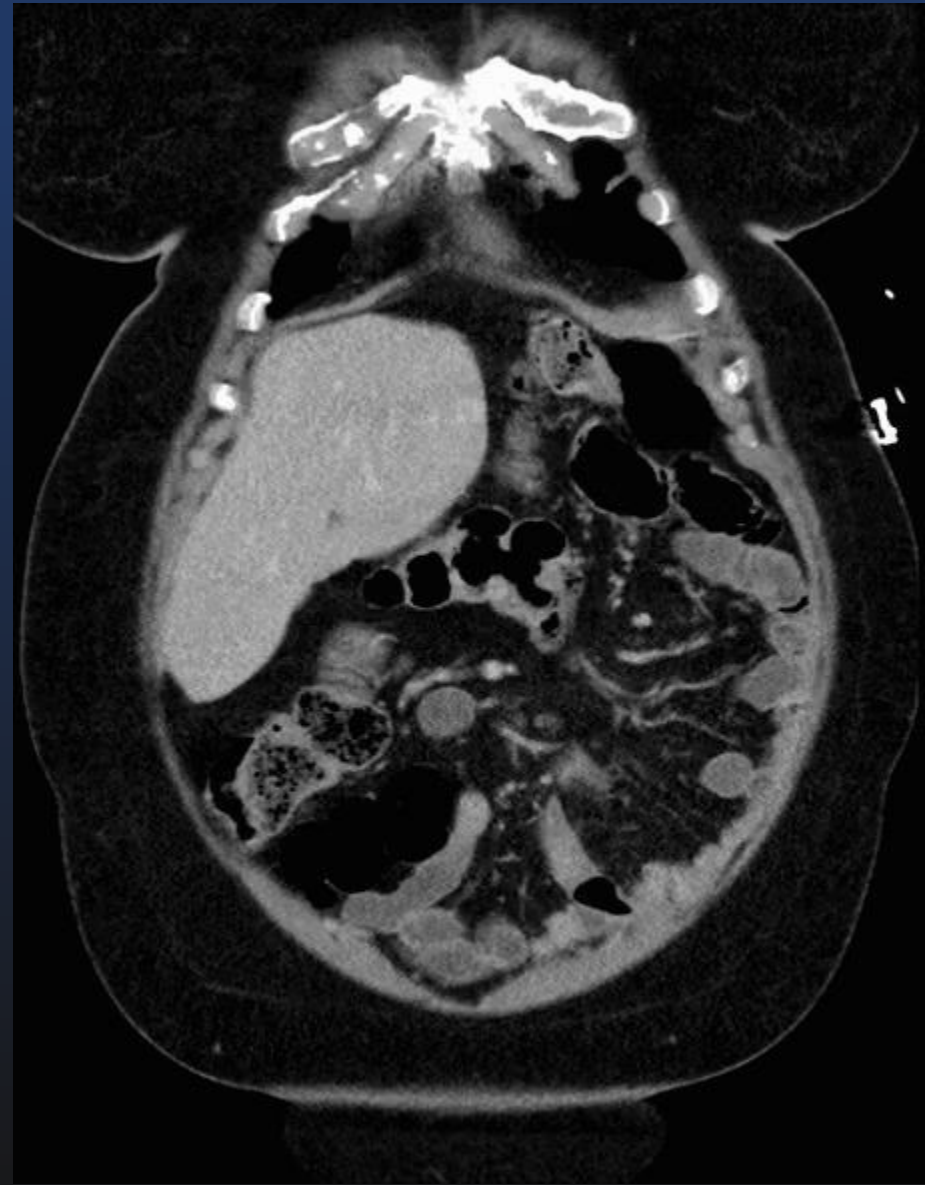
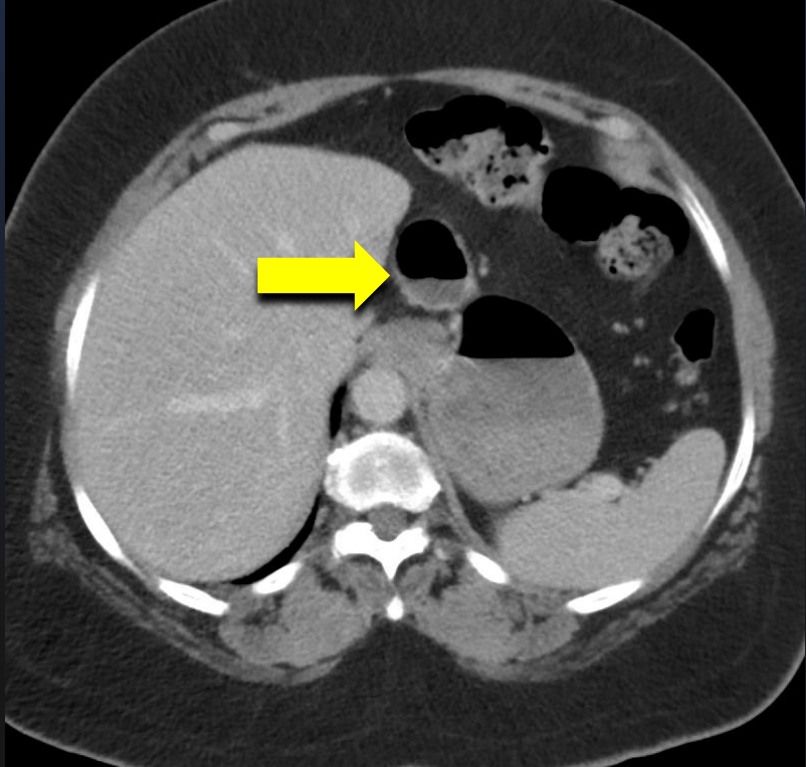
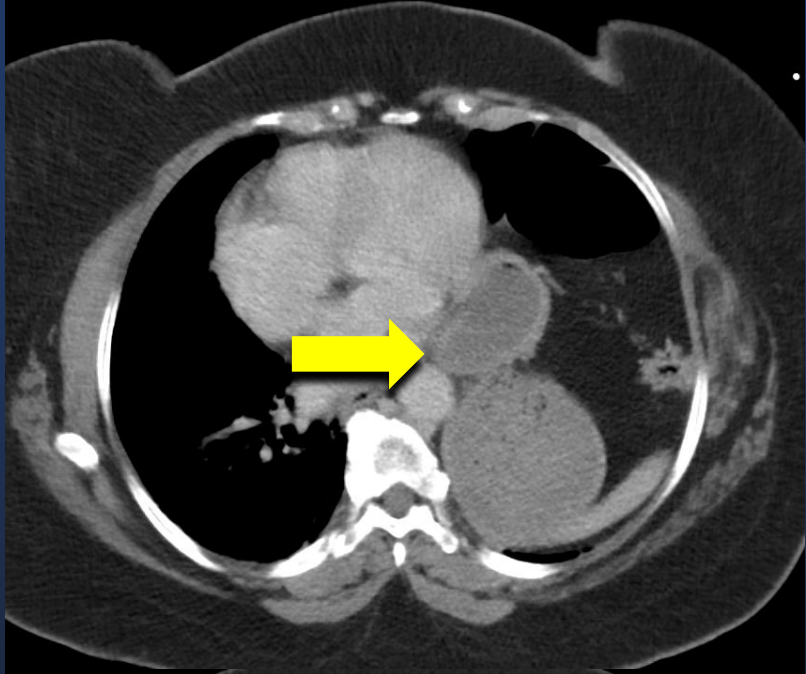




# Gastric Volvulus

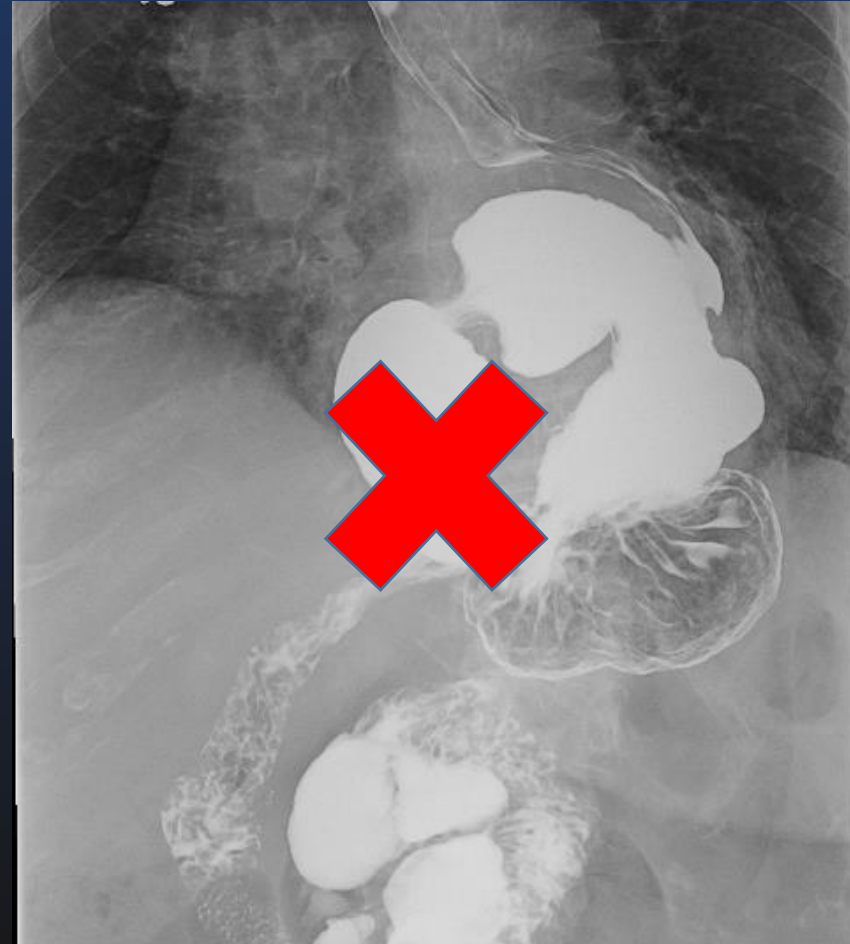
- Mesenteroaxial Volvulus:
  - Less common
  - Rotation about short axis of stomach, antrum above the GEJ
  - More likely to be chronic
  - Less commonly associated with diaphragmatic defects





# Gastric Volvulus

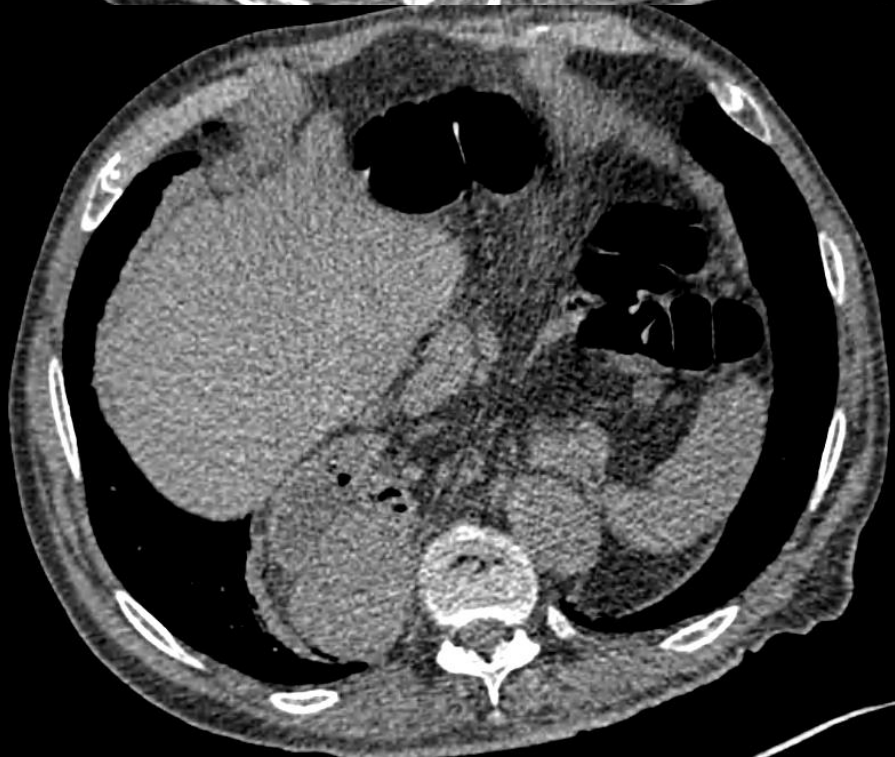
- Gastric volvulus requires:
  - At least 180° rotation
  - Gastric outlet obstruction
- **Pitfall:** hiatal hernias may have organoaxial/mesenteroaxial positioning without volvulus

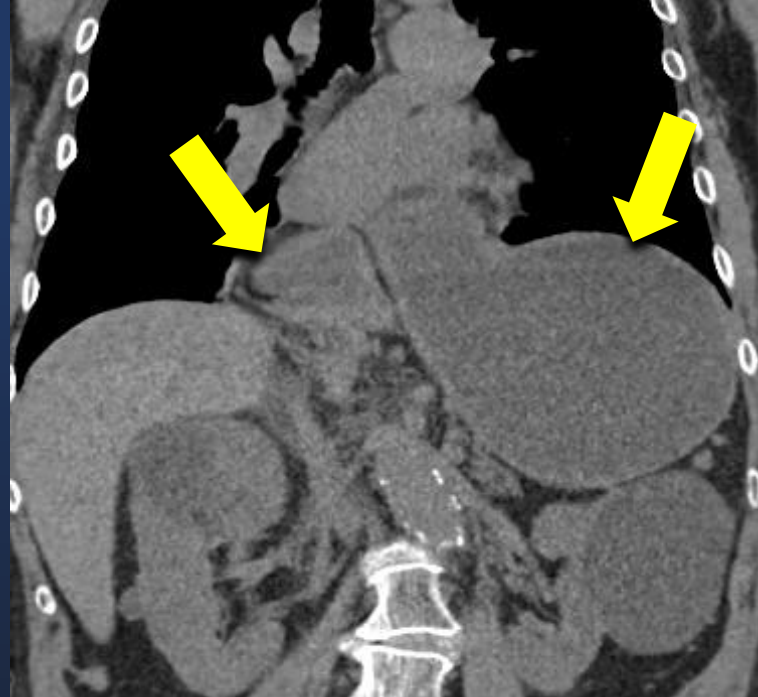


# “Cousins” of Gastric Volvulus

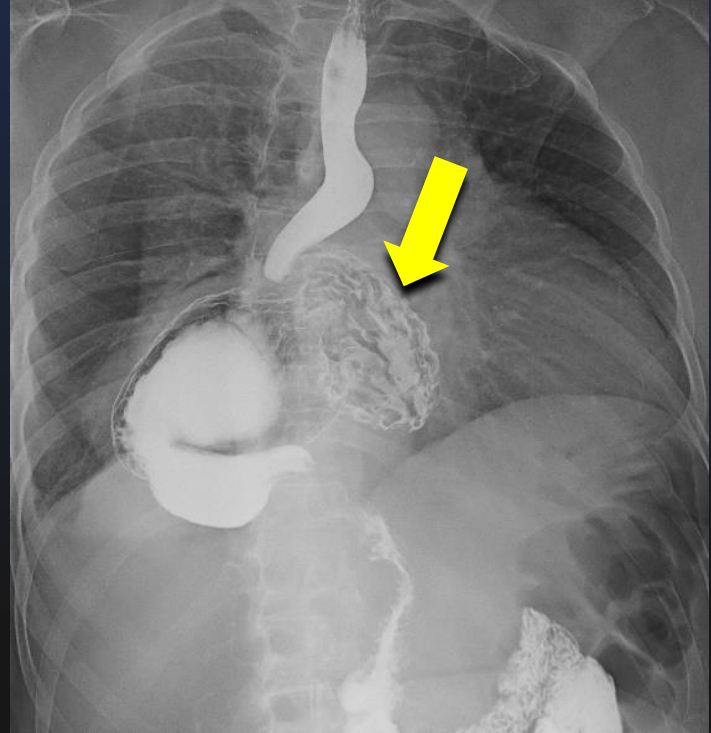
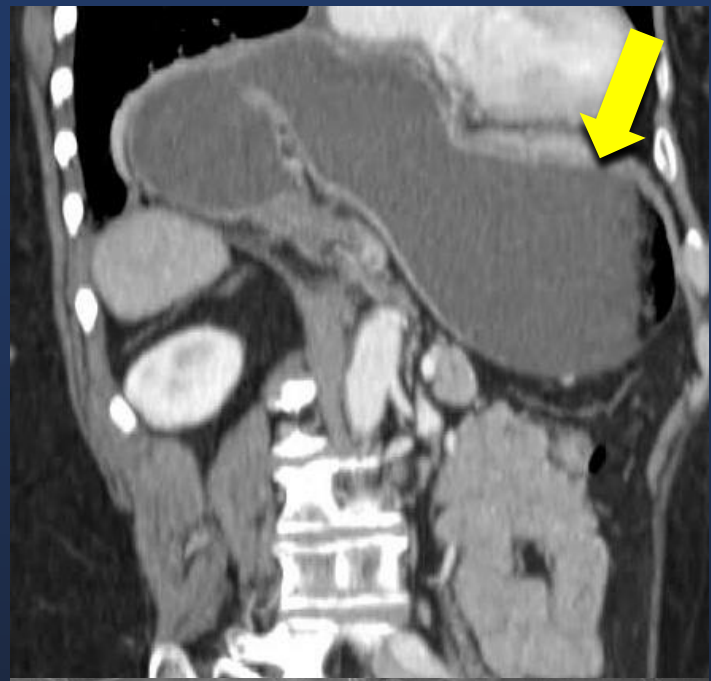
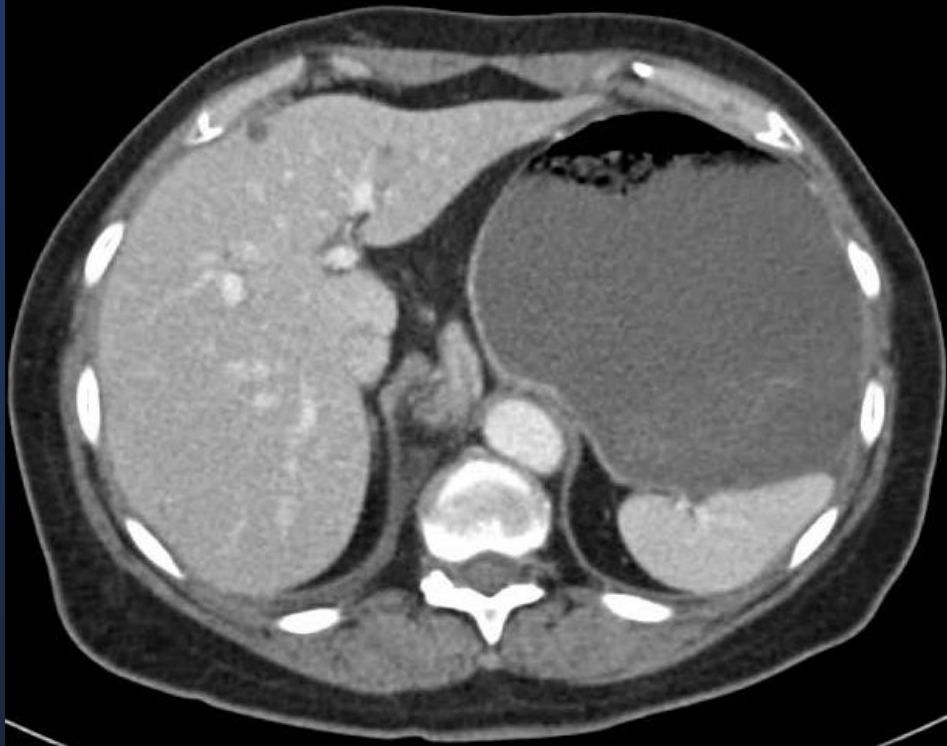
- Incarcerated hiatal hernia
  - May have similar appearance
  - May not have gastric outlet obstruction
- Gastric “re-descent”
  - Intrathoracic stomach herniates into abdomen
  - Hernia neck becomes tighter as stomach distends
  - Clinical, imaging appearance overlap with volvulus

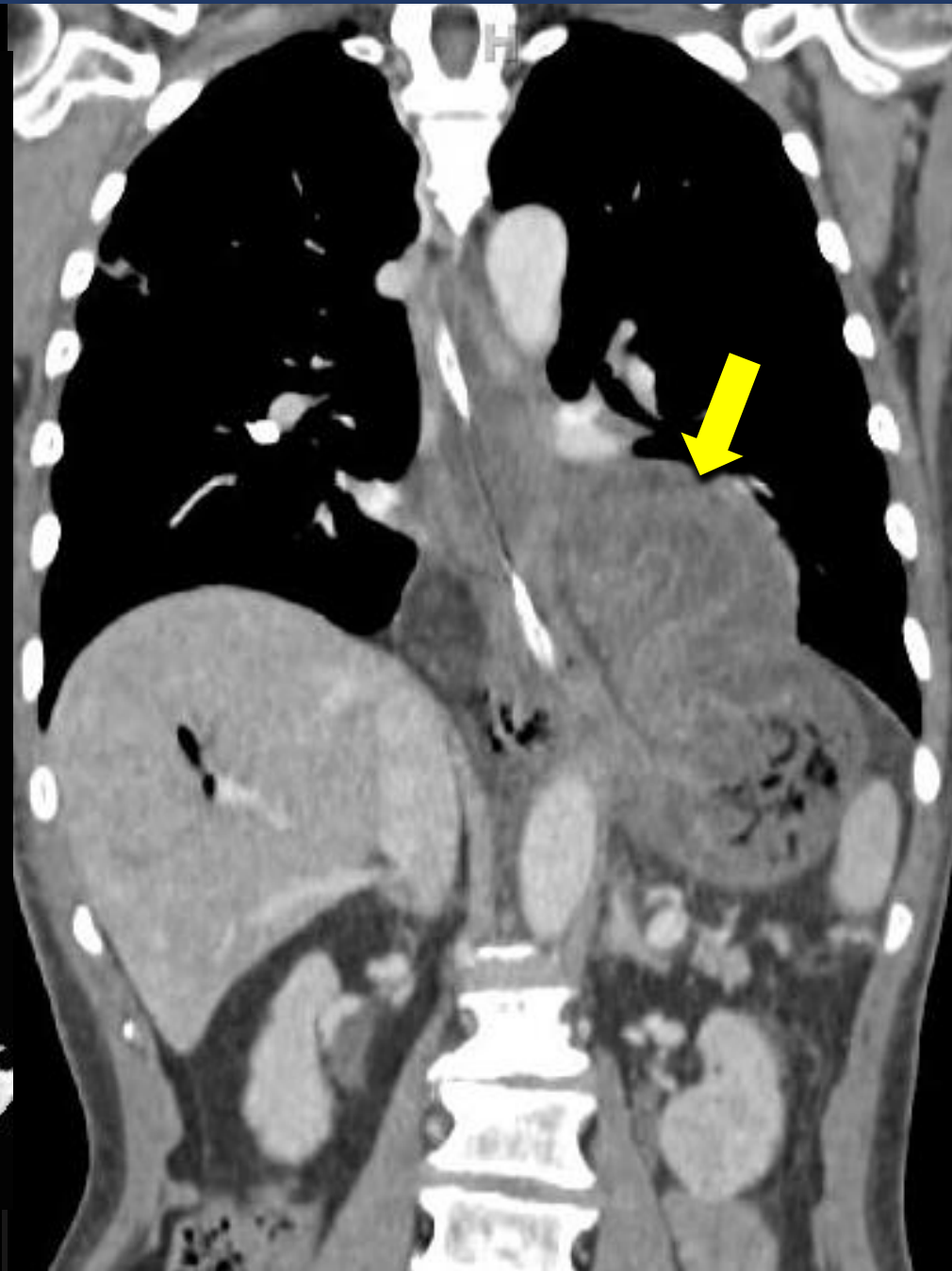
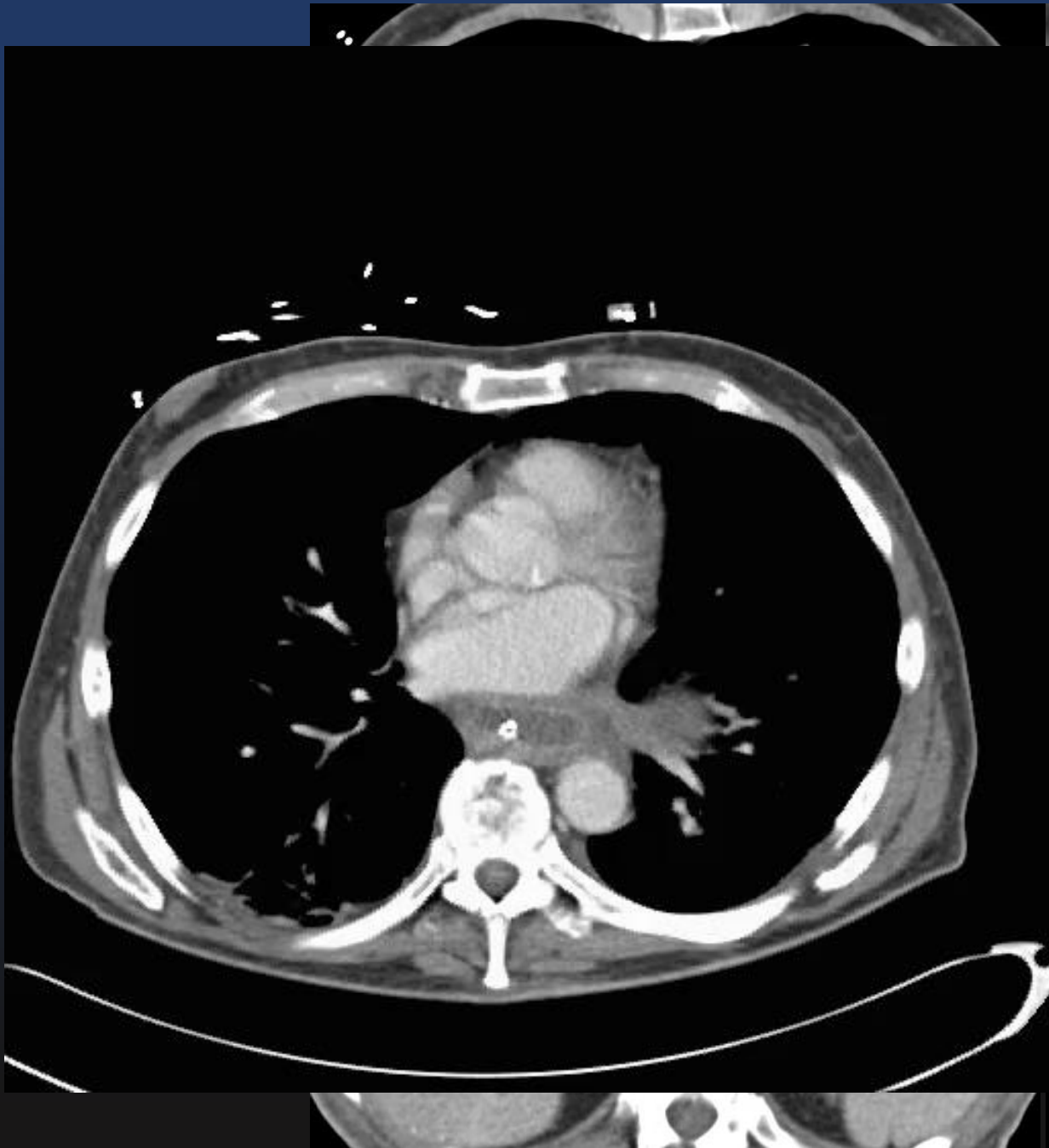


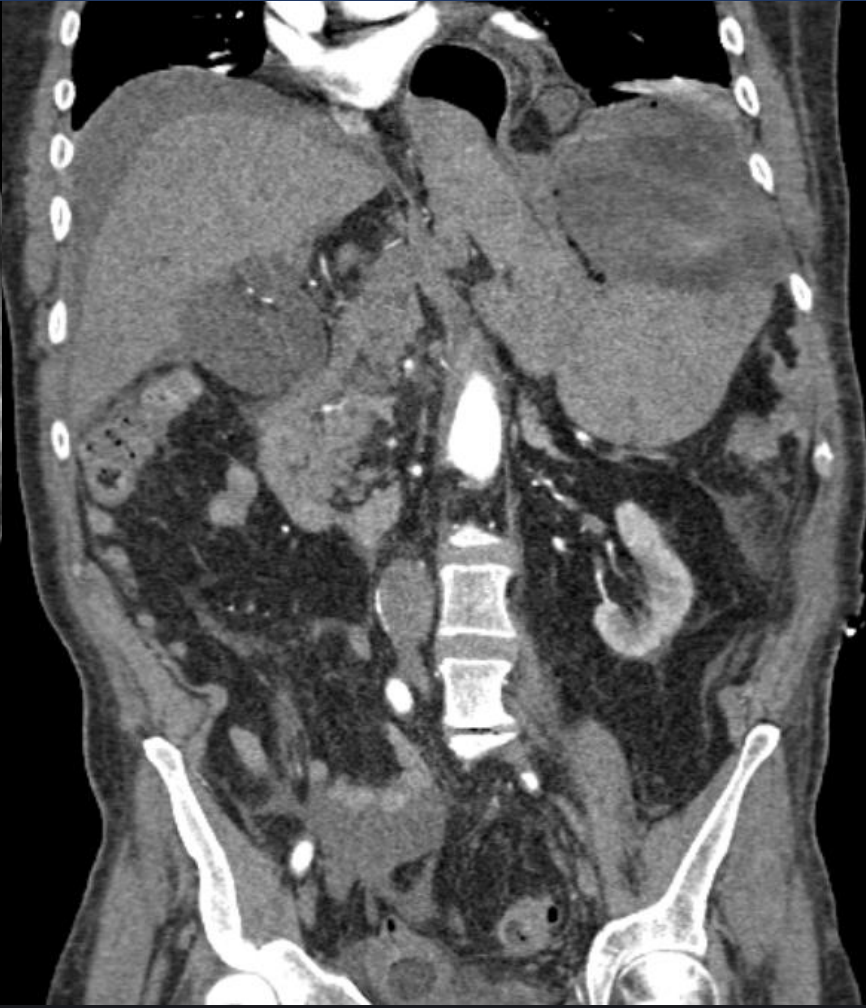
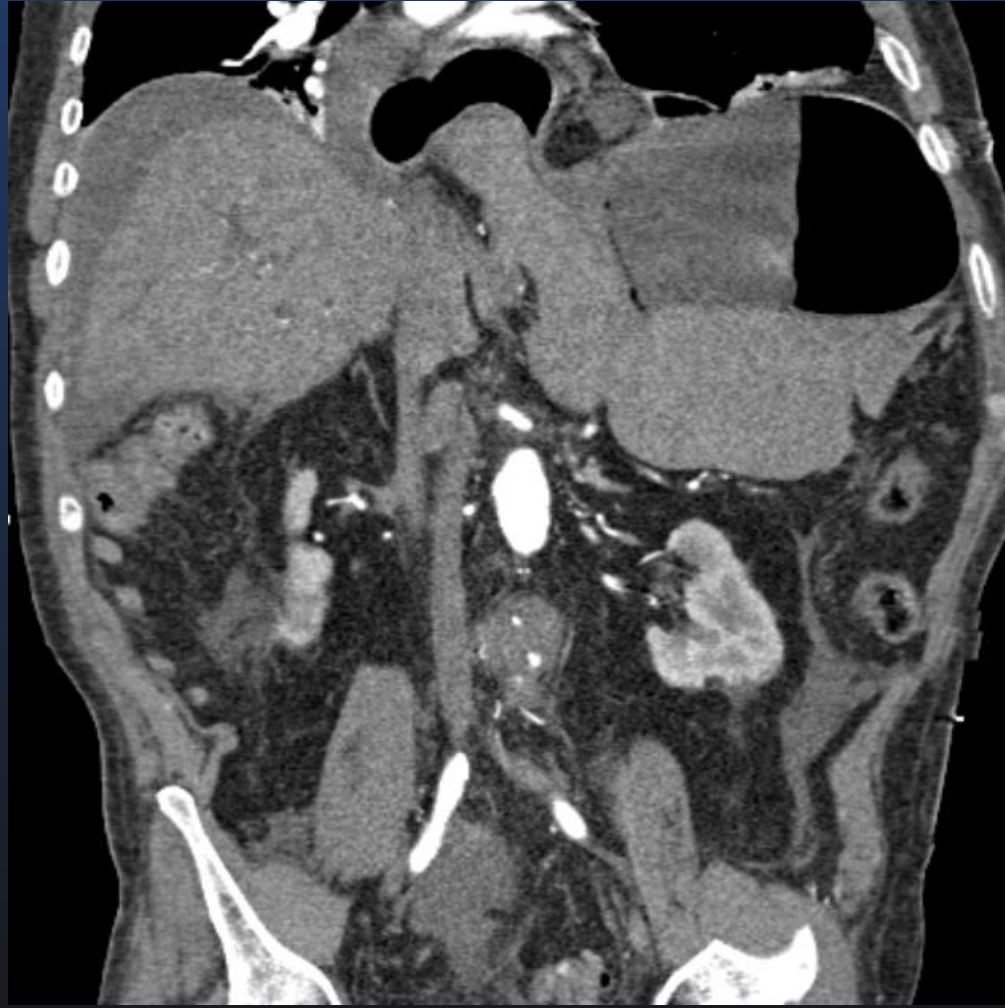


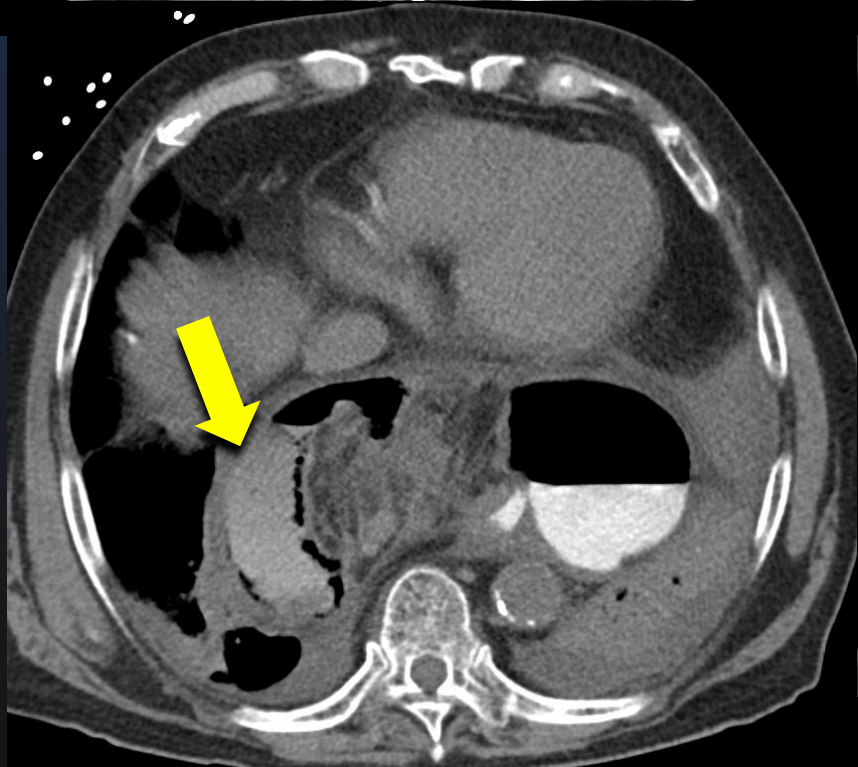




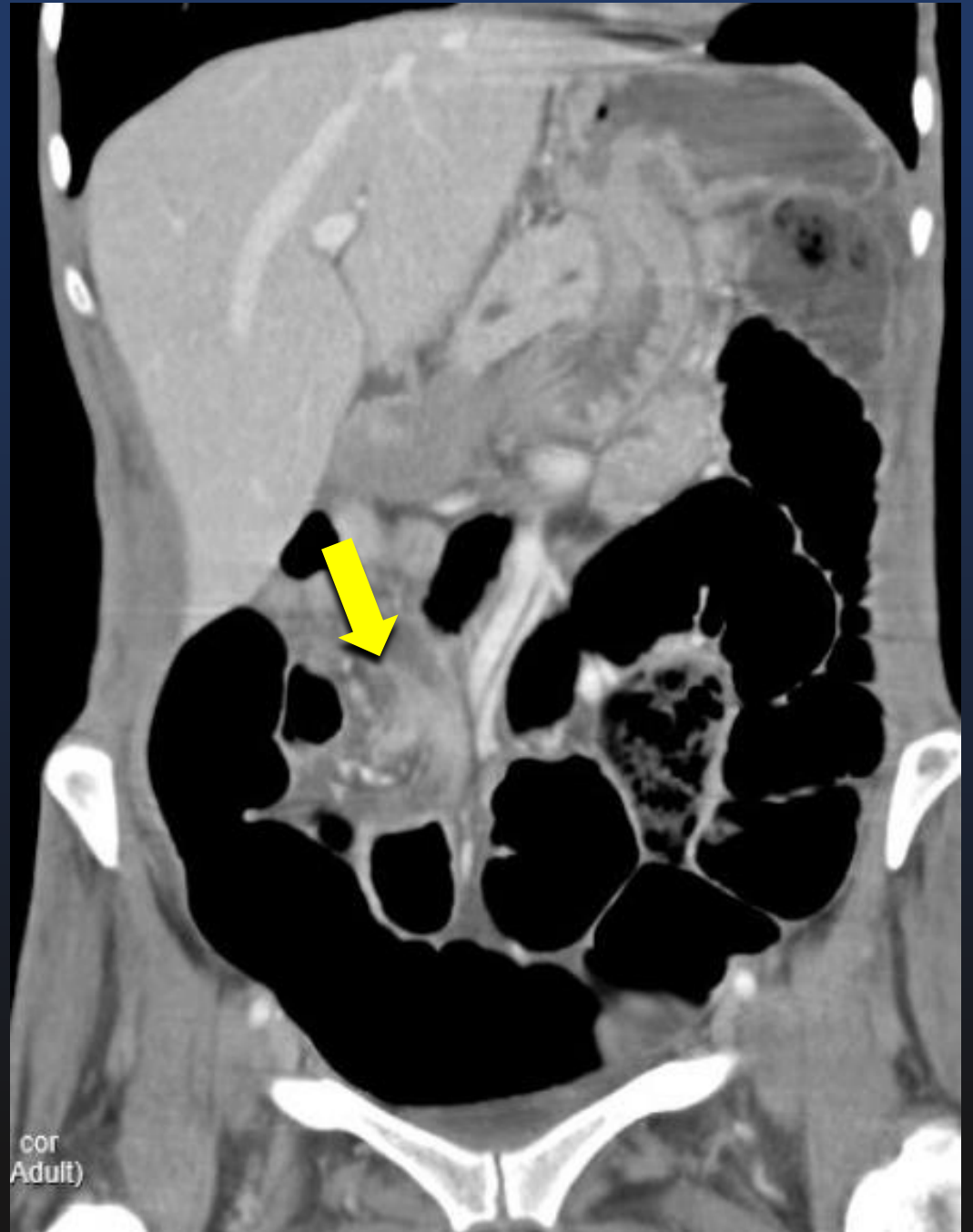
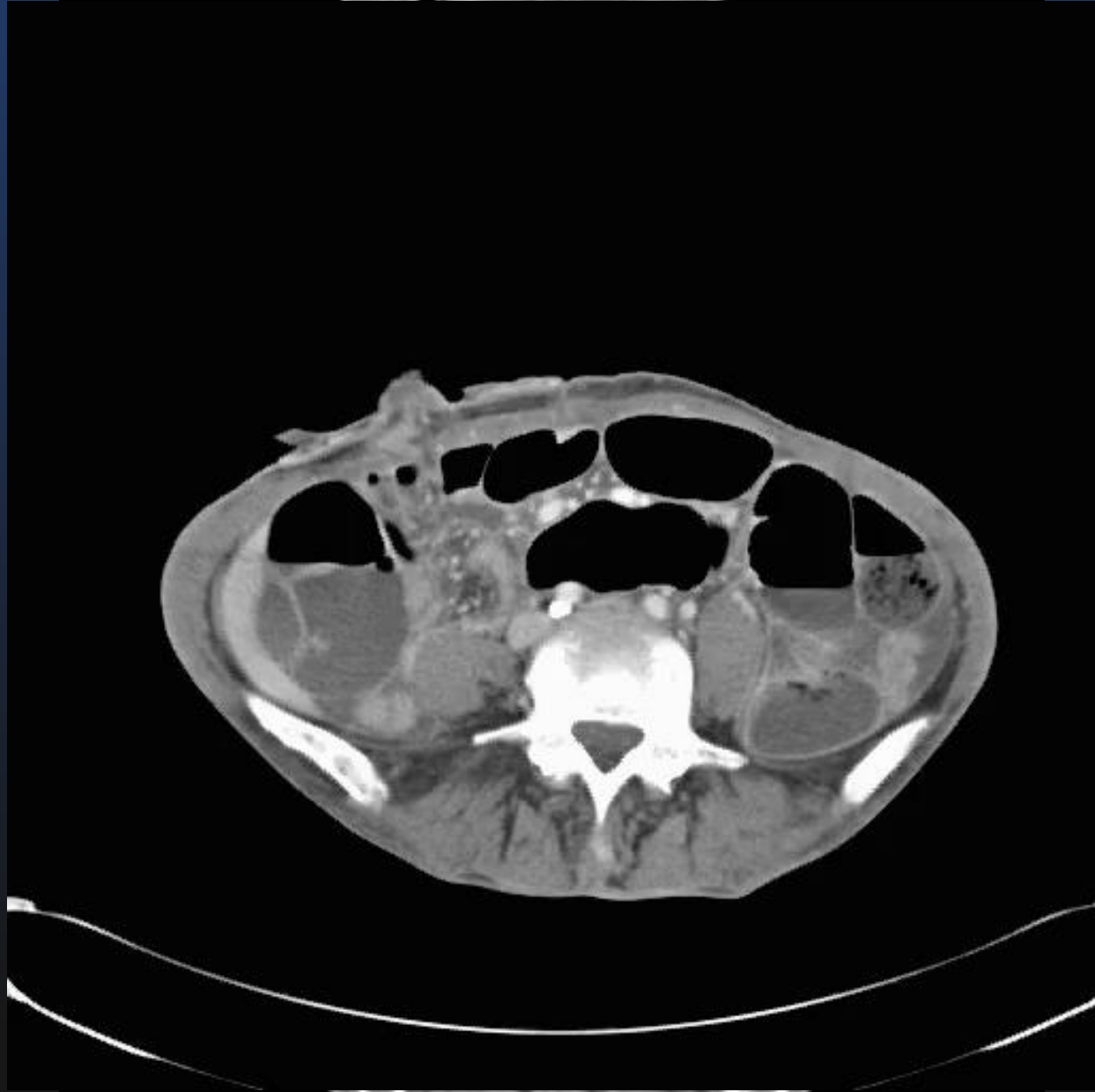








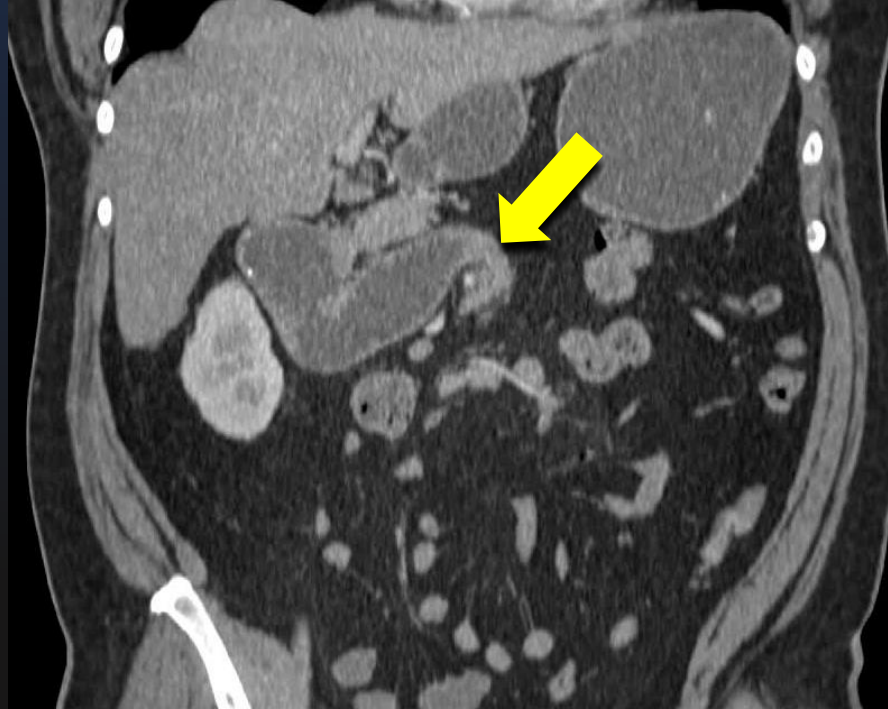
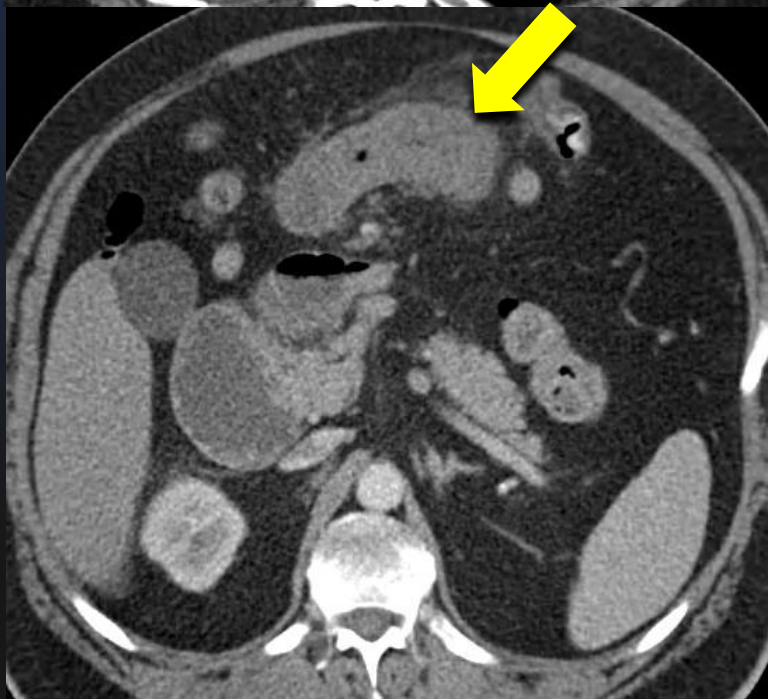
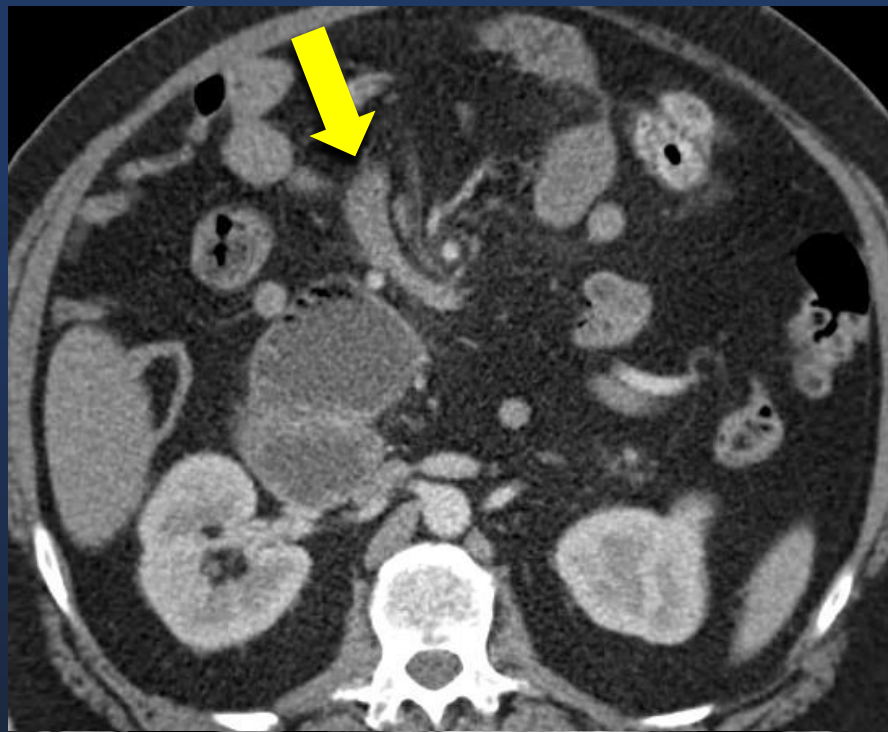
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# Causes of Small Bowel Volvulus

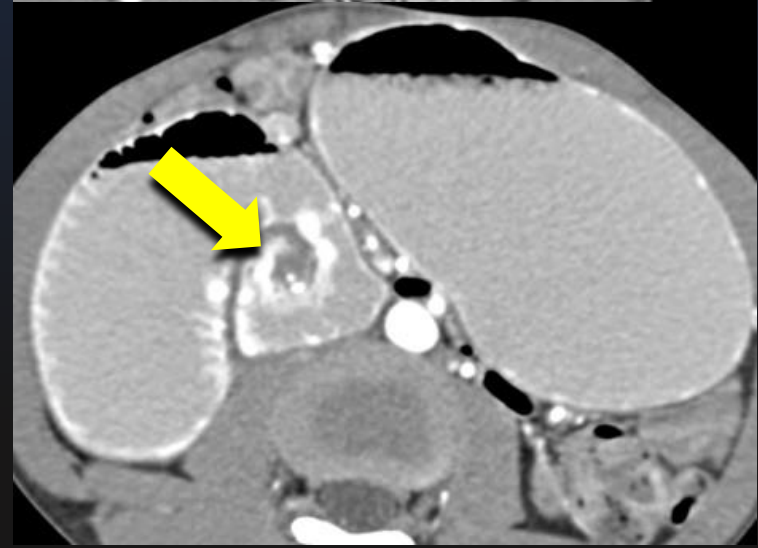
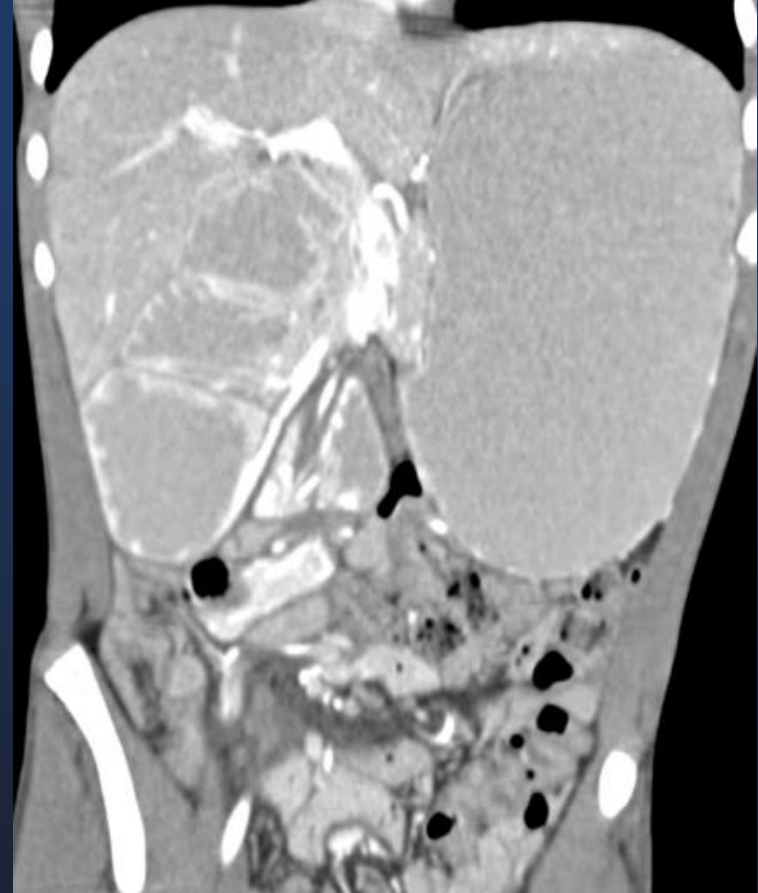
- Adhesions
- Malrotation
- Internal hernia
- Other “fulcrum” of rotation



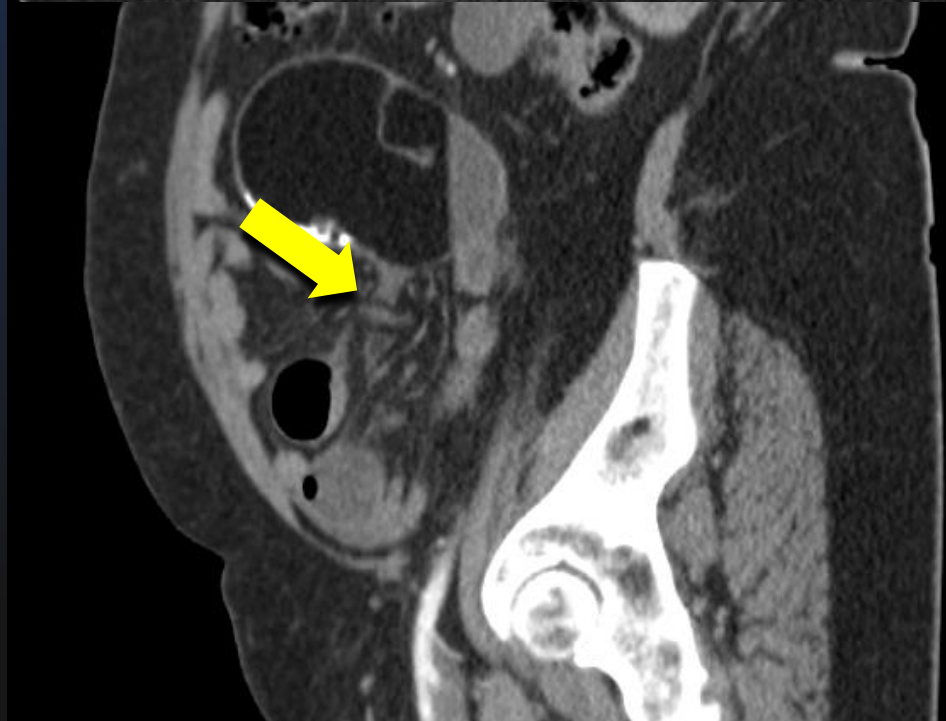
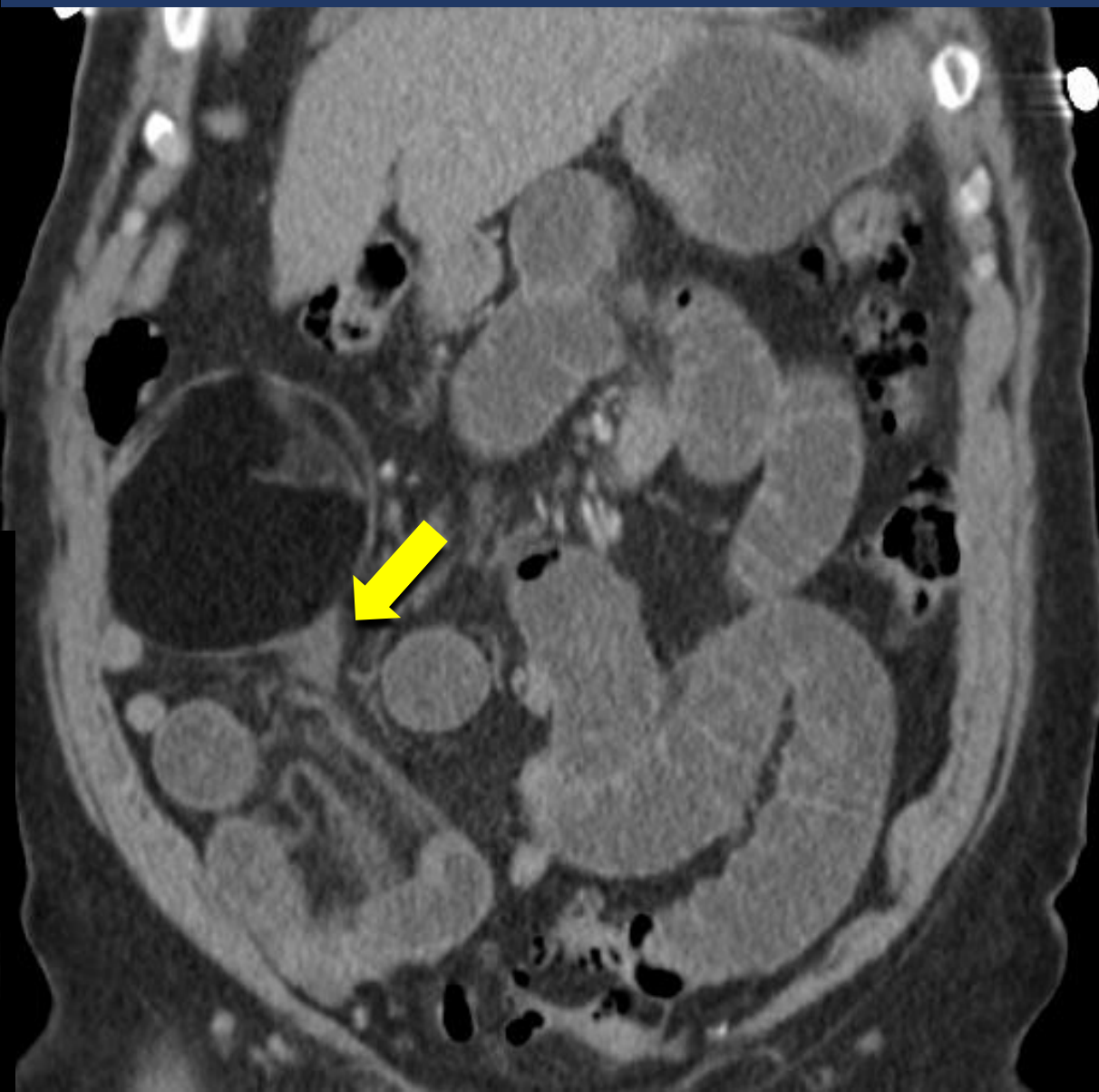
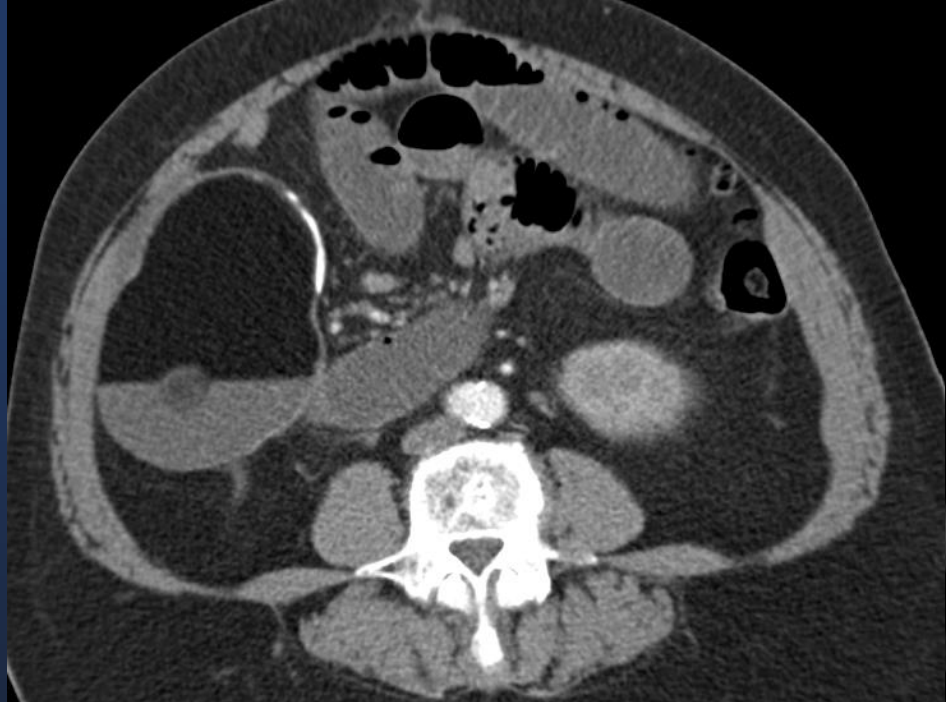


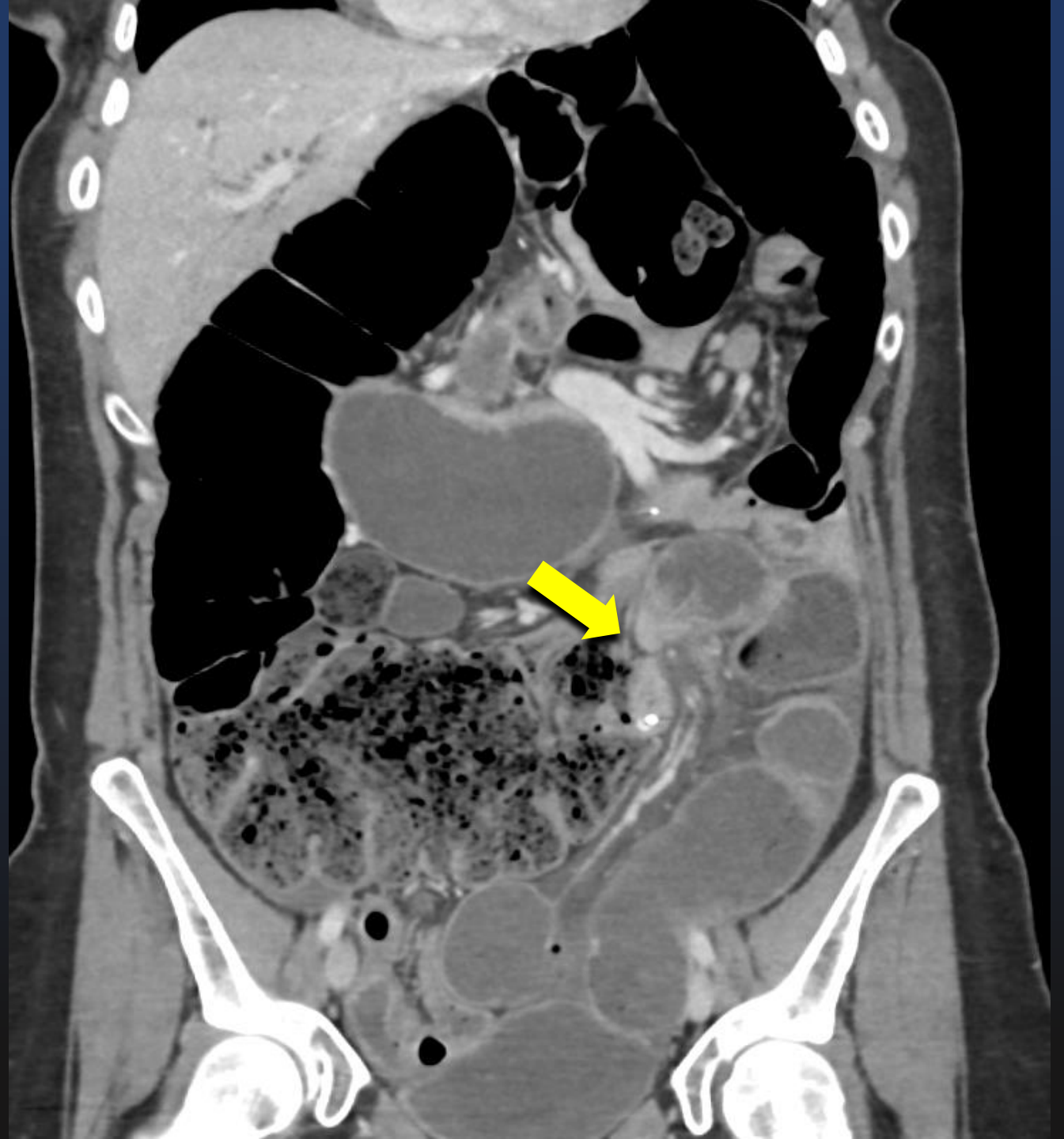
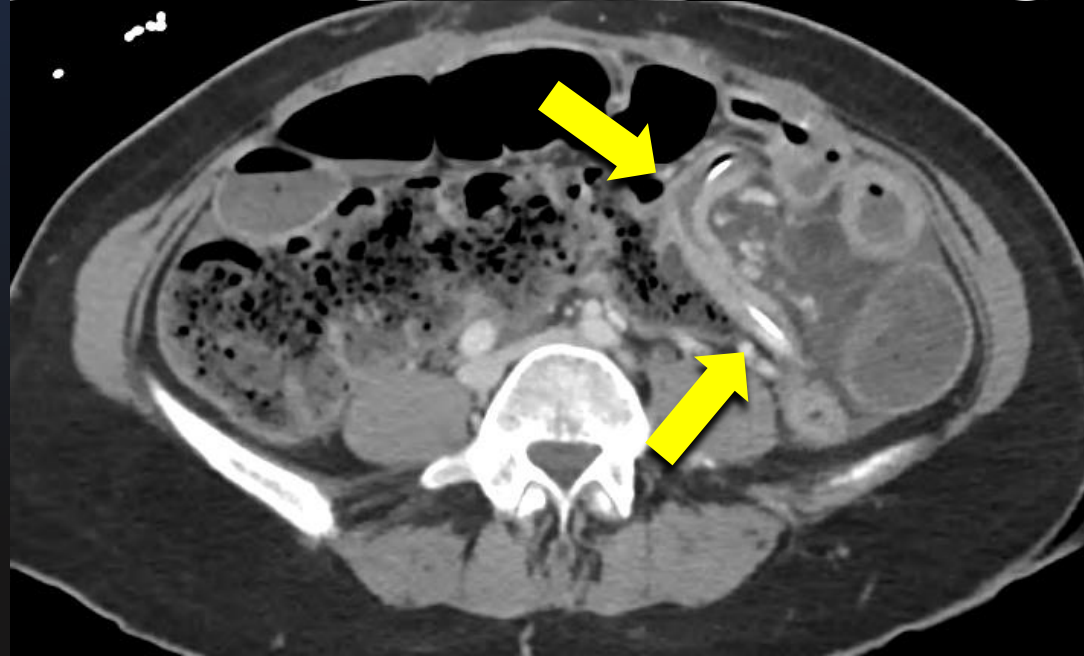
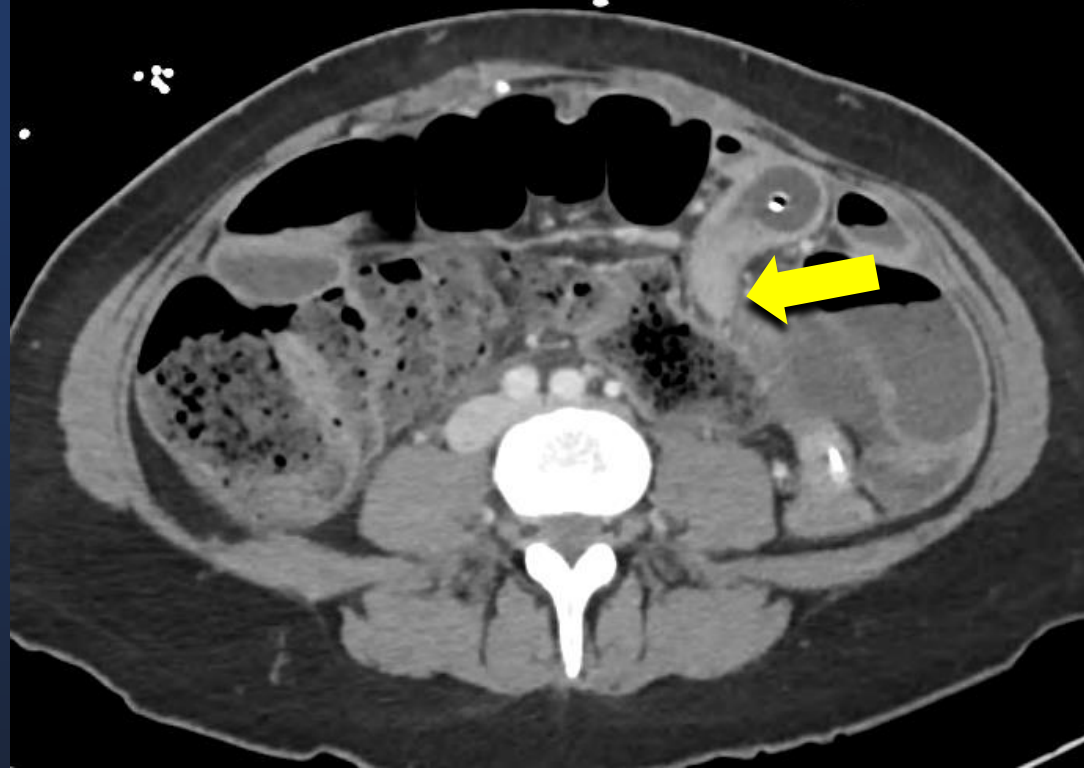
# Midgut Volvulus

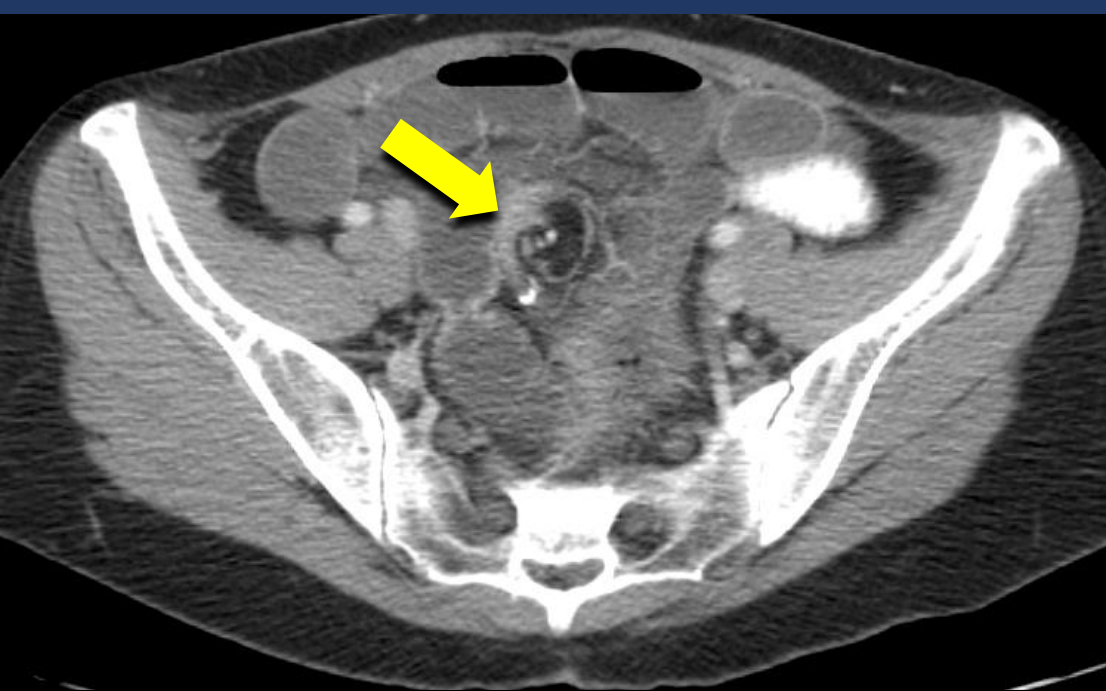
- Rare in adulthood – adhesions more common
- Findings same as in childhood
  - Duodenum does not cross spine
  - SMA/SMV reversed
  - Colon on L, small bowel on R
  - Commonly present with volvulus
  - Watch for signs of bowel ischemia

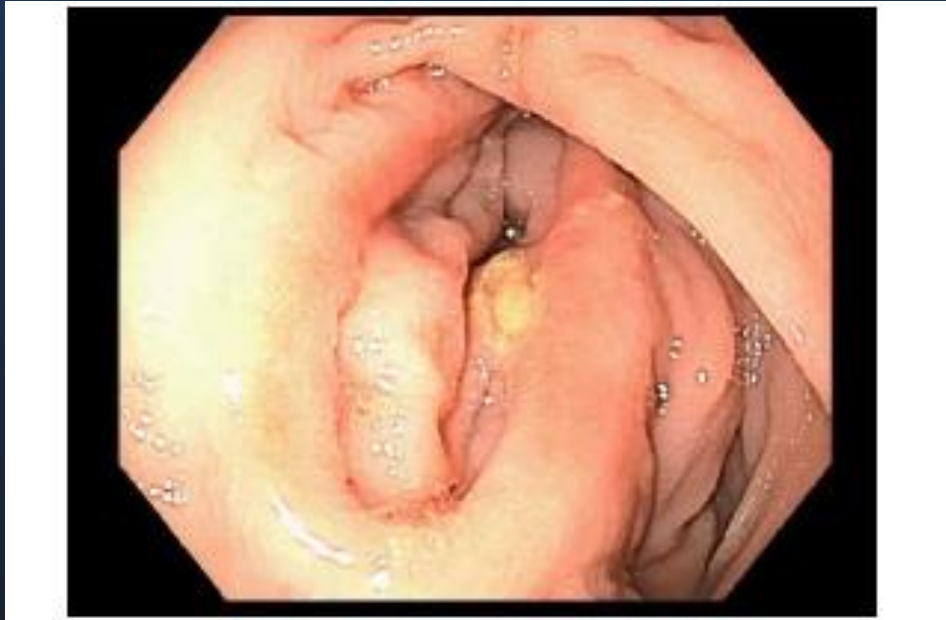


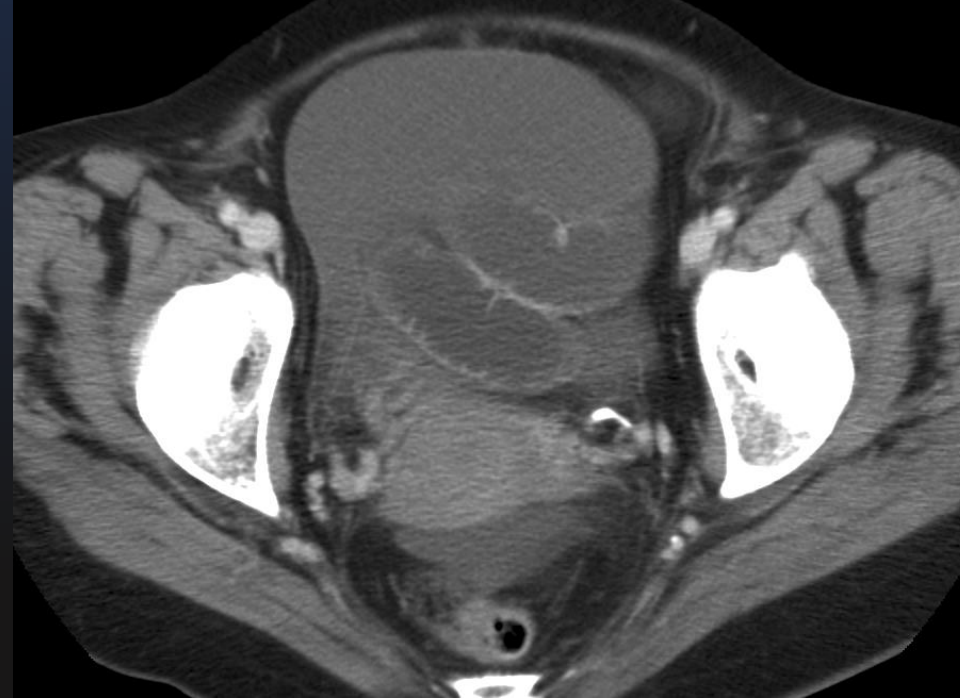
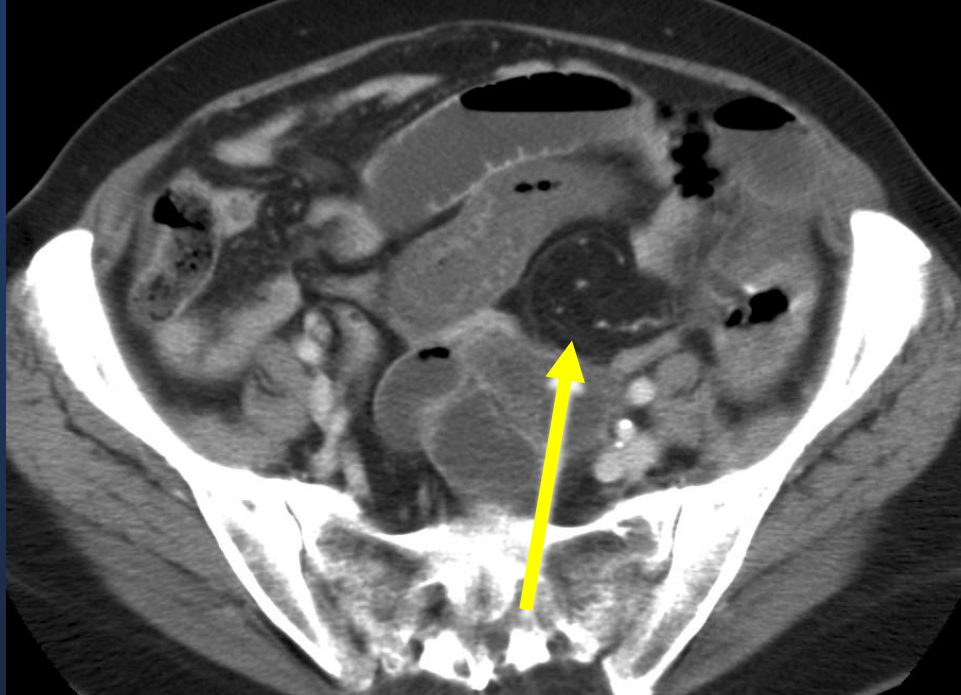


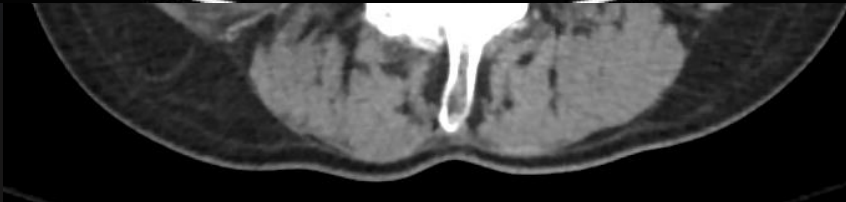
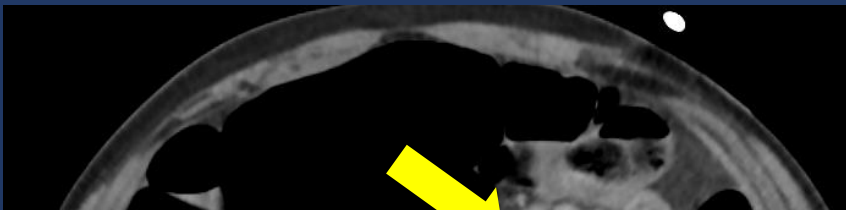


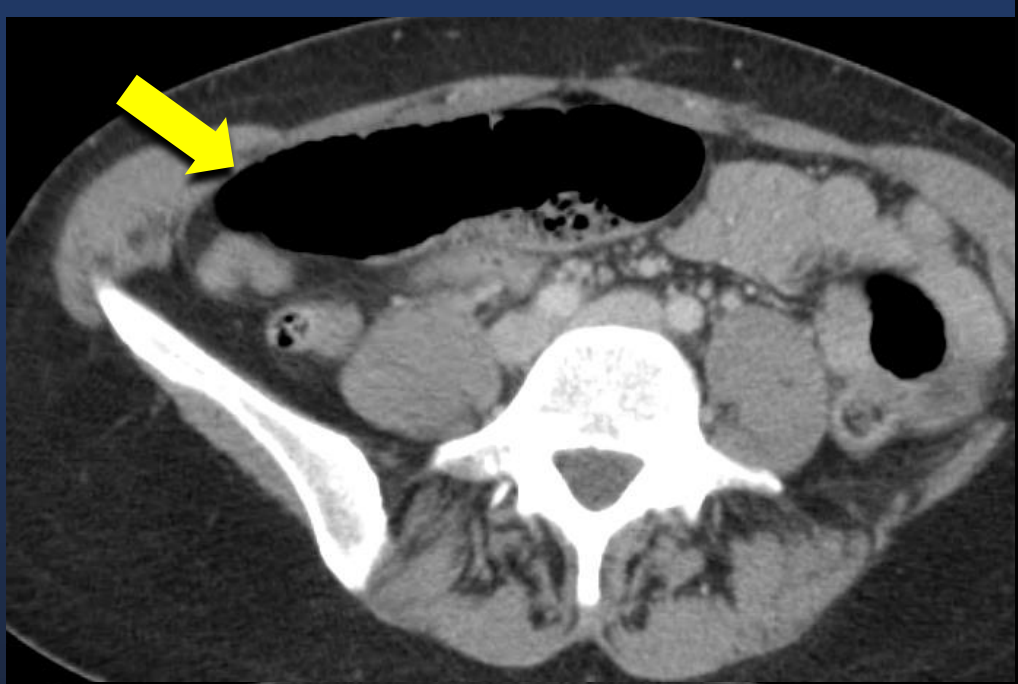






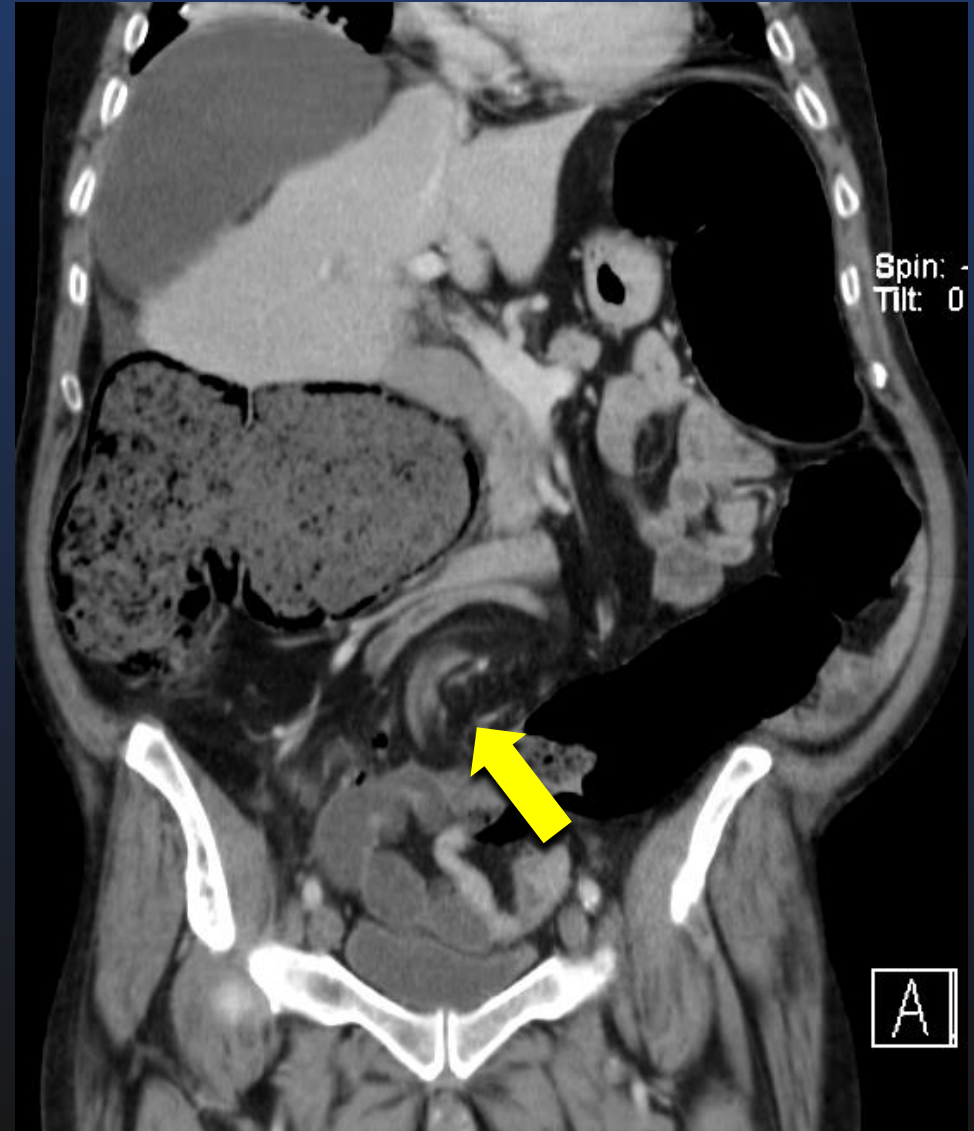






# Cecal Volvulus

- Demographics/predisposing conditions:
  - Wide reported range of ages, gender predilection
  - Abnormally long cecal/ascending colon mesentery - increased mobility
  - Malrotation

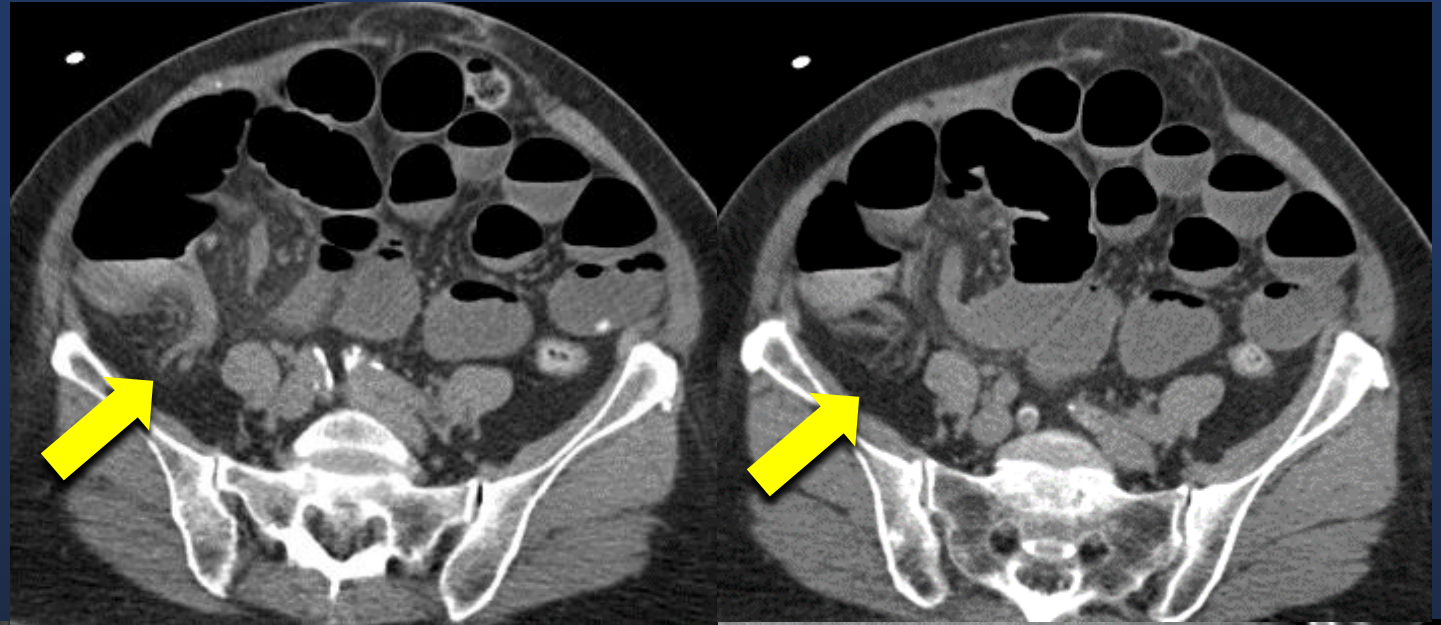


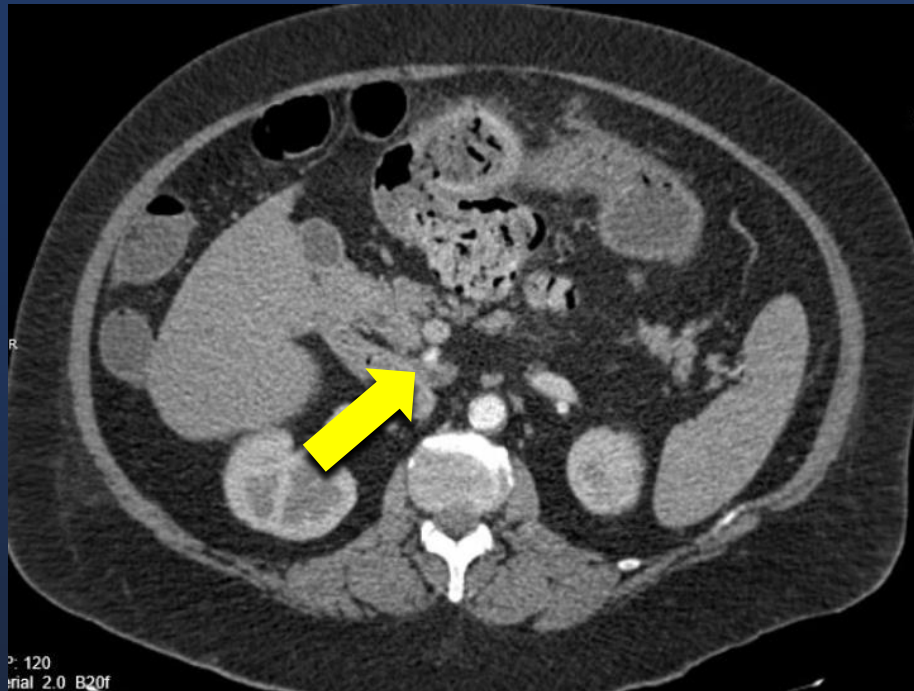


# Cecal Volvulus

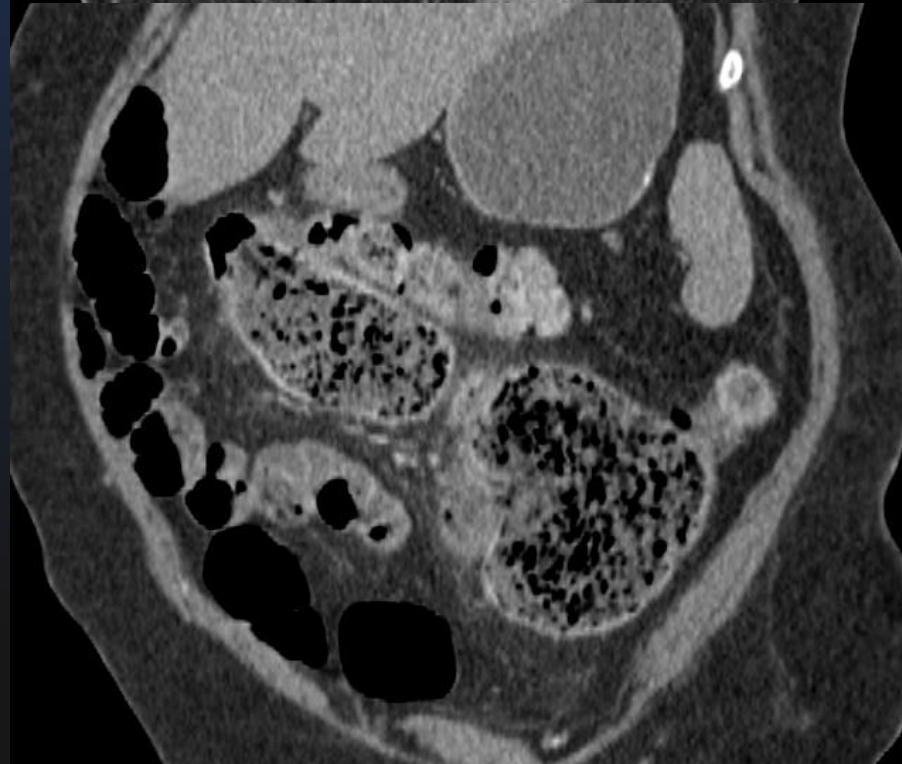
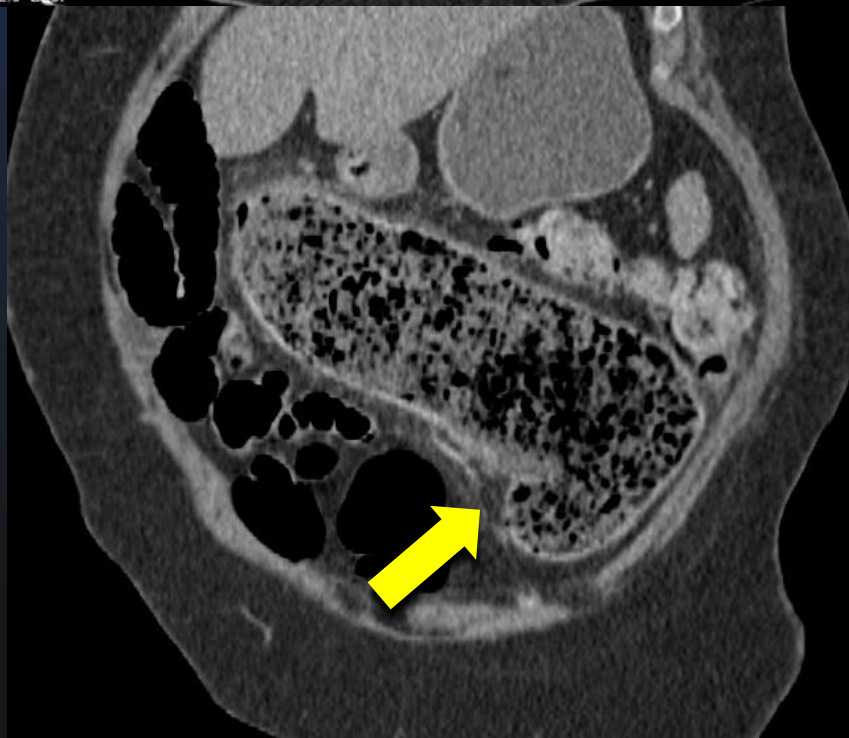
## Imaging features:

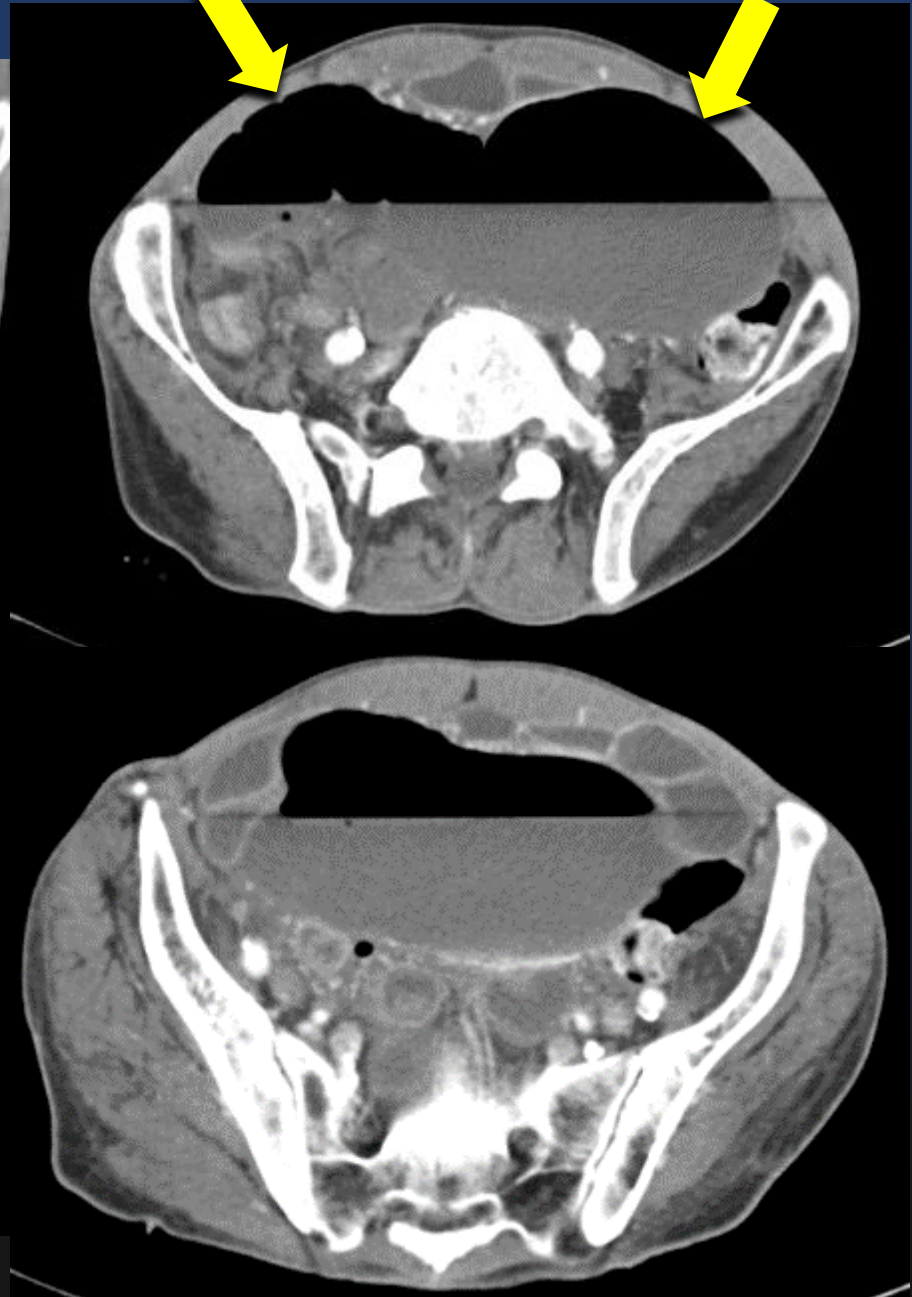
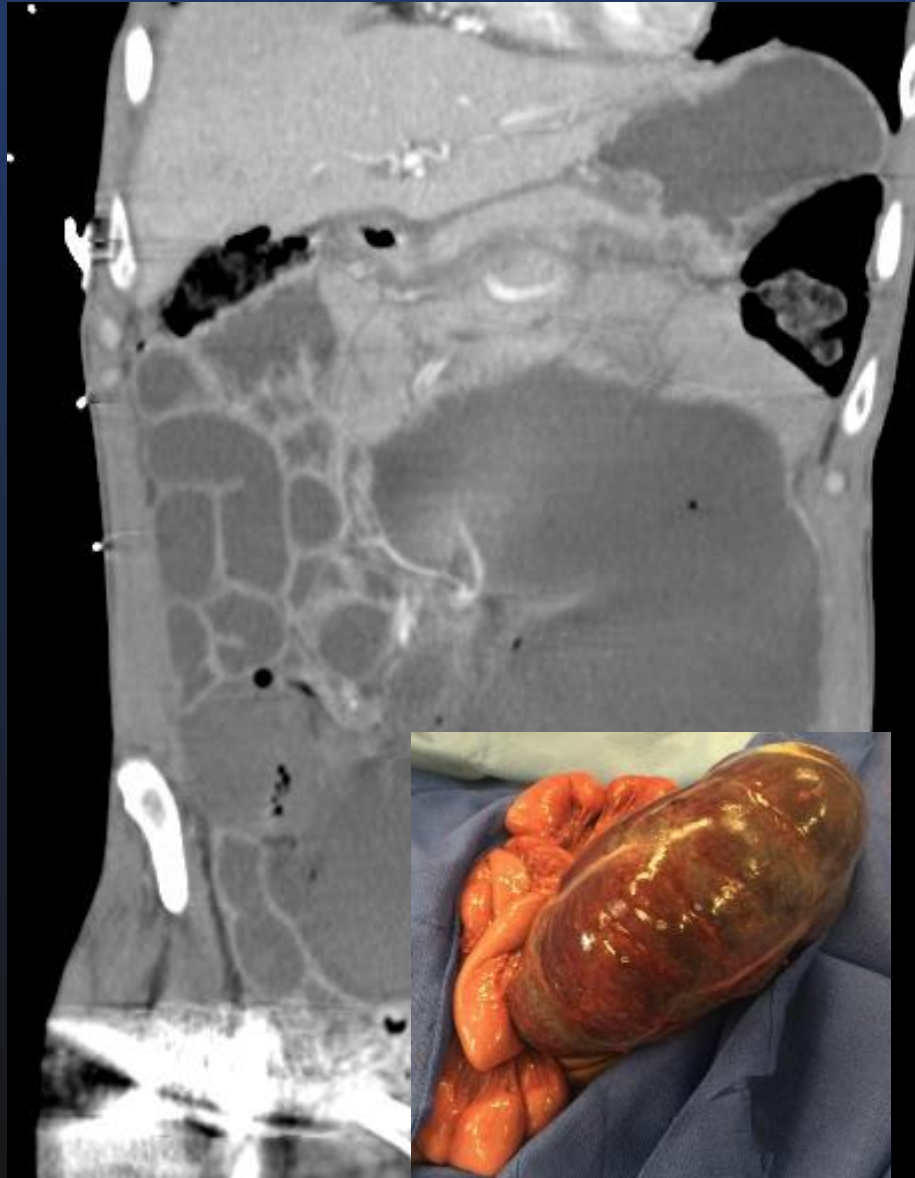
- Ascending colon twists, rest of colon gasless
- Dilated cecum, “kidney shaped”
- Abnormal position across midline – really anywhere
- IC valve competent?

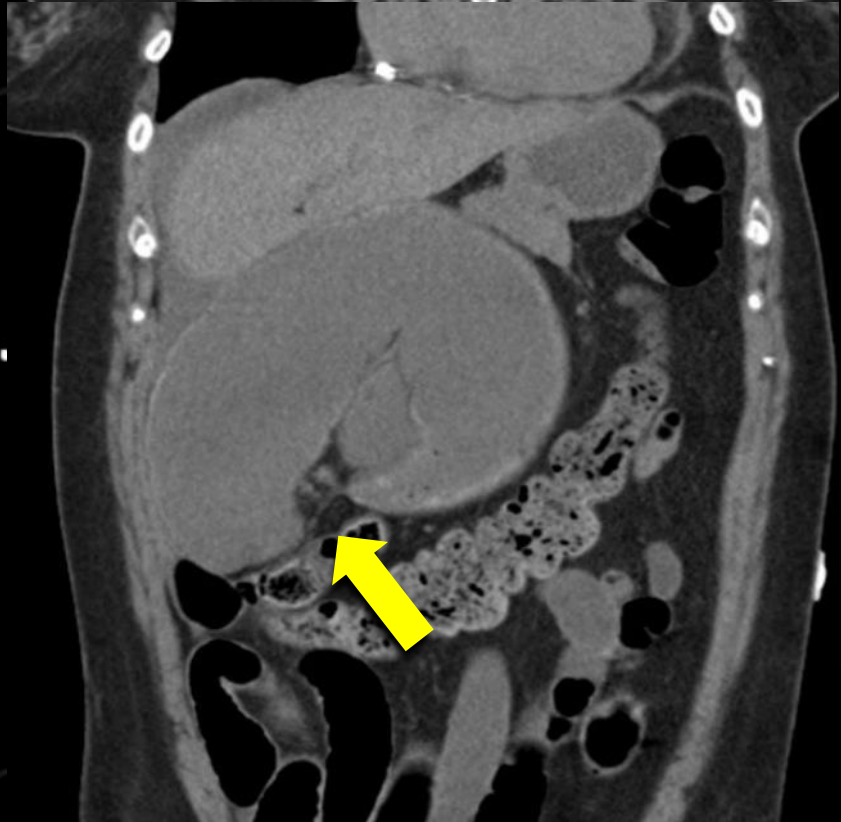
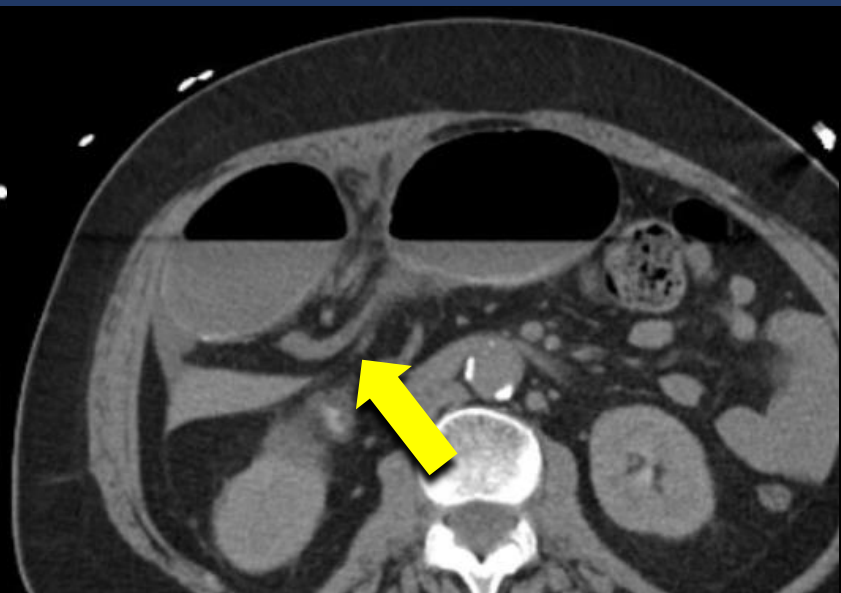




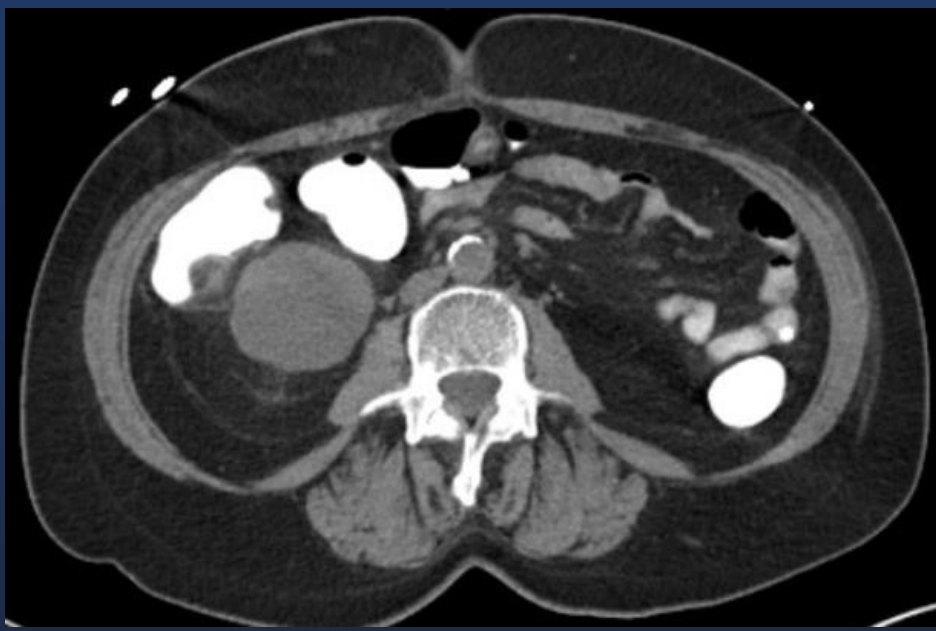
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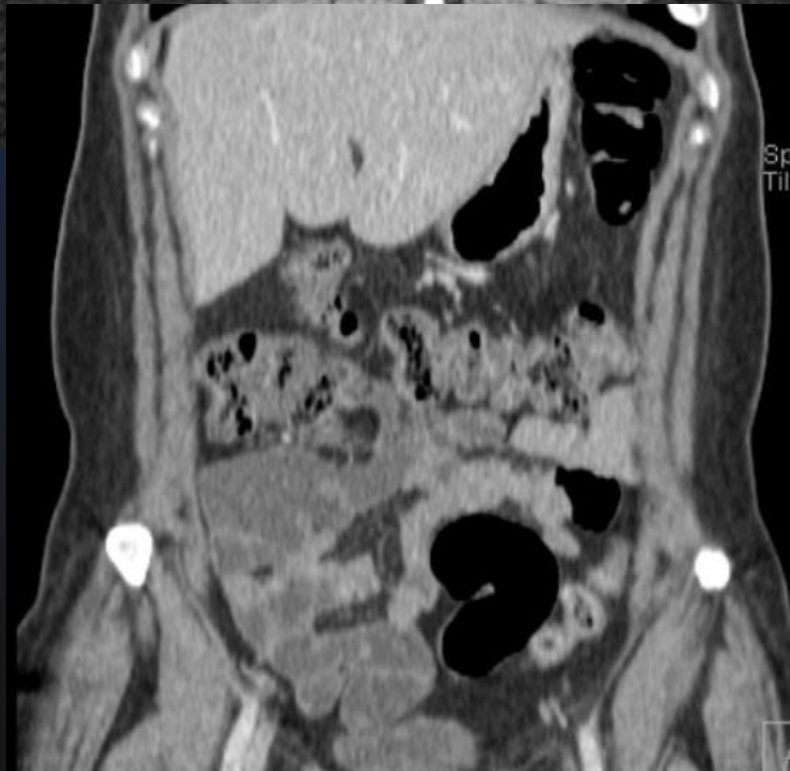
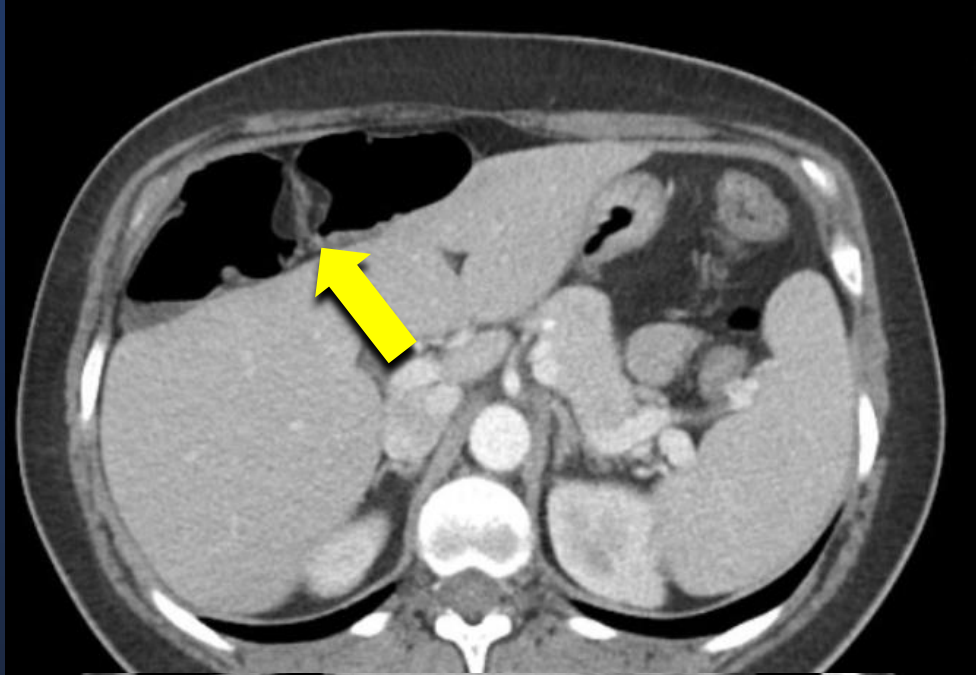
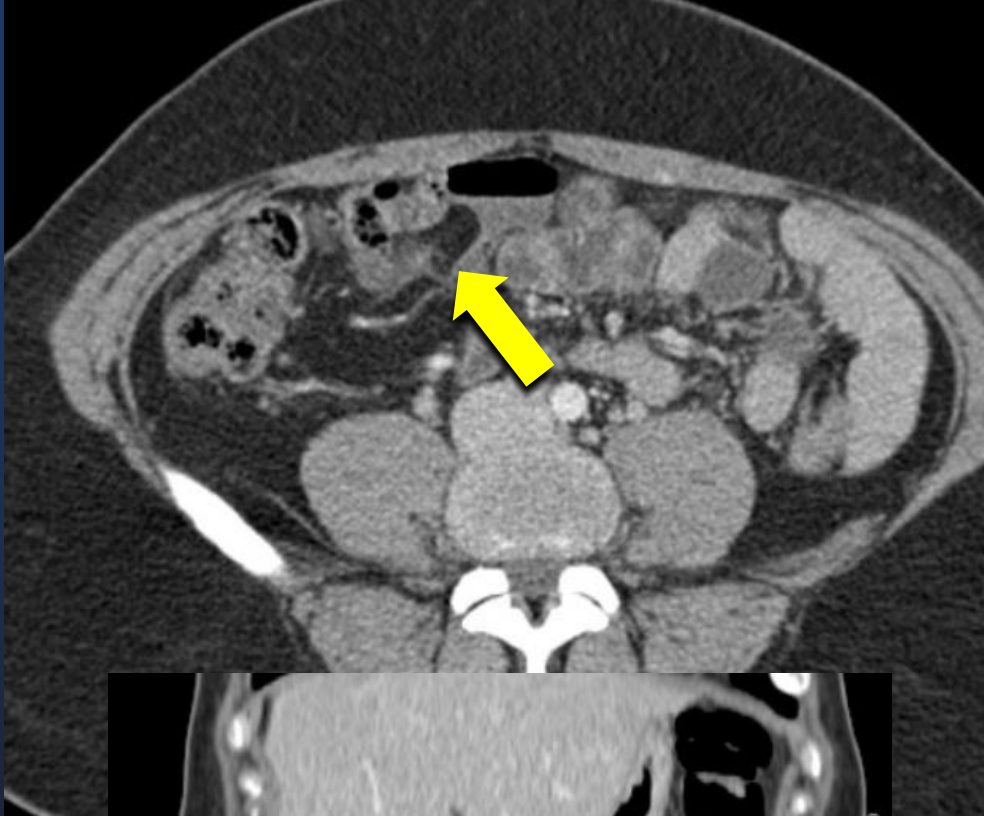






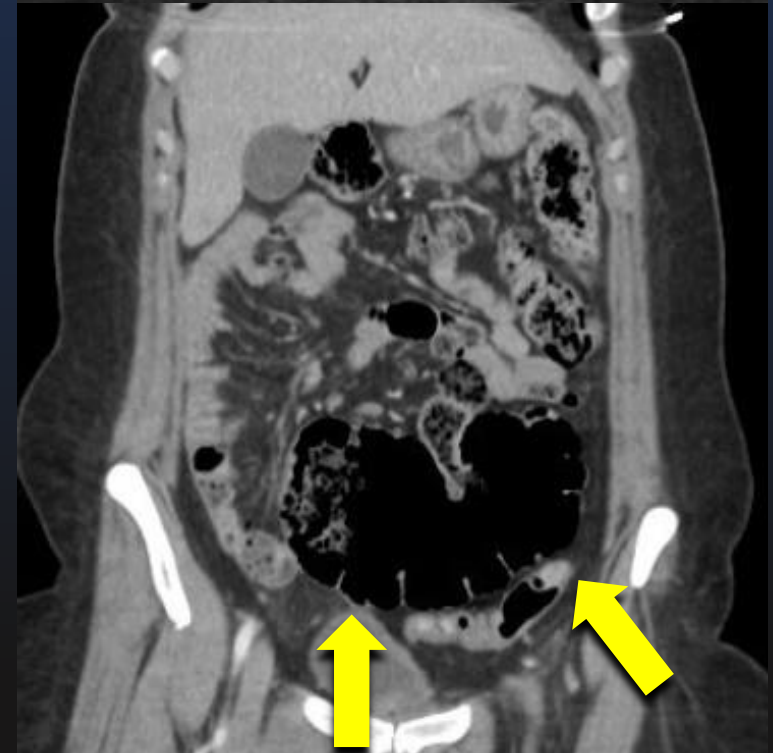
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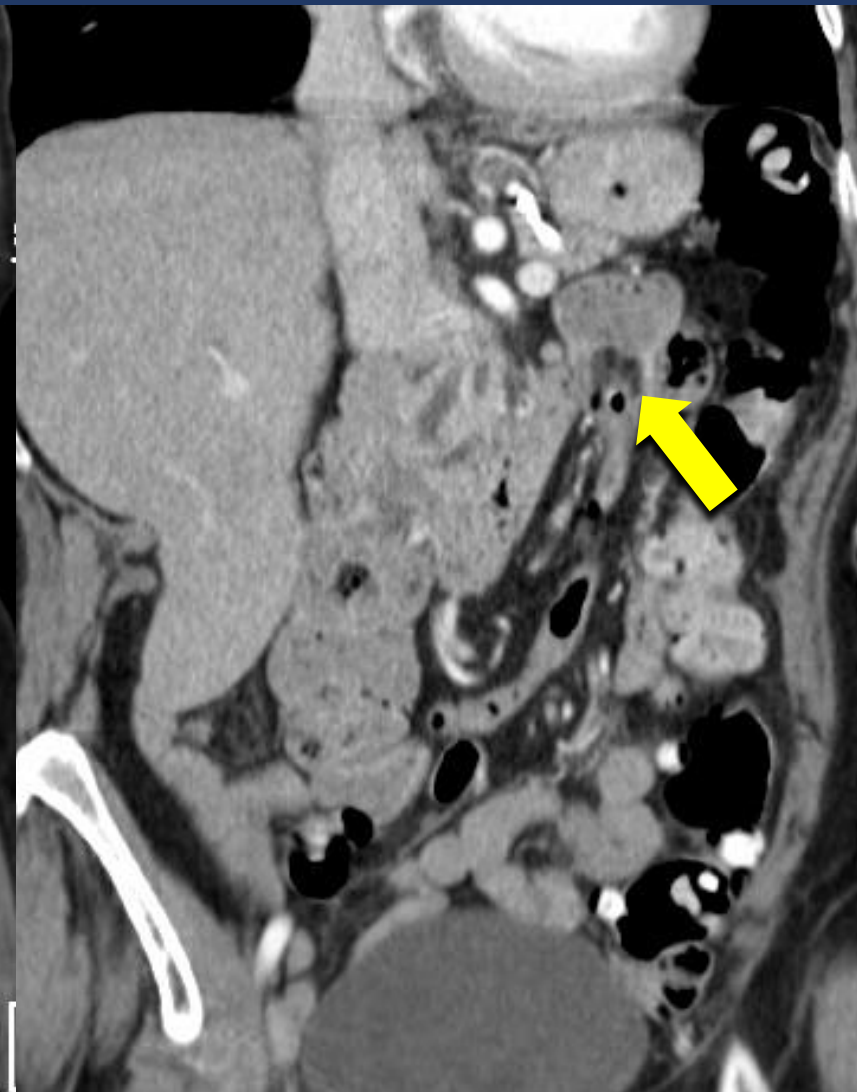
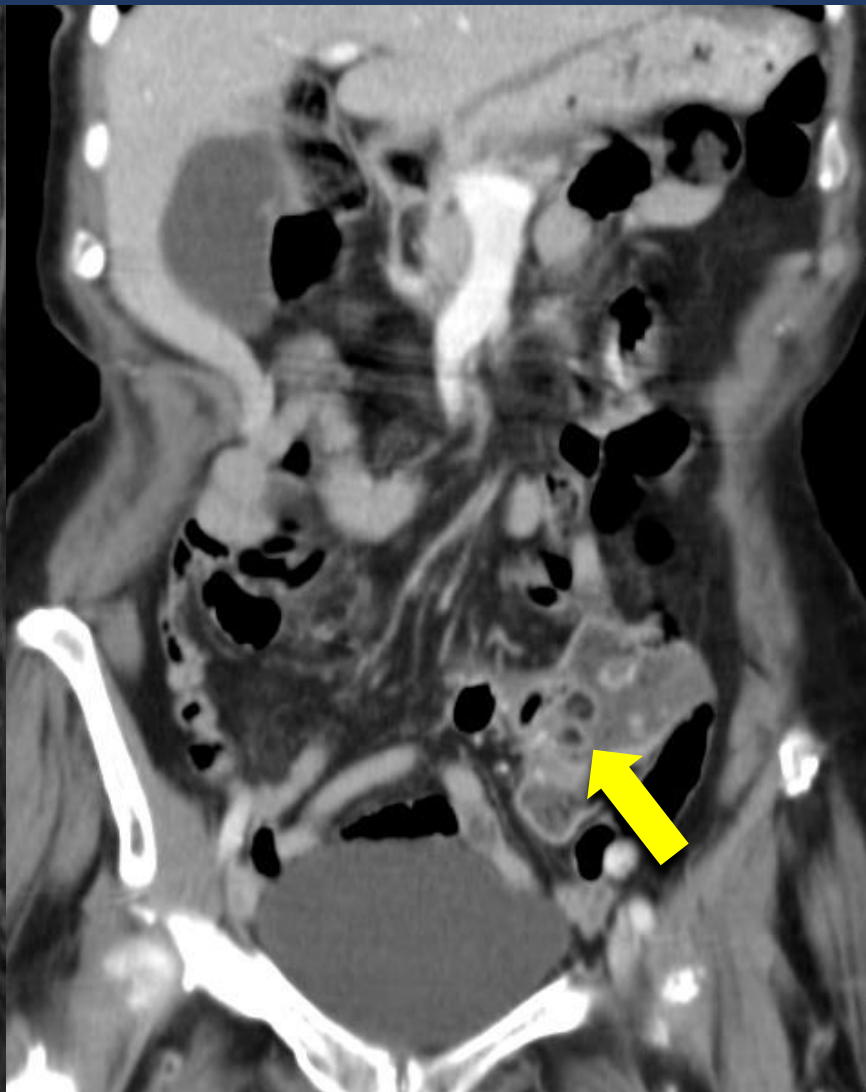
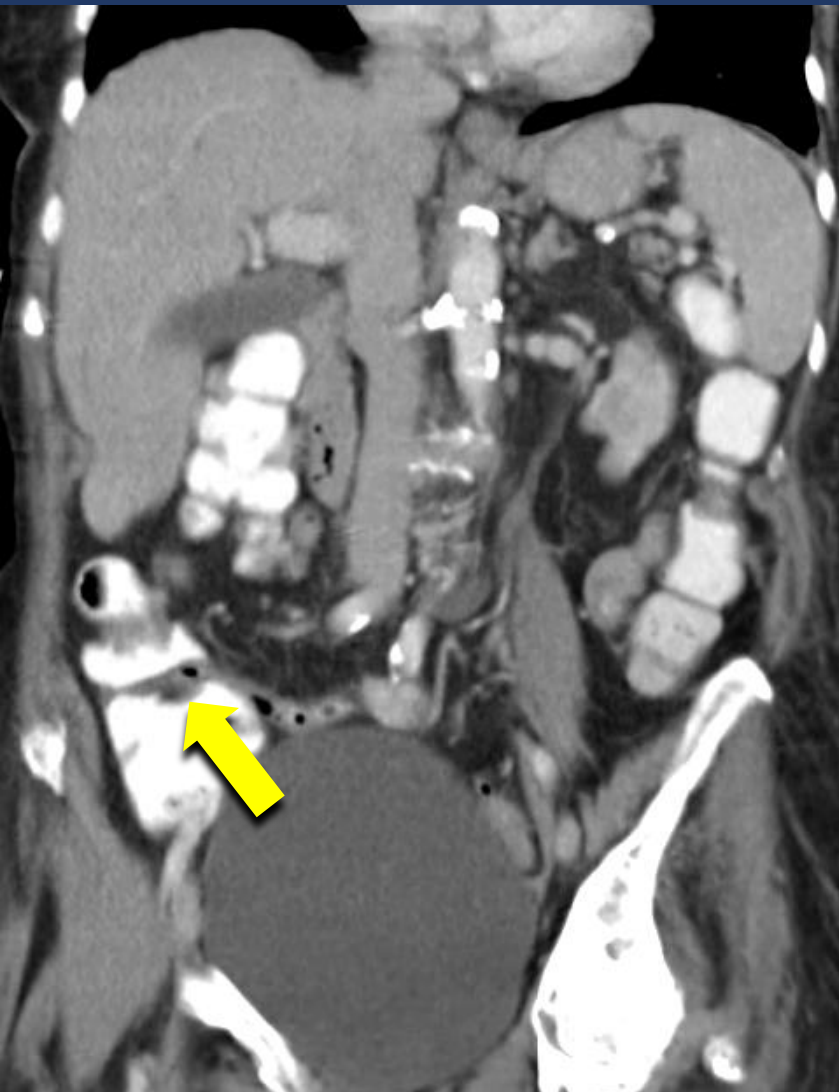




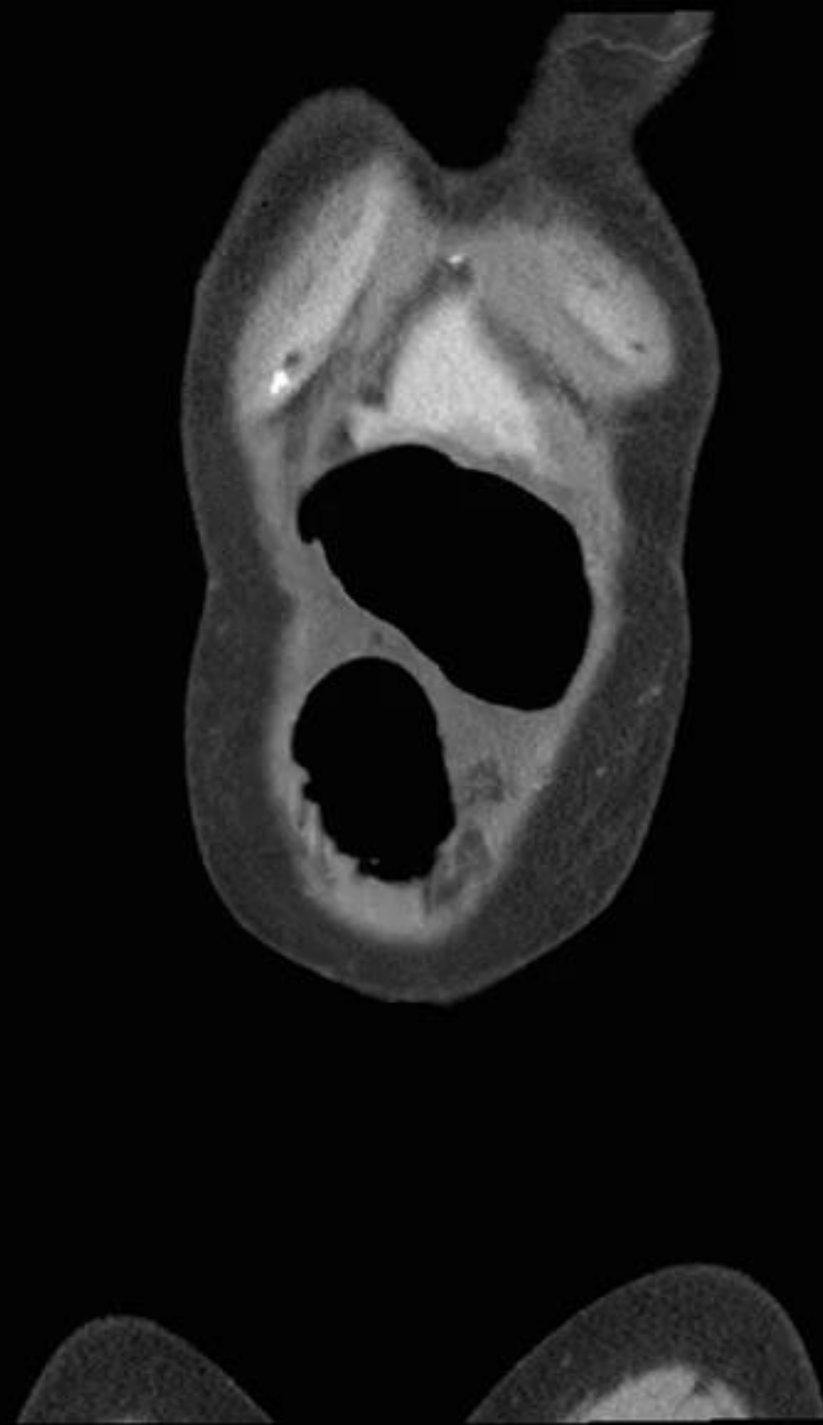
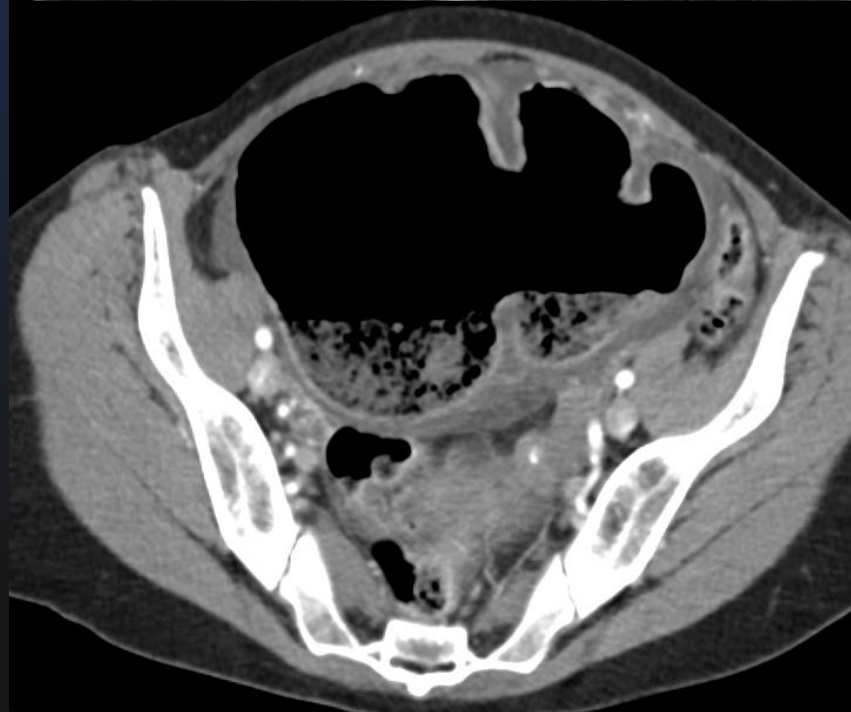
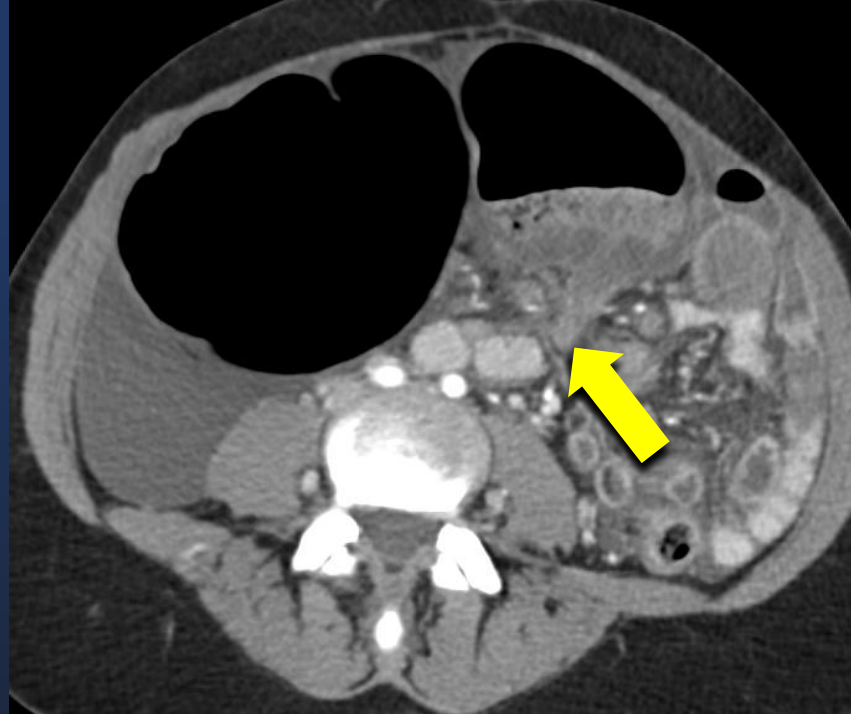
# Cecal Bascule

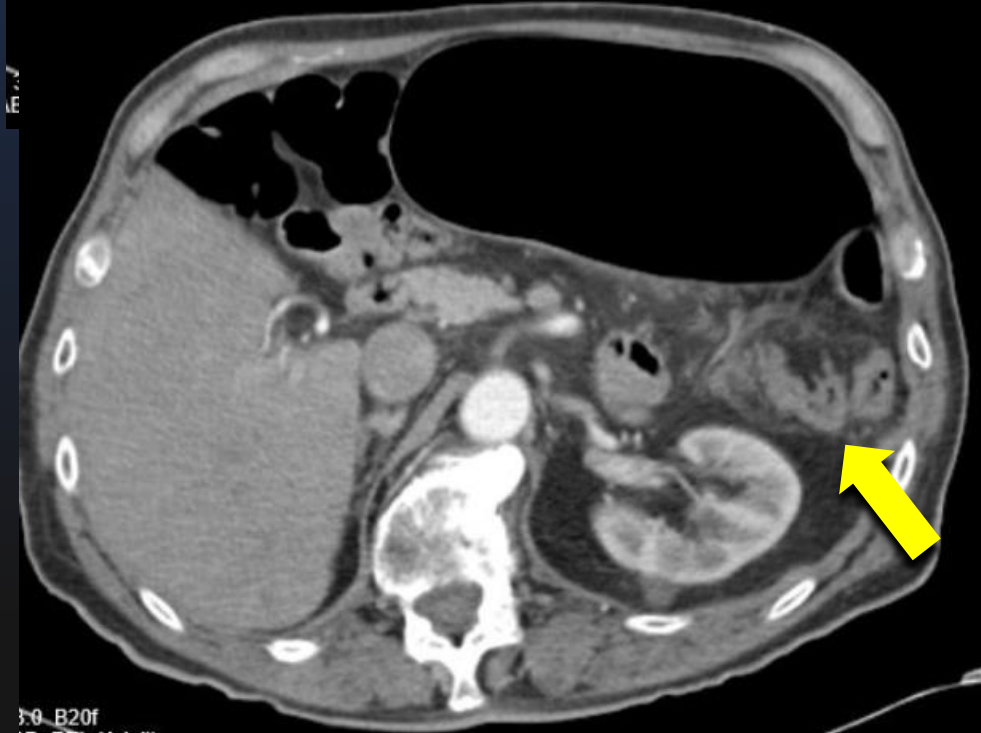
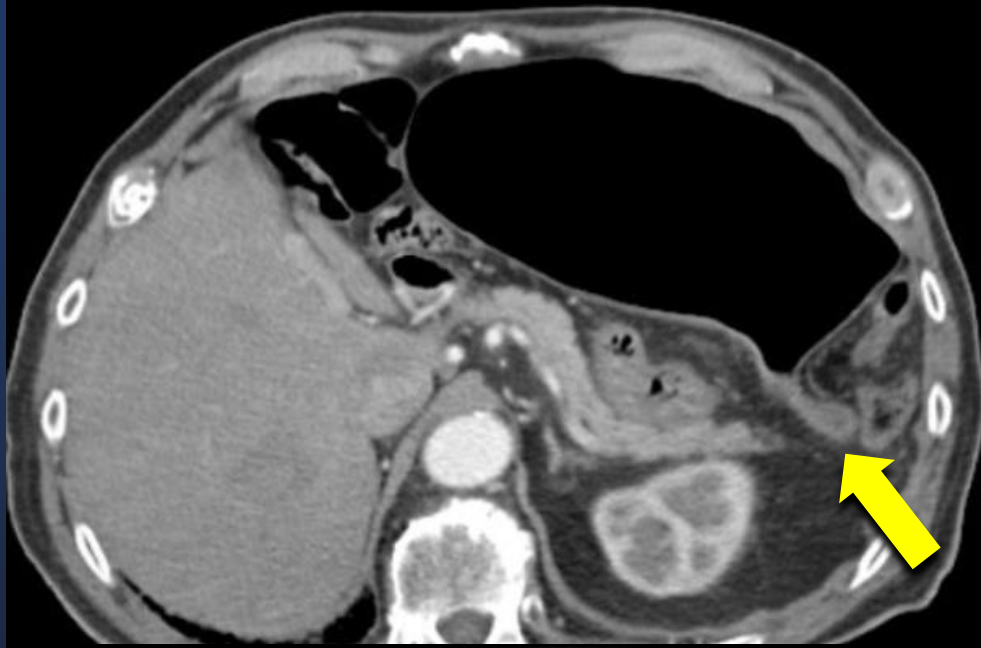
- Minority of cecal “volvulus” cases
- Mobile cecum folds on itself
- Non-twisting obstruction
- Classically folds anteromedially

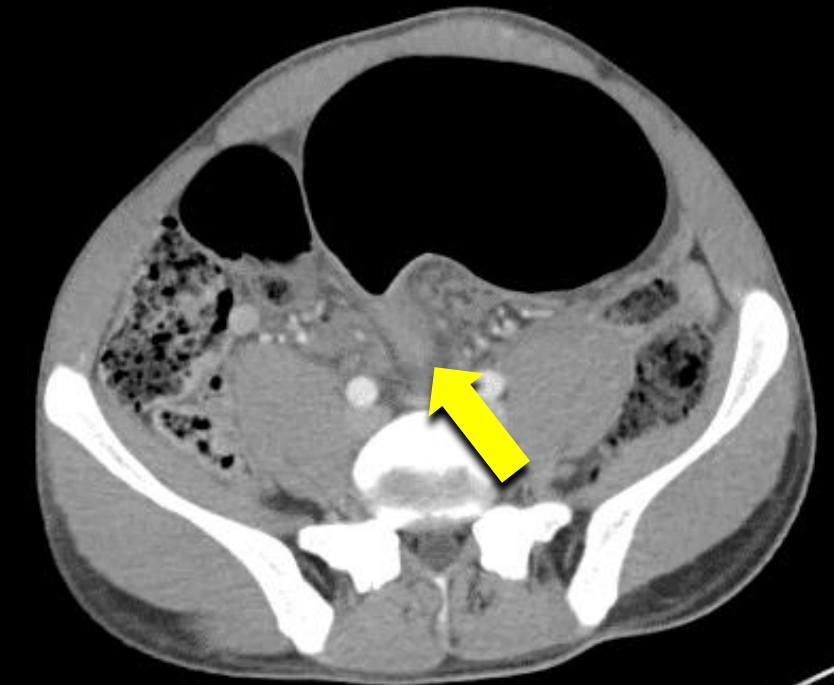
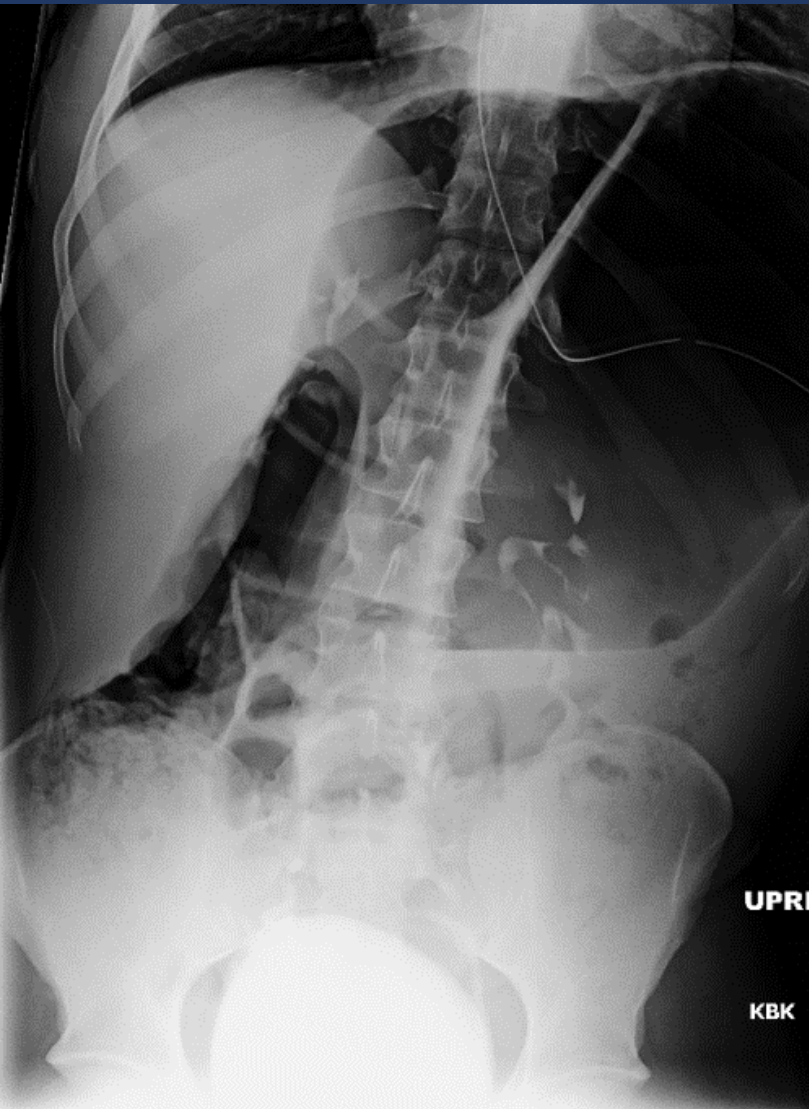






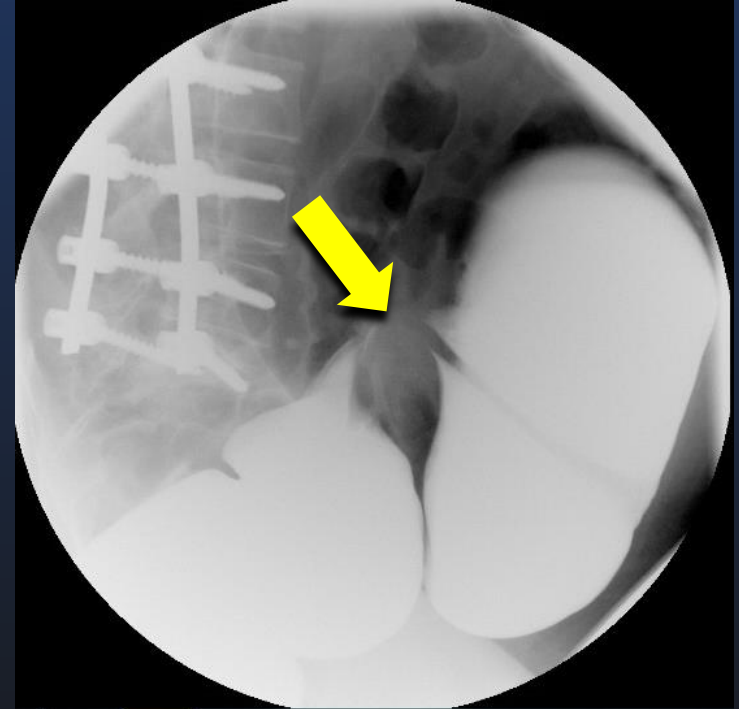






# Sigmoid Volvulus

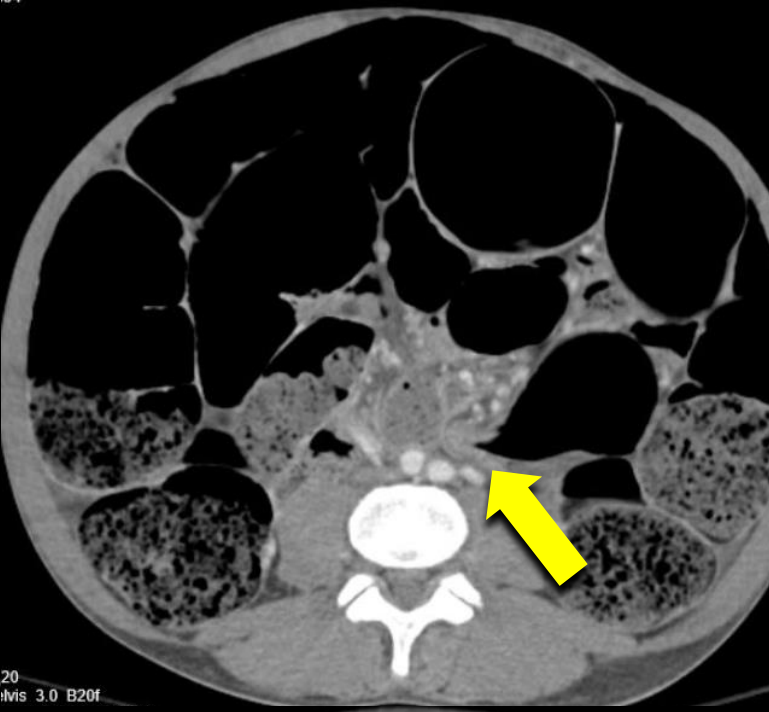
- Most common form of GI tract volvulus
  - Almost always in chronically debilitated, chronic constipation
  - More common in elderly men
  - May be a chronic process (volve/unvolve)
- Imaging findings
  - Inverted U-shaped loop emanating from the pelvis
  - “Coffee Bean,” “Northern Exposure” signs
  - Enema: “bird’s beak”
  - CT: twist at site of volvulus







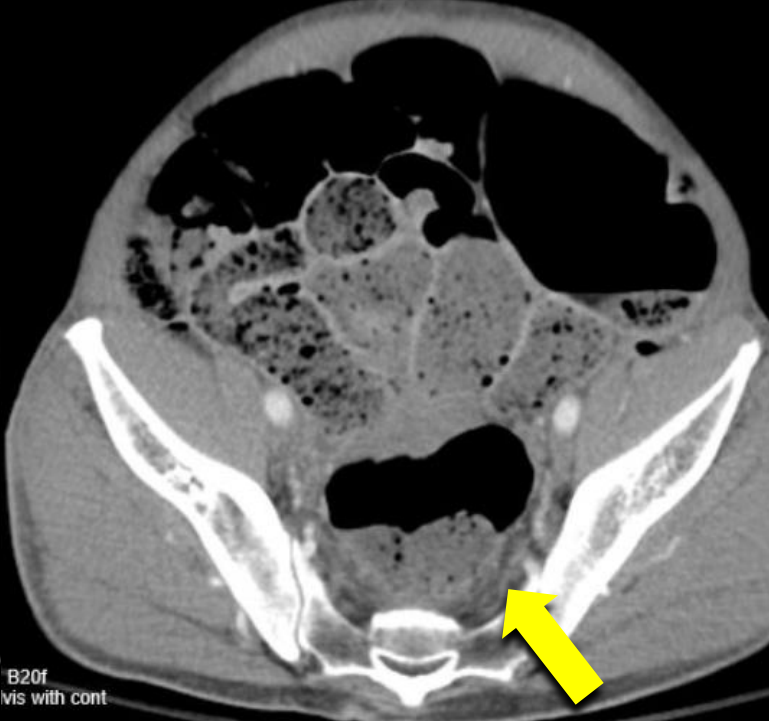
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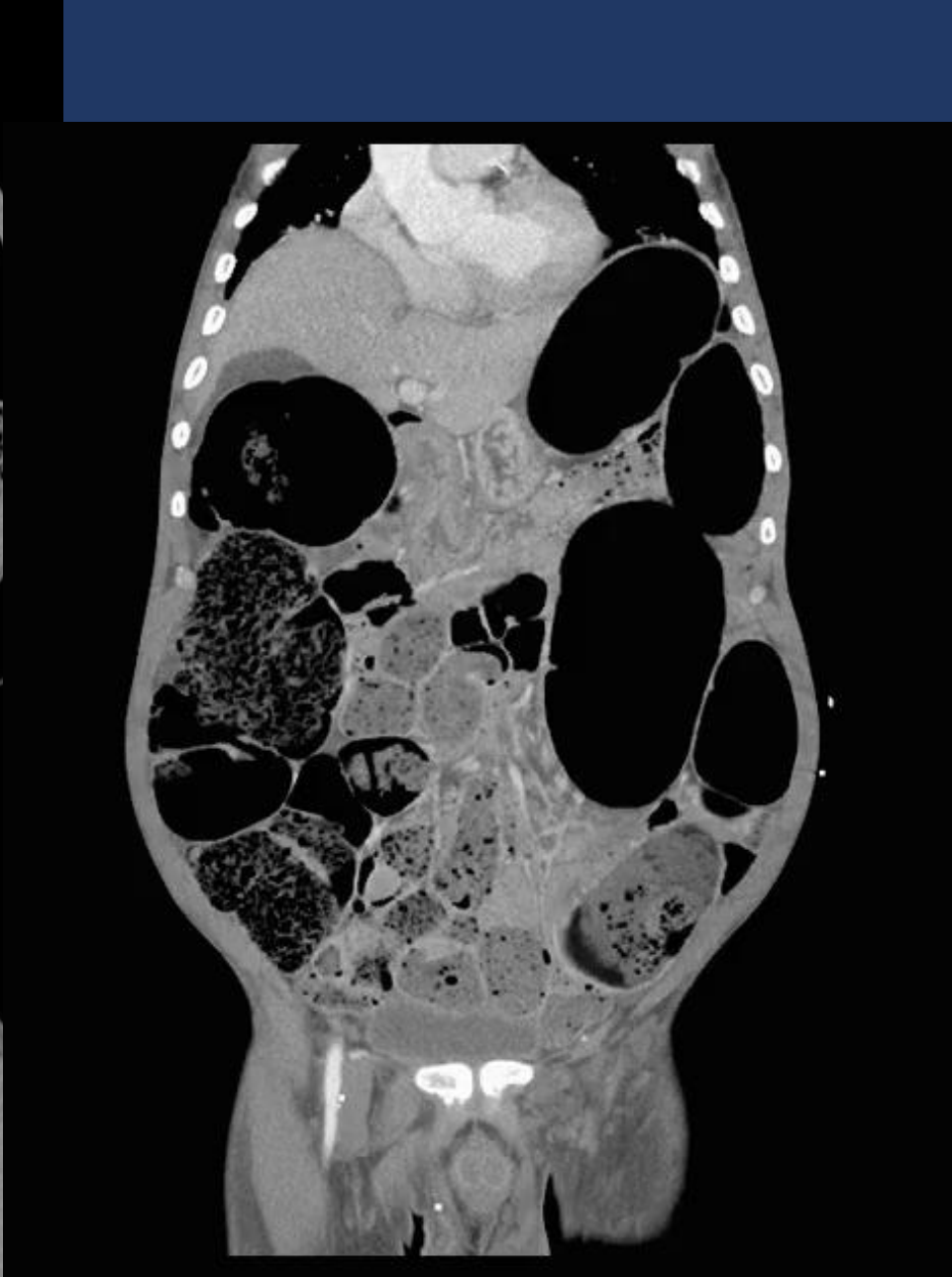
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and Pelvis with cont



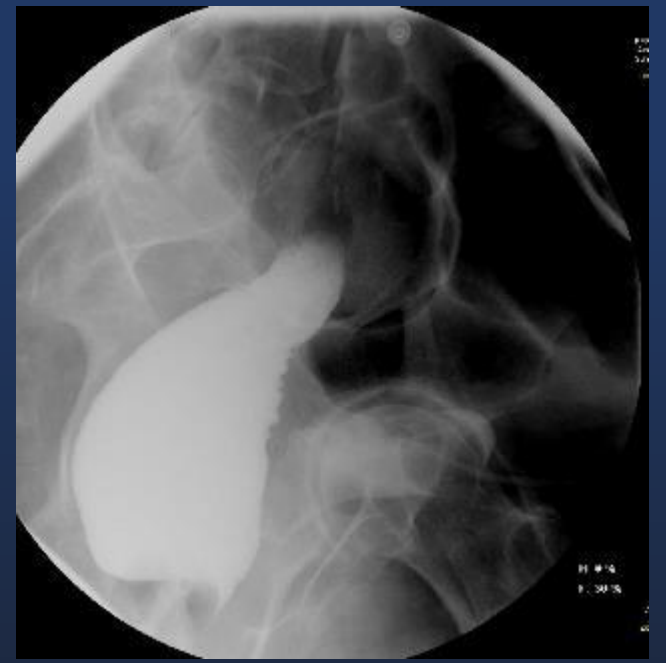
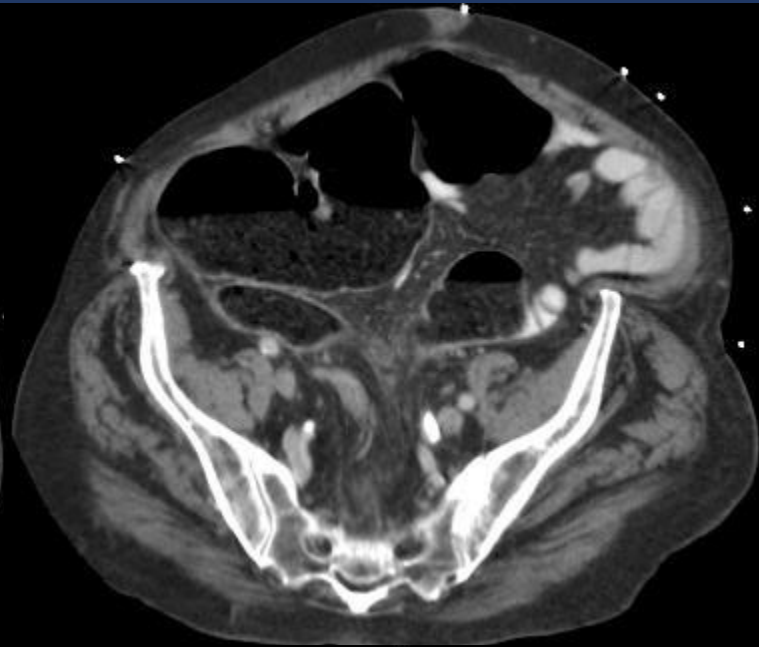
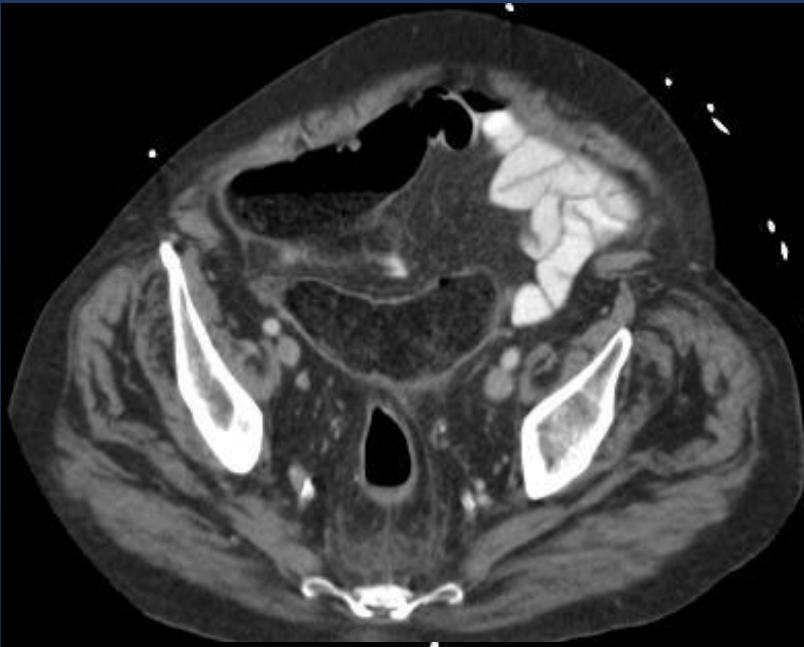
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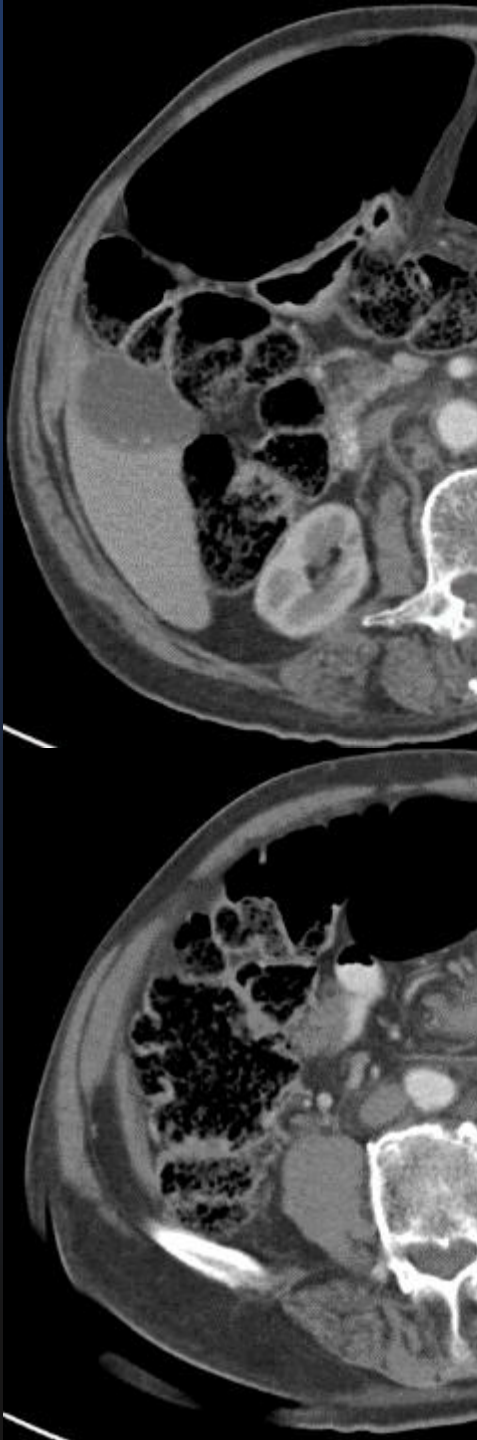


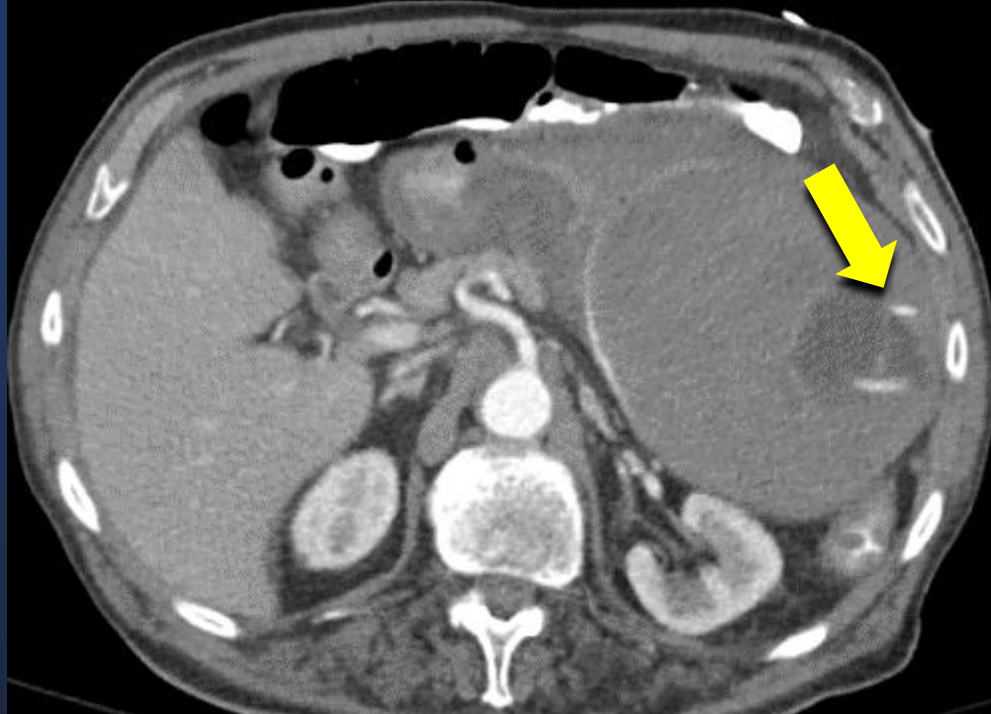












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# Conclusions

- Volvulus:
  - Can affect most of the GI tract
  - Often has predisposing conditions
  - Has mimics with a range of acuity
  - Can resolve with non-operative management
  - Can lead to ischemia and perforation