

Diverticulitis: Pearls + Pitfalls



Cantor Art Museum, Stanford Univ



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Diverticulitis

- Occurs in 10 – 20% of patients with diverticulosis
- Increasing in frequency
- Can occur in patients as young as 25
- Clinical Dx more accurate than for appendicitis



Federle: [DI: Abdomen](#); Amirsys

Clinical Dx of Diverticulitis (not always easy)

- Is occurring in younger patients
 - 50% in patients less than 50 years old
 - 20% in patients less than 40 years old
- Signs + symptoms often not “classic”
 - Only 1/3 have tenderness in LLQ
 - Only 1/3 have leukocytosis
 - Only 1/3 have fever

Zaidi E, Daily B. *Am J Roentgenol.* 2006 Sep;187(3):689-94

Diverticulitis

- Implies *perforation*, not just inflammation, of diverticulum
- Omentum usually walls off infection
 - Rare generalized peritonitis
 - Uncommon free air

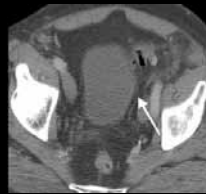


Federle: [DI: Abdomen](#)



Diverticulitis (mild)

- thickening at root of sigmoid mesocolon



“r/o Diverticulitis”

- Some patients with diverticulitis have only “-osis” seen on CT
- If signs + symptoms are those of diverticulitis, and no other cause is found, they probably have diverticulitis
- “... diverticulosis without radiographic signs of diverticulitis”
- Analogous to “r/o pancreatitis”
 - Some of these look normal also

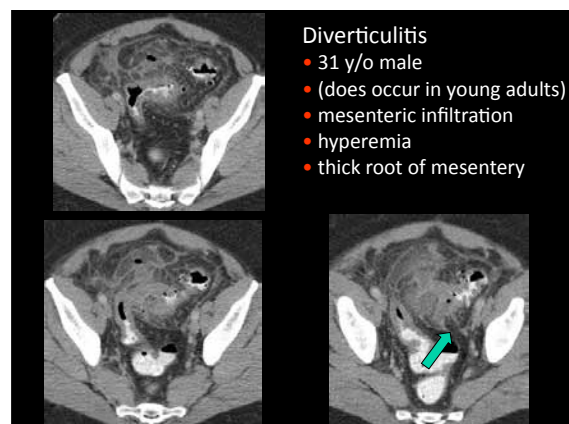
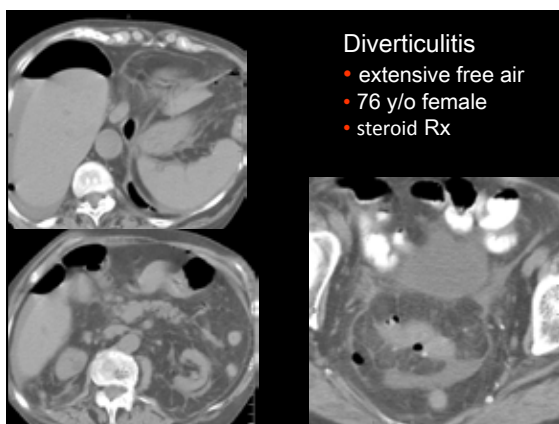
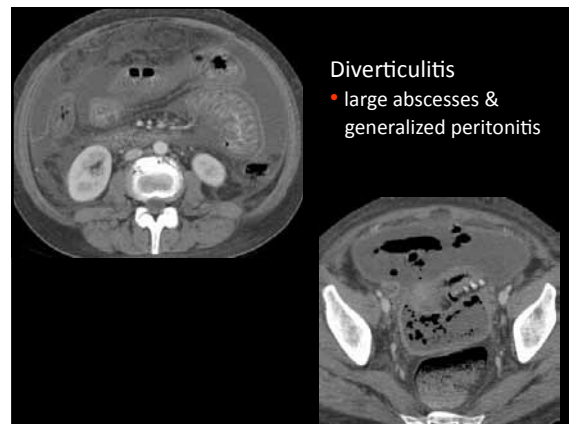
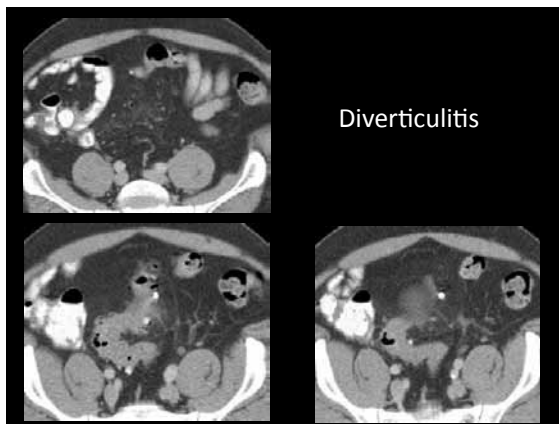
Accuracy of CT for Diverticulitis

- 312 patients at MGH (1997-1999)
- Sens, spec, accuracy, pos & neg pred value
 - all 99%

Accuracy of CT for Diverticulitis

- Signs (descending order of frequency)
 - Bowel wall thickening (96% sens; 81% spec.)
 - Mesenteric fat standing
 - Fascial plane / root of mesentery thickening
 - Mesenteric hyperemia
 - Free fluid, free air
 - Abscess (only in 4%, but 100% specific)
 - Intramural gas, sinus tract
 - Multiple diverticula

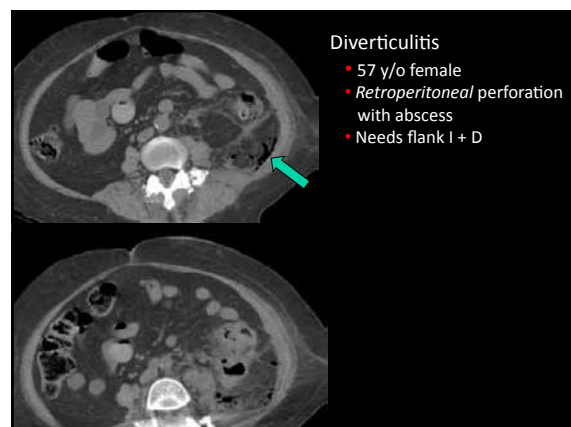
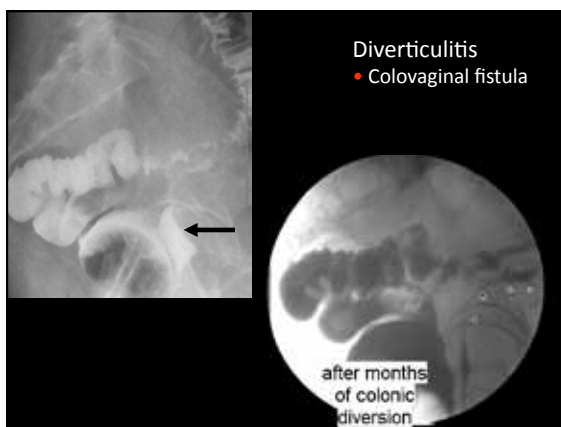
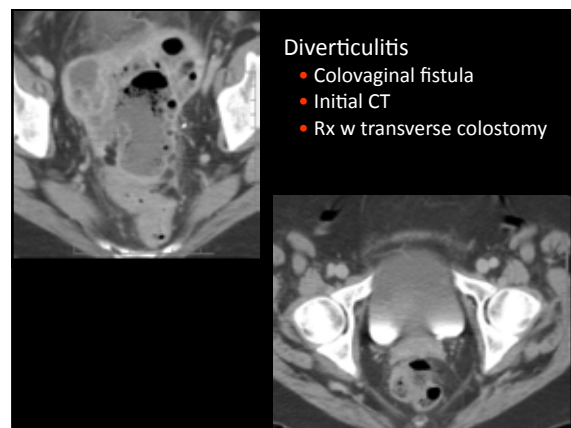
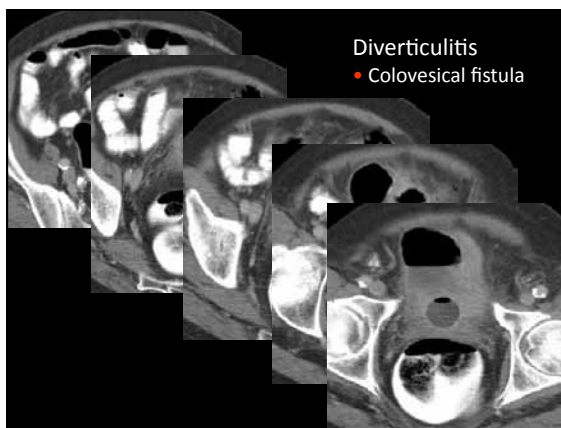
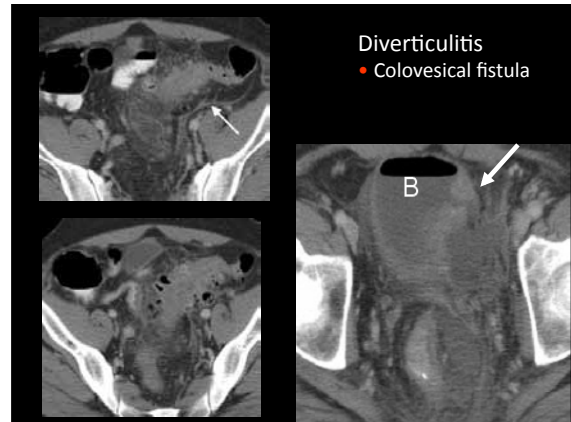
*Kirchner et al. AJR 2002; 178:1313
Padidar, Jeffrey. AJR 1994; 163: 81*



Changing Demographics of Diverticulitis

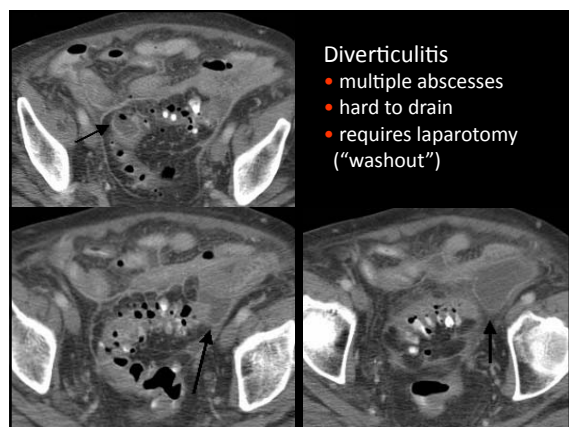
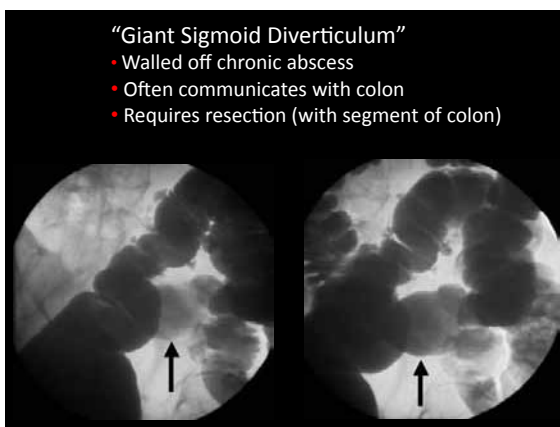
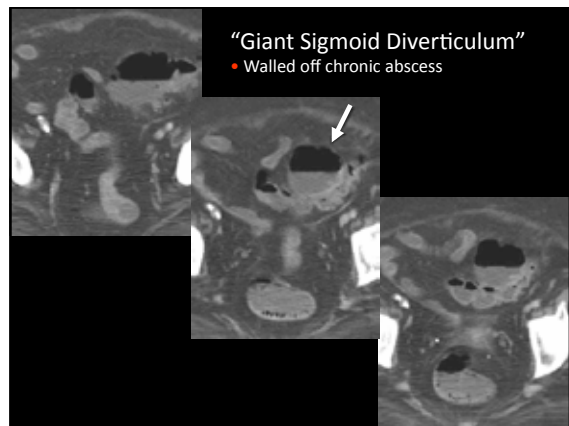
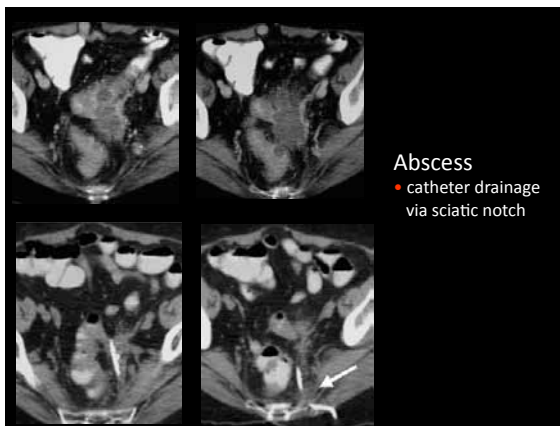
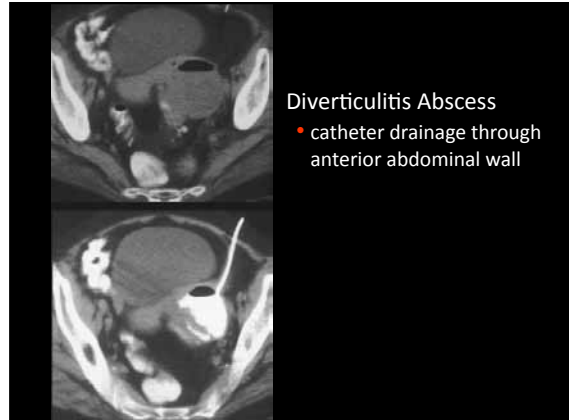
- 50% of cases now occur in patients less than 50 years old
 - 20% in patients less than 40 years old
- Strongly associated with obesity
 - Both are related to low fiber, high calorie diet

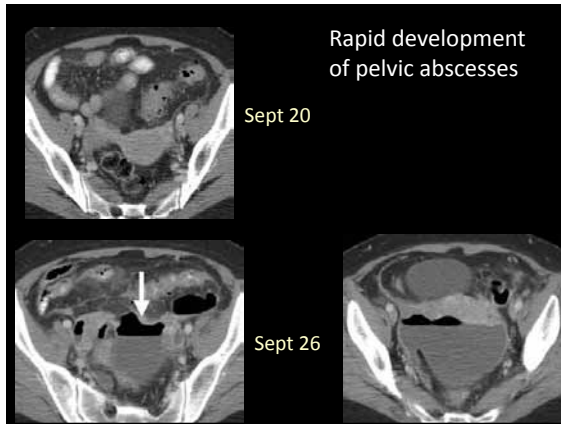
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Diverticular Abscess

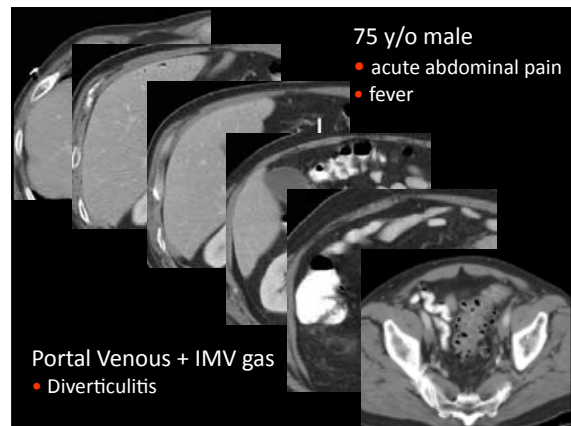
- Accessible abscess best Rx by catheter drainage
 - Eliminates at least 1 surgical procedure
 - Surgery (if necessary) can be done in clean field (usually for obstruction)
- Transabdominal is preferable
 - Trans-sciatic notch may be required





Infectious Thrombophlebitis of IMV - with Diverticulitis

- Look for clot or gas within IMV, maybe enhancement of wall
- Infiltration of fat around IMV
- Often associated with liver abscesses
- Signs of diverticulitis are often subtle
 - “Obvious” cases get treated promptly



Diverticulitis: Differential Dx

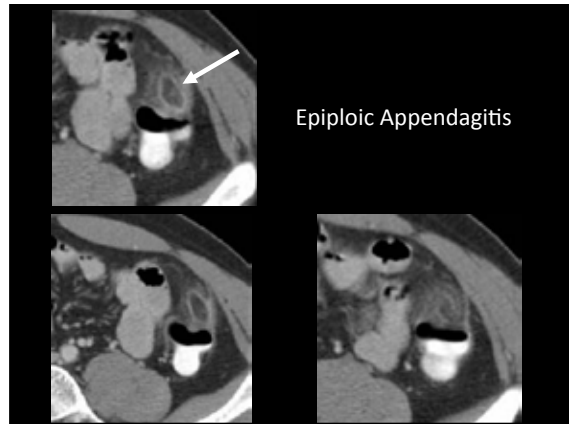
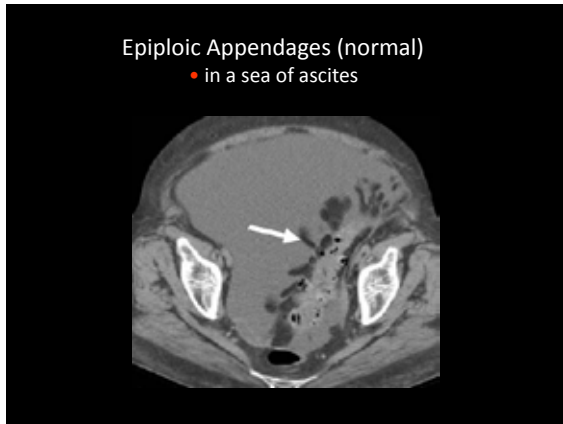
- Epiploic appendagitis
- Infectious colitis
 - Pseudomembranous colitis (*C. difficile*) extremely common
- Ischemic colitis
- Stercoral ulcer (impaction w ischemic ulcer)
- Sigmoid colon cancer
 - Especially if perforated
- Omental infarction (usually right side)

Epiploic Appendagitis

- Caused by torsion or infarction of epiploic appendages
- Sudden severe focal pain
- Resolves spontaneously
 - don't operate!
- CT: small inflam mass with fat core

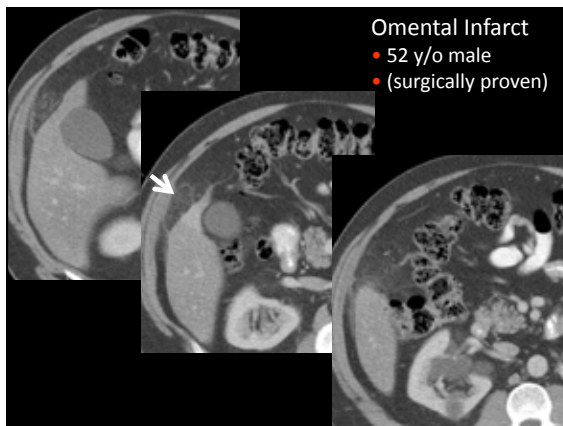


Federle: *DI: Abdomen*



Omental Infarction (Segmental)

- Interrupted vascular supply causing ischemia or infarction
- > 90% in **right side of abdomen**, usually near hepatic flexure of colon
- Looks like heterogeneous fatty mass, similar to epiptic appendagitis, but larger; farther from colon surface

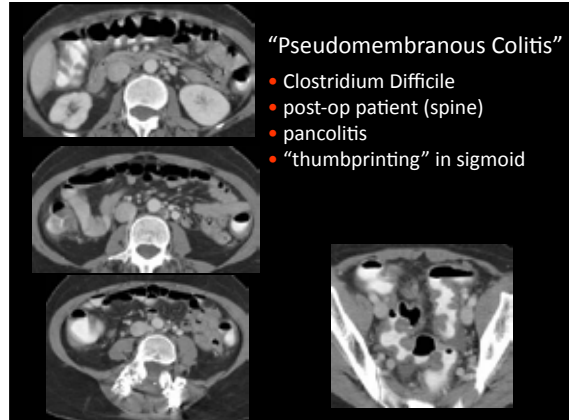


Pseudomembranous Colitis

- Clostridium difficile
- "Antibiotic – caused" infection
 - Can occur without antibiotic Rx
- Often pancolonic, can be segmental
- CT : massive wall thickening
 - Accordion sign
 - Thumbprinting
- Can perforate
- Total colectomy even death not rare

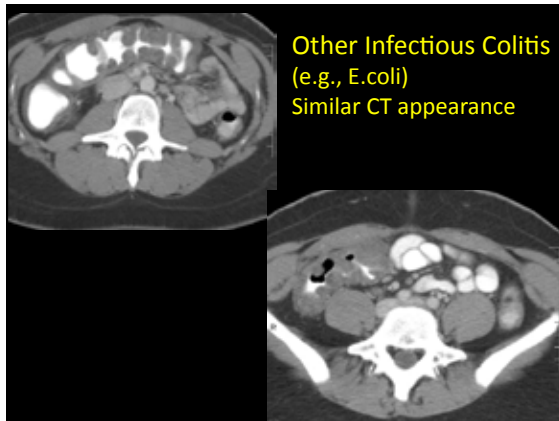


Federle: *Di: Abdomen*

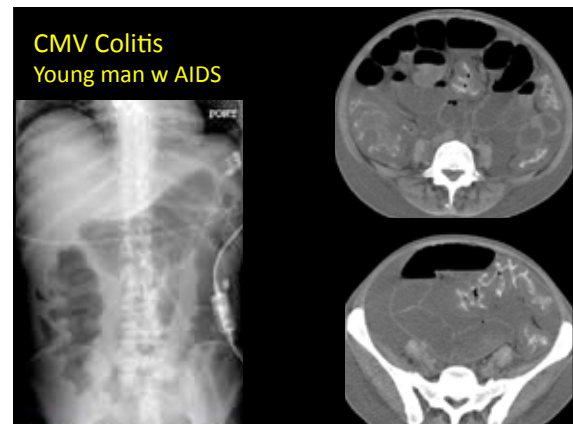


"Pseudomembranous Colitis"

- Clostridium Difficile
- post-op patient (spine)
- pancolitis
- "thumbprinting" in sigmoid



Other Infectious Colitis (e.g., E.coli) Similar CT appearance



CMV Colitis Young man w AIDS

Ischemic Colitis

- Usually nonocclusive (hypoperfusion)
- Most common cause of colitis (?still, C. Diff)
- Most common form of mesenteric ischemia

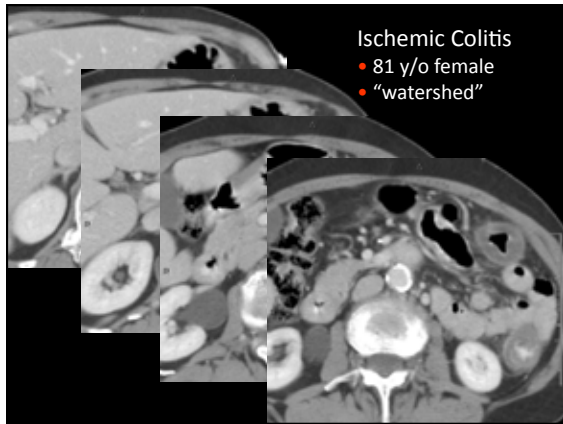


Federle: *Di: Abdomen*

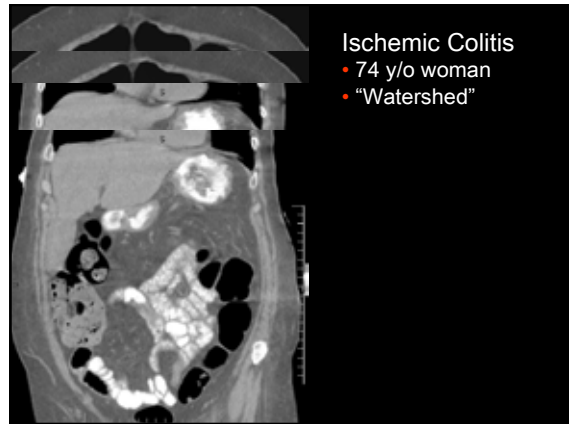
Ischemic Colitis

- Elderly patients
 - Predisposing: cardiac disease (CHF, drugs, arrhythmia)
 - Hypotensive
 - Vasculitis
 - Bowel obstruction





Ischemic Colitis
 • 81 y/o female
 • "watershed"



Ischemic Colitis
 • 74 y/o woman
 • "Watershed"

Diverticulitis vs Colon Cancer

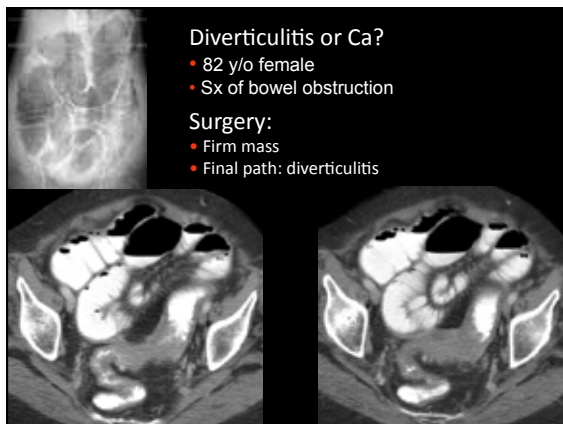
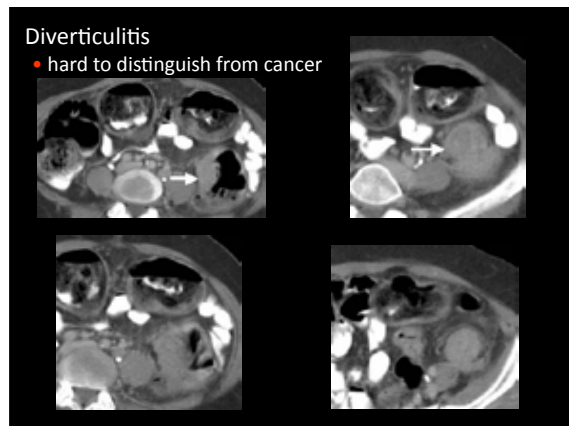
When CT findings are "unequivocal"

- 50% of cases
- Dx almost always correct

Equivocal in 50%

- Overlap of findings
- Need further evaluation after initial therapy
 - Sigmoidoscopy or barium enema

Padidar, Jeffrey. AJR 1994; 163: 81
 Chintapalli et al. Radiology 1999; 210

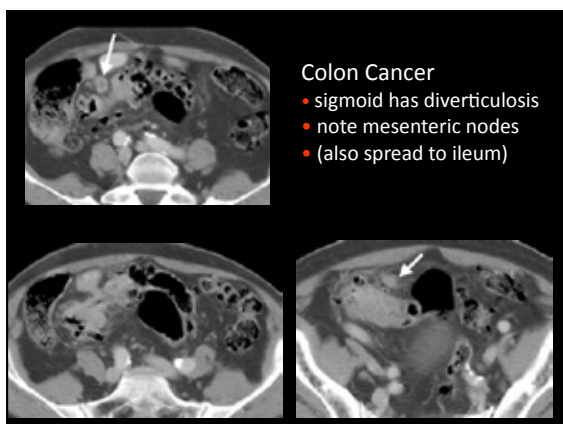
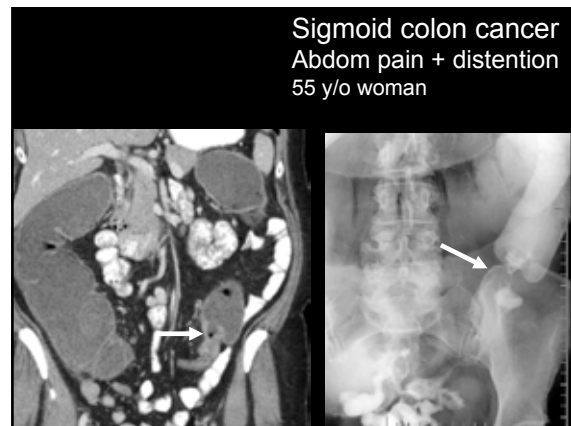
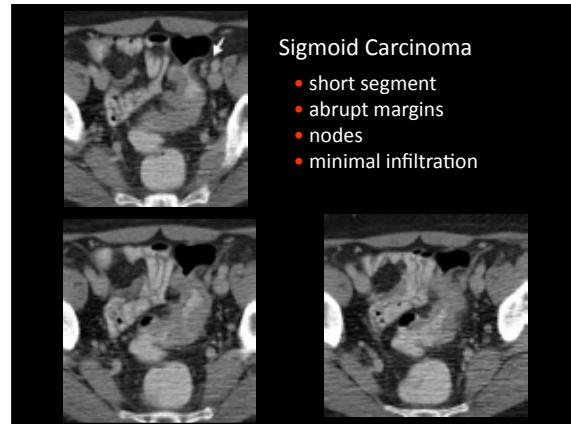
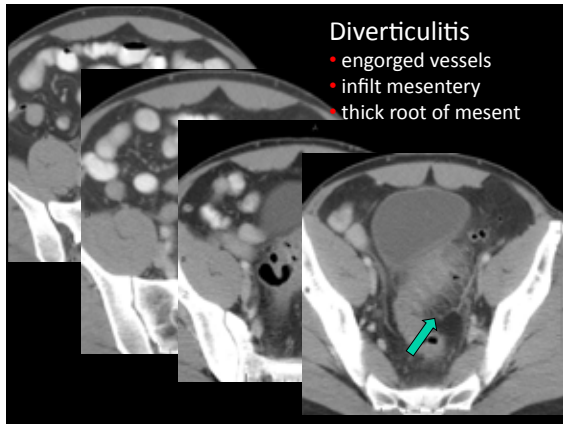


Diverticulitis or Ca?
 • 82 y/o female
 • Sx of bowel obstruction

Surgery:
 • Firm mass
 • Final path: diverticulitis

Diverticulitis vs Colon Cancer

<ul style="list-style-type: none"> • Cancer <ul style="list-style-type: none"> – Short segment – Abrupt margins <ul style="list-style-type: none"> • "Applecore" – Local adenopathy – Mets – Little or no infiltration of fat 	<ul style="list-style-type: none"> • Diverticulitis <ul style="list-style-type: none"> – Long segment (>10 cm) – Tapered margins – Local infiltration <ul style="list-style-type: none"> • Root of mesent – +/- Abscess – Engorged vessels
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Summary

- CT imaging procedure of choice for acute diverticulitis (LLQ pain)
- CT can guide both DDx and Rx
 - Consider catheter drainage of abscesses
- Endoscopy or barium enema often necessary to distinguish perforated colon cancer from diverticulitis (but not acutely)
- On an American diet, you're never too young to have diverticulitis