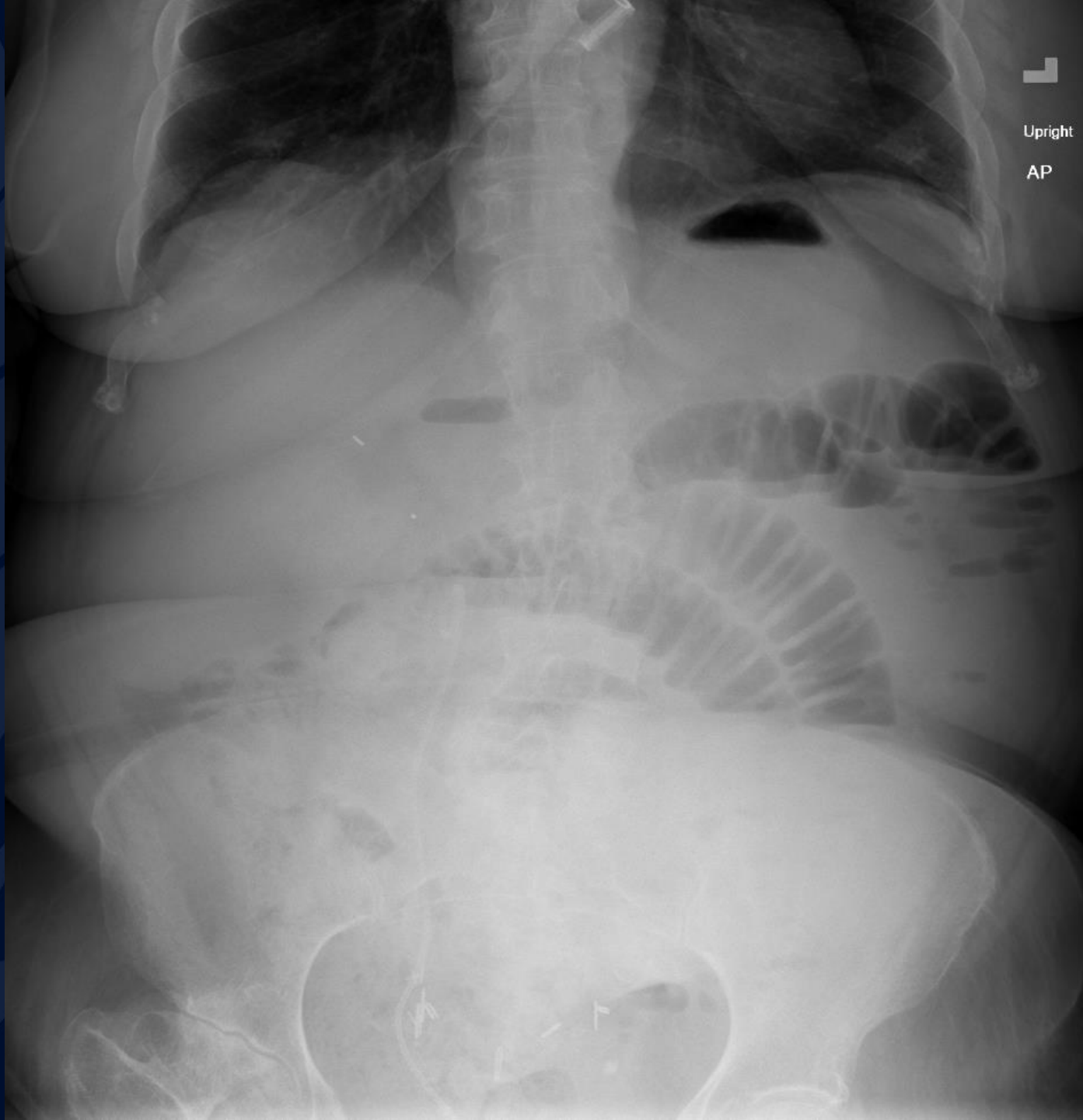


72-year-old female presents with
abdominal pain, N/V. History of
abdominal surgery

John J. DeBevits IV, MD

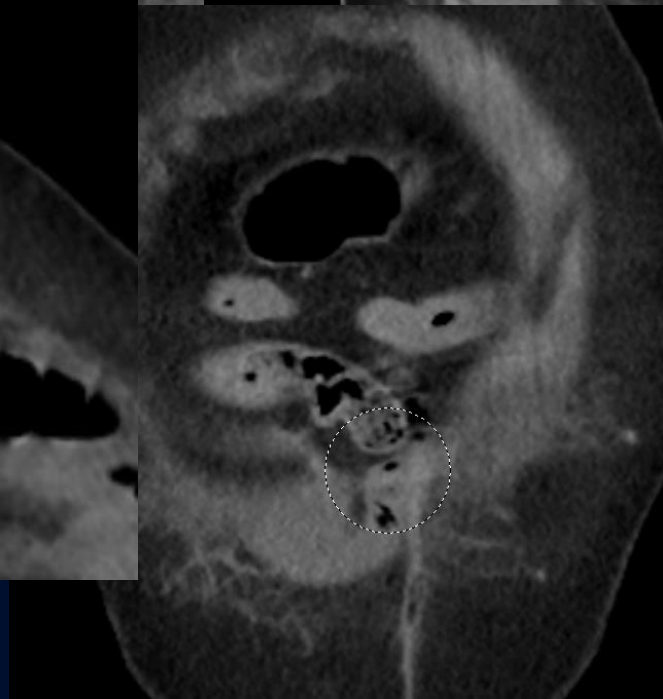
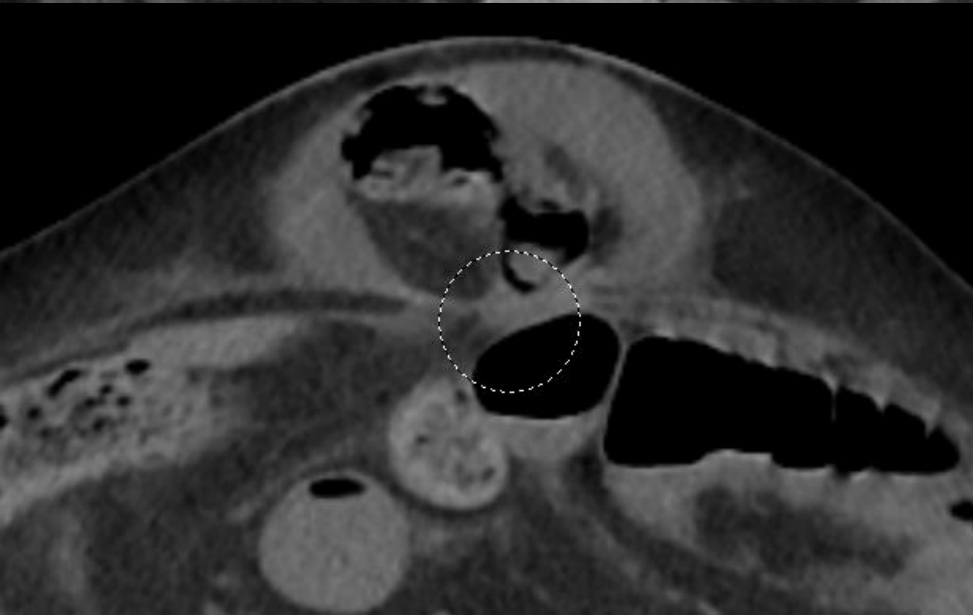
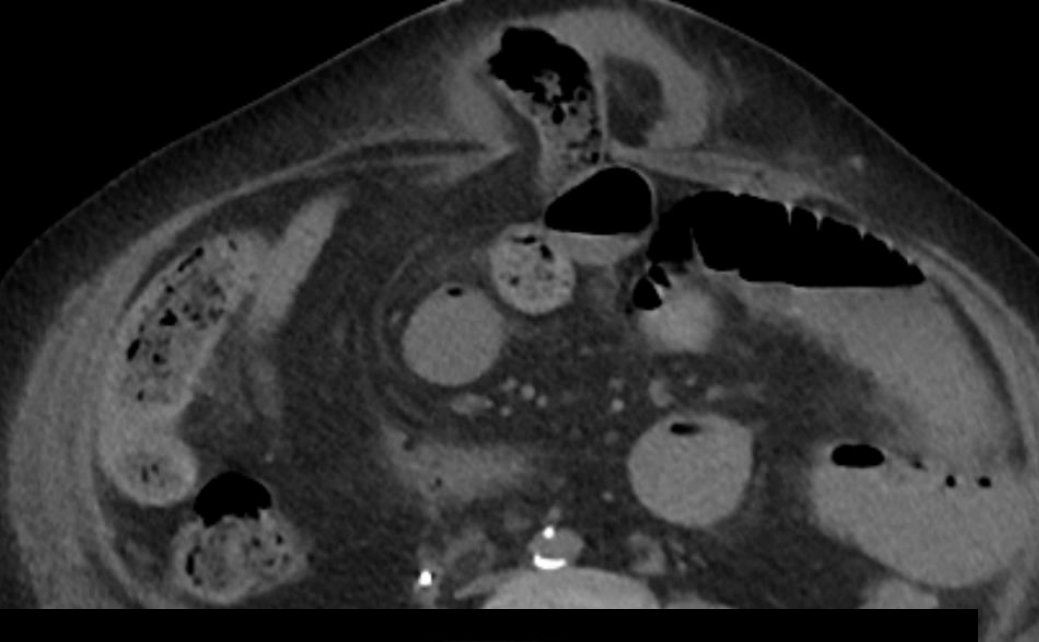


Upright

AP

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A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

?

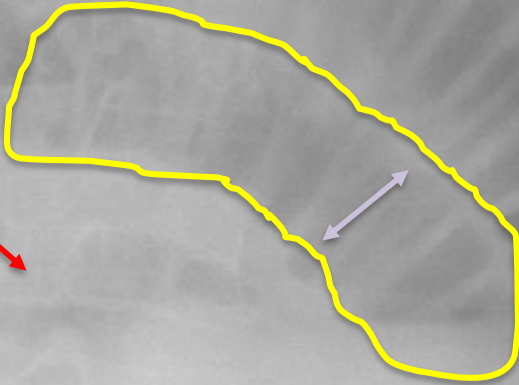
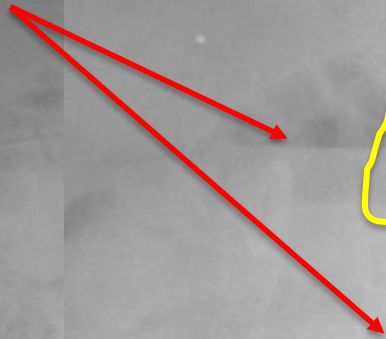
Mechanical small bowel obstruction in setting of a ventral hernia



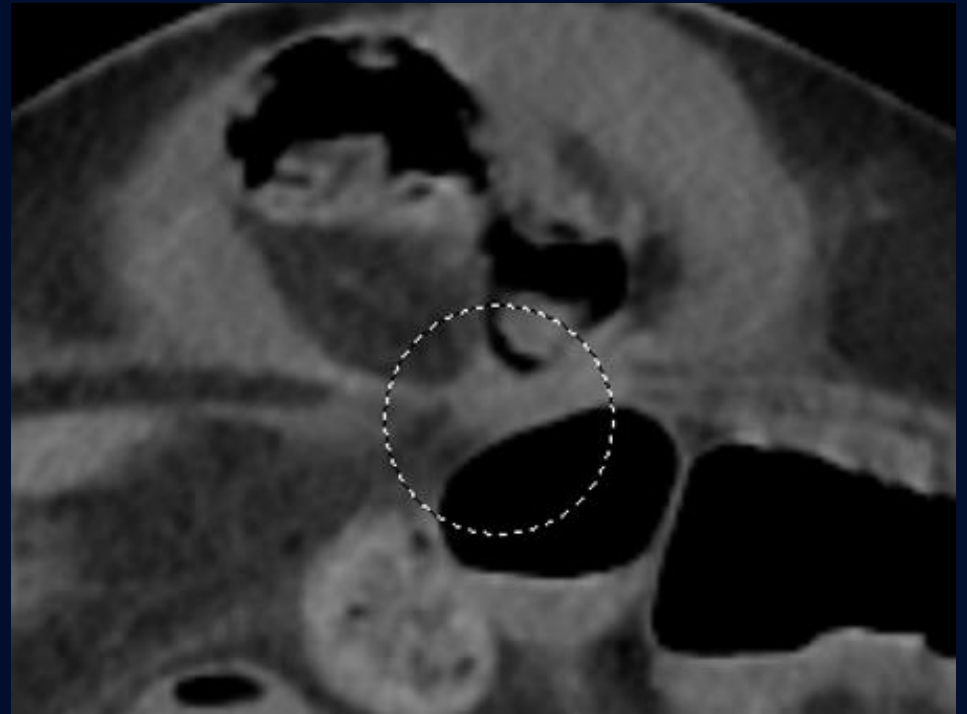
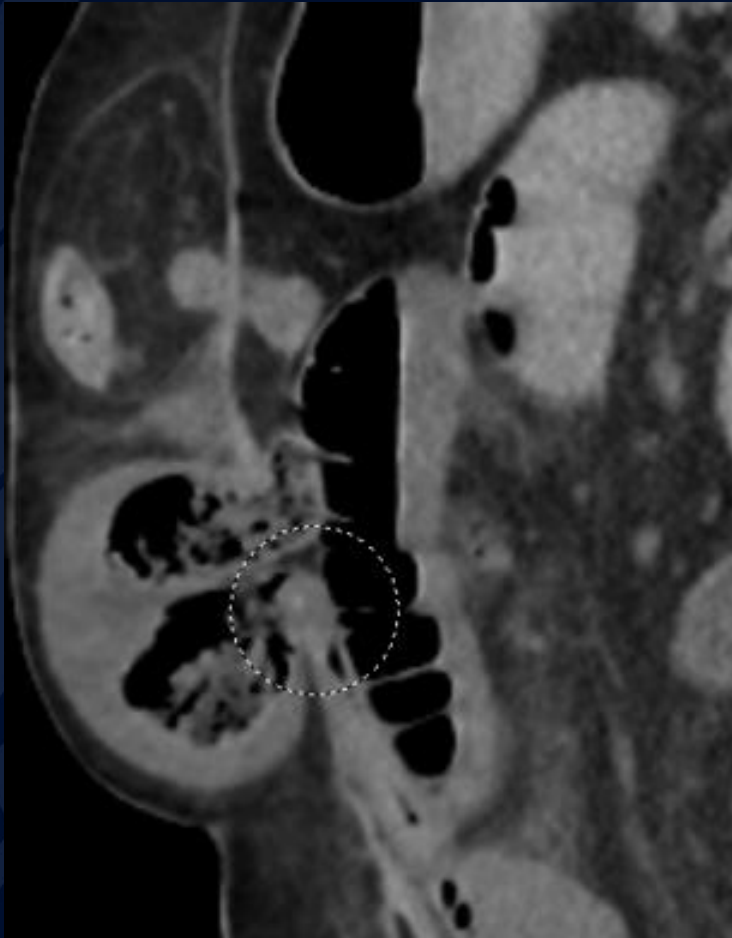
Upright

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Air-fluid levels at different heights



Multiple dilated loops of small bowel



Transition point....

Mechanical small bowel obstruction

Obstruction or blockage of ≥ 1 small bowel (SB) segments by intrinsic or extrinsic narrowing of SB lumen

Identifiable causes:

- Adhesions (~60%)
- Hernias (15%)
- Tumor

Abdominal radiography first step in imaging

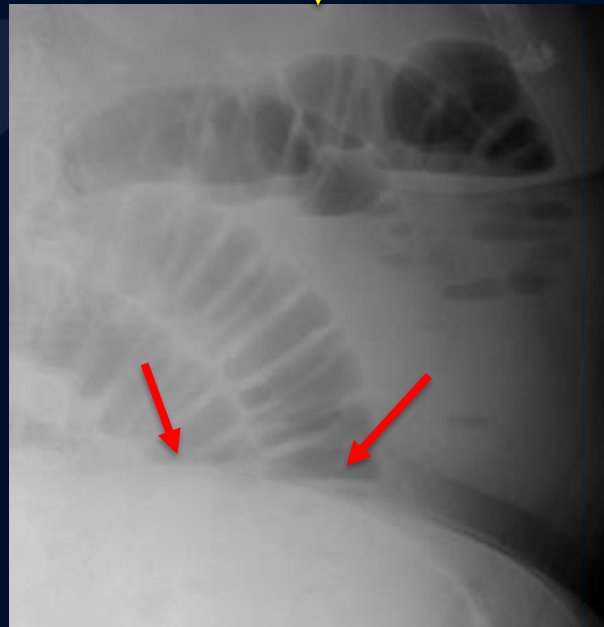
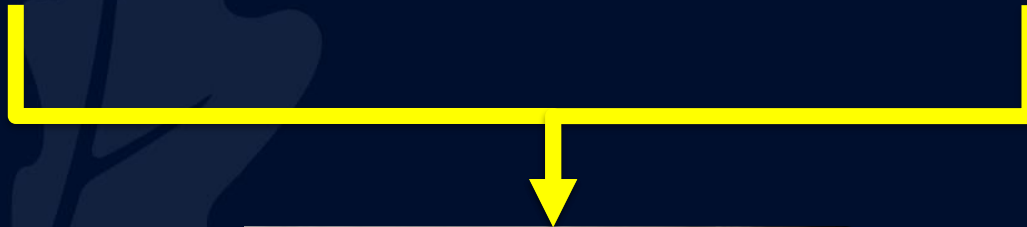
- Diagnostic in 50-60% of cases

CT diagnosis of closed loop or strangulated SBO is crucial to guide surgical intervention

Pathogenesis

Obstruction, accumulation of GI secretions and swallowed air

Bowel dilatation stimulates secretory activity resulting in increased fluid accumulation



Imaging

Abdominal radiography

High-grade vs. low grade?

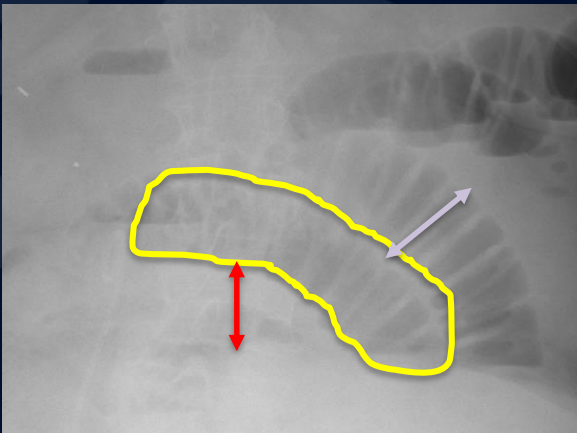
Dilated SB loops exceeding 50% of largest visible colon loop

2.5 times increase in # of distended loops compared to normal number

Presence of >2 air-fluid levels, wider than 2.5cm

Air-fluid levels differing >2cm in height from one another within the same SB loop

SB-colon diameter ratio >2.5



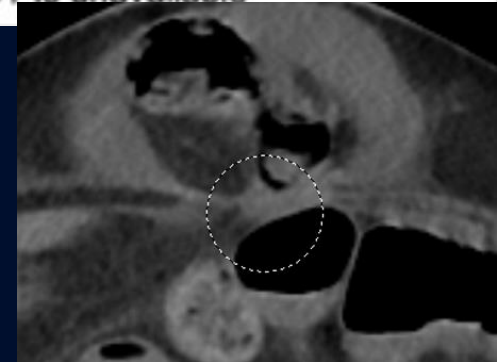
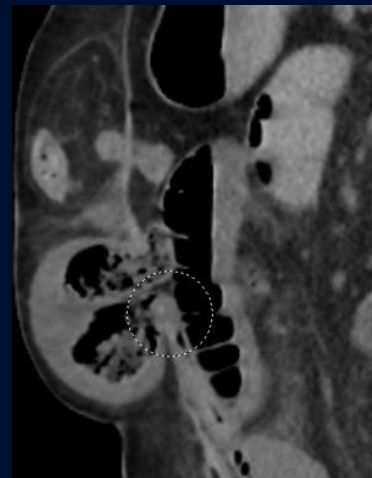
MDCT

- Sonography*

- MDCT: start at the end!

1. Confirm the **diagnosis**
2. Characterize the **severity** of the obstruction
3. Identify the **transition point**
4. Identify the **cause** of the obstruction
5. Look for **complications**

*Useful primarily when CT is unavailable



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Clinical issues

- Closed loop obstruction: SB segments markedly distended (>4cm) with fluid, little gas
 - Whirlpool sign due to twisting mesenteric vessels
 - “Balloons on strings”: dilated SB loops “hanging” by stretched mesenteric vessels
- Strangulating SBO: blood supply is impaired
 - Bowel wall thickening (edema/hemorrhage)
 - Ischemic bowel may show increased, decreased, or absent bowel wall enhancement
 - Interloop edema
 - Ascites
 - Congested vessels

Differential diagnosis

- Adynamic or paralytic ileus
- Strangulated SBO (if involving hernia)
- Aerophagia
- Large bowel obstruction
- DIOS: distal intestinal obstruction syndrome in CF

References

<http://pubs.rsna.org/doi/full/10.1148/radiol.15131519>

Review of Small-Bowel Obstruction: The Diagnosis and When to Worry¹

Radiology

EDUCATION EXHIBIT

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RadioGraphics

Small Bowel Obstruction: What to Look For¹

**TEACHING
POINTS**
See last page

Ana Catarina Silva, MD • Madalena Pimenta, MD • Luís S. Guimarães, MD

<http://pubs.rsna.org/doi/pdf/10.1148/rg.292085514>