A Case of Epigastric Abdominal Pain

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RAD 4001- Diagnostic Radiology

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Clinical History

- Pt is a 38 y/o F with abdominal pain x 4 days w/ nausea, vomiting, diarrhea, and concerns for alcohol withdrawal. Pt had bloody stools 3 days ago. Pt reports mid-epigastric pain that is intermittent and radiates to the left and right upper quadrants.
    - PMH: alcohol abuse, hx of umbilical hernia
    - Social hx: Smokes 1 pack per day, drinks 1/3 gallon of liquor each day, homeless

ROS

- Constitutional: +chills, fatigue, malaise
- Cardiovascular: +SOB
- Respiratory: +cough
- Neuro: +dizziness

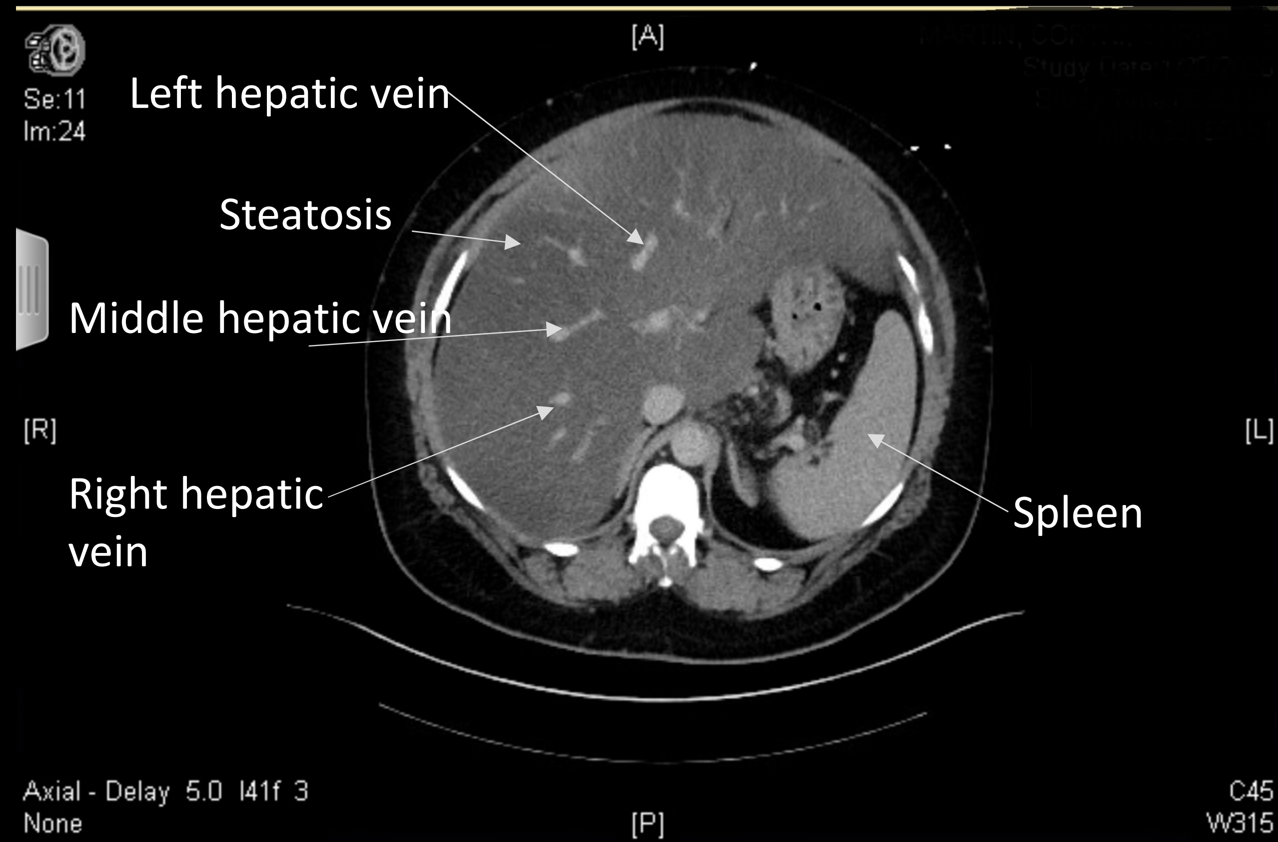
Physical exam

- VS: T 98.4 **HR: 128** **RR: 31** BP 117/77 SpO2: 94%
- General: NAD, alert
- CV: **Tachycardic**, normal S1/S2 w/out M/R/G
- Lungs: No wheezing or rales.
- Abd: **Mild distention, TTP in upper quadrants**; umbilical hernia
- Ext: **1+ BLE edema**
- Neuro: AOx3, CN 2-12 grossly intact; strength 5/5 bilat
- Psych: Normal affect

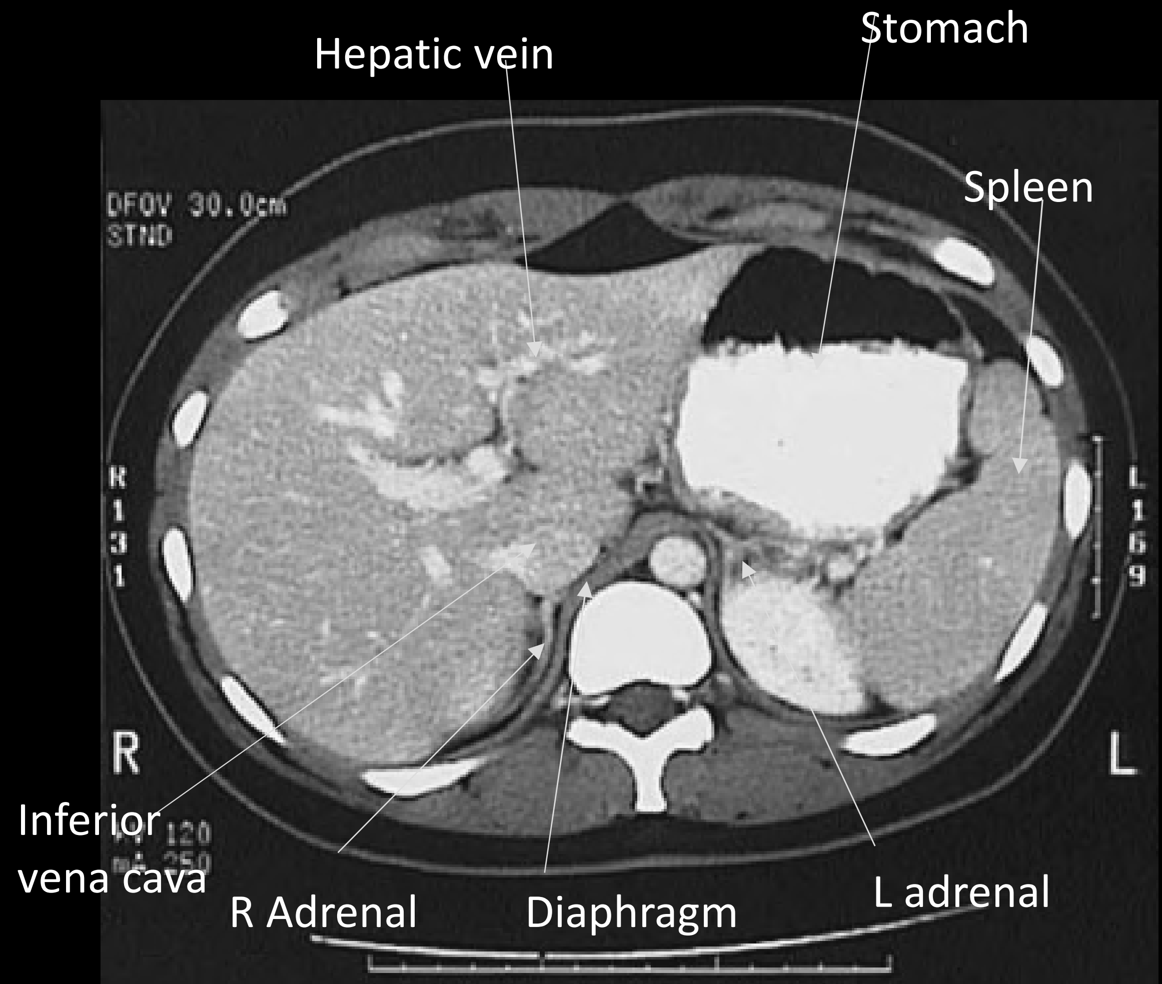
Initial workup for abdominal pain (1/20)

- CT scan done on arrival
- Lipase and lactic acid normal
- Team is thinking gastritis; keep on IV PPI BID
- 1/21-Pt continues to have LUQ abdominal pain, nausea and dec. appetite
- 1/22- Pt reports pain is epigastric and in the upper left quadrant, radiating to her back. Lipase/amylase continue to be neg. Repeat CT abd/pelvis due to pain and dec. appetite

CT Abdomen and Pelvis (1/20)



Normal



http://ar.utmb.edu/webpath/radiol/radnorm/abctyw11.htm

Se:12
Im:33

[H]

Heart

Steatosis

Gallbladder

[R]

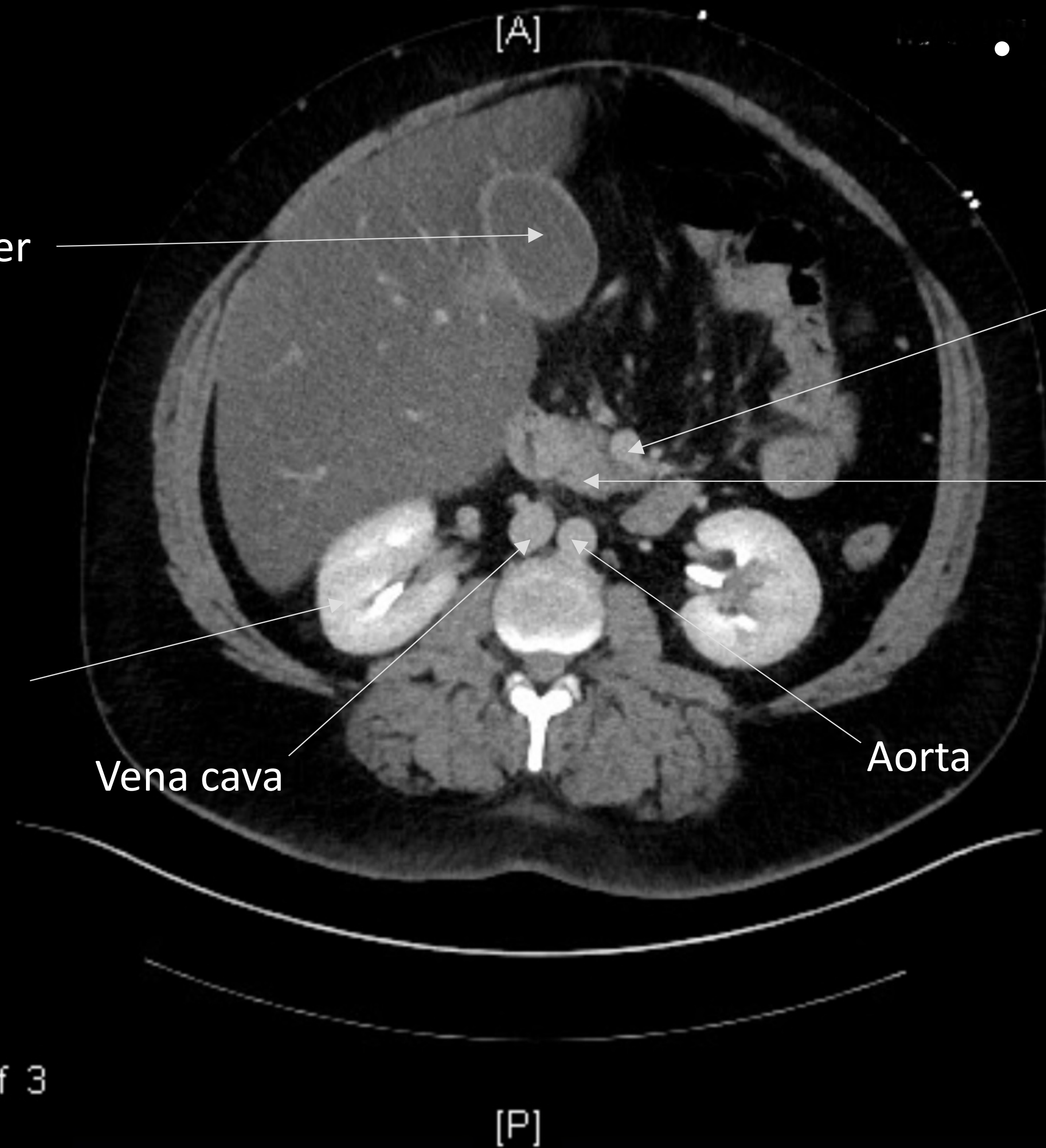
[L]

A

Cor - Delay 5.0 MPR cor
None

[F]

C45
W315



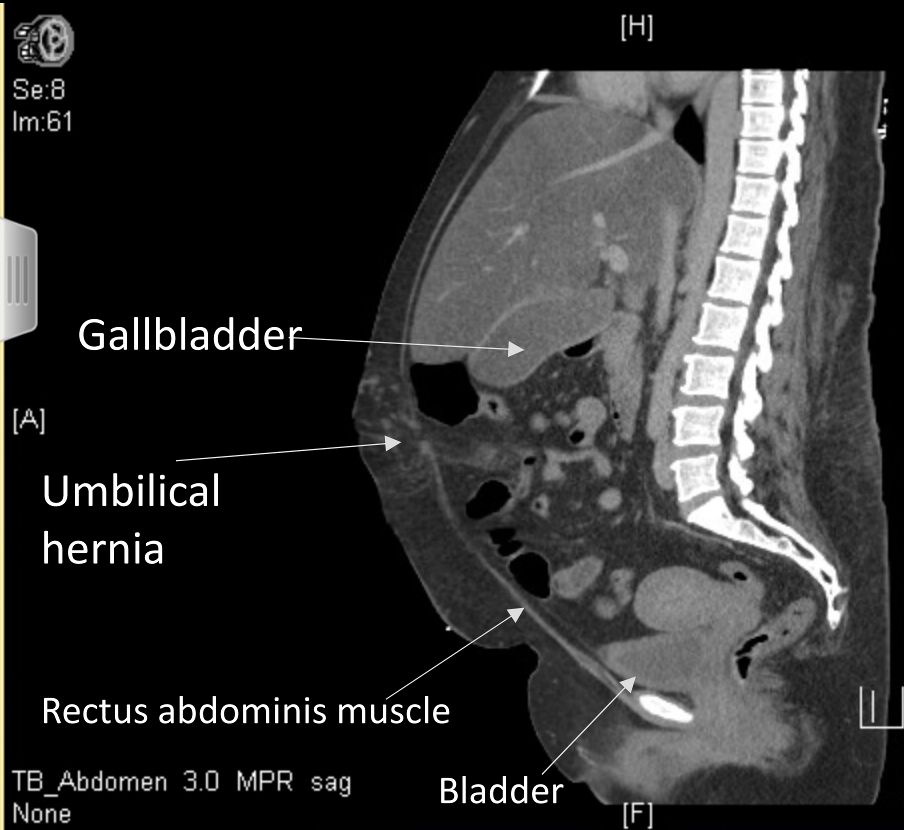
- Thickened gallbladder wall?

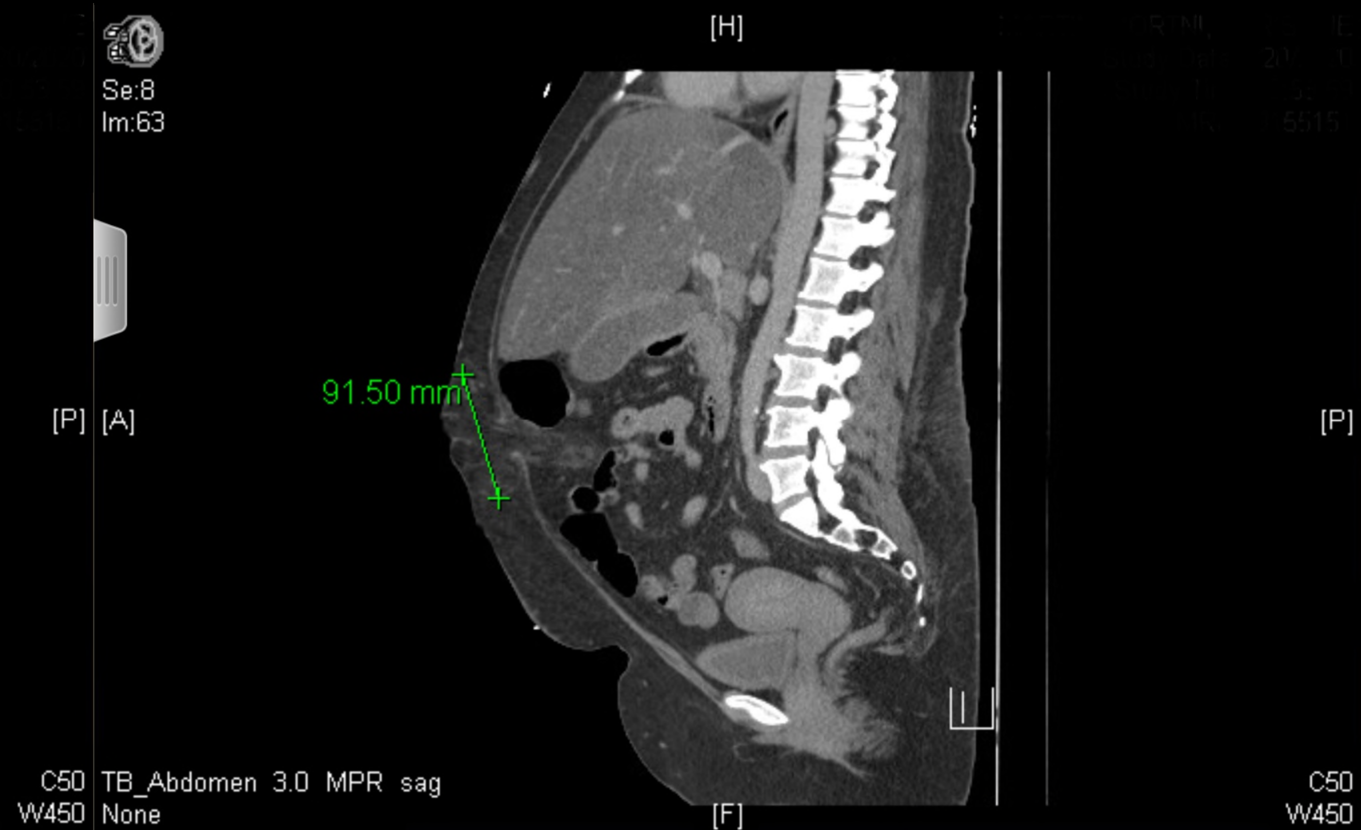
NORMAL

DFOV 30.0cm
STND
R
L
kV 120
mA 250

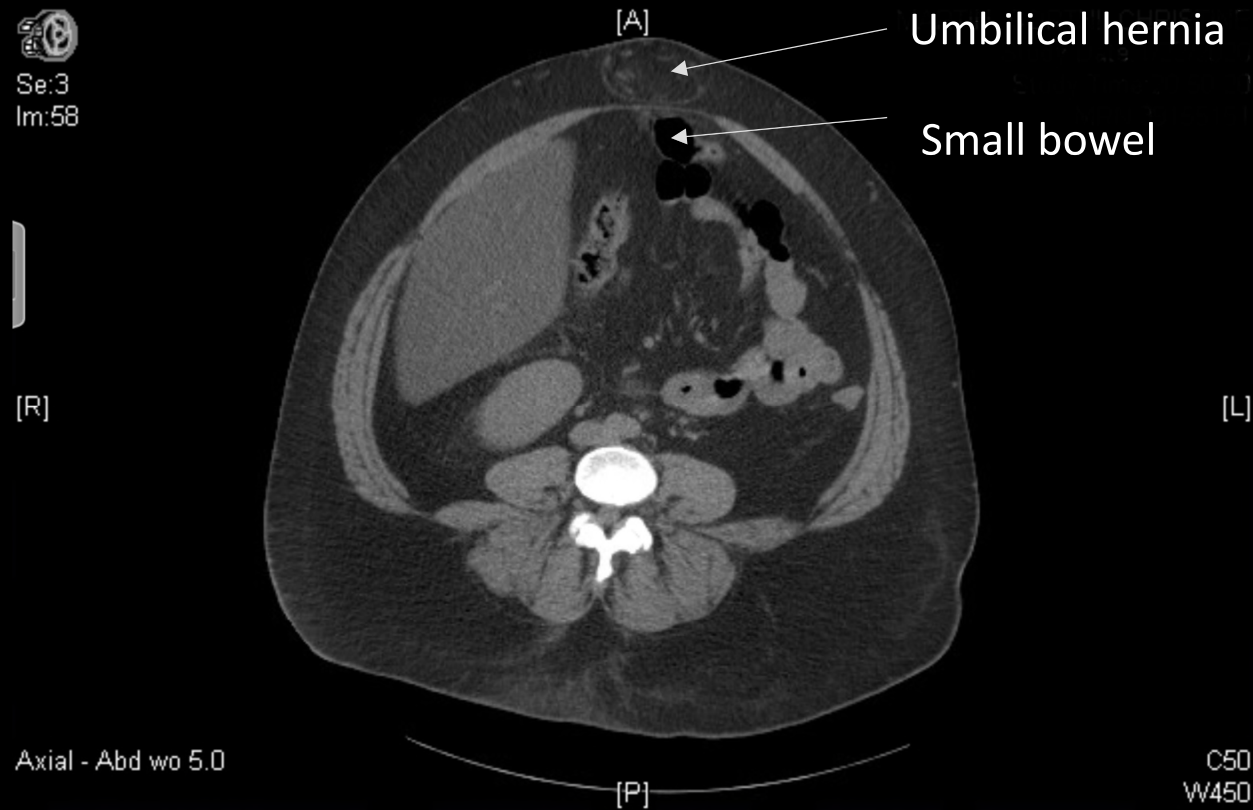
http://ar.utmb.edu/webpath/radiol/radnorm/abctyw16.htm

Umbilical Hernia





CT Abdomen and Pelvis (1/22)



Se:3
Im:61

[A]

Fat stranding

[R]

[L]

Axial - Abd wo 5.0

[P]

C50
W450

Se:3
Im:63

[A]

Fat stranding

[R]

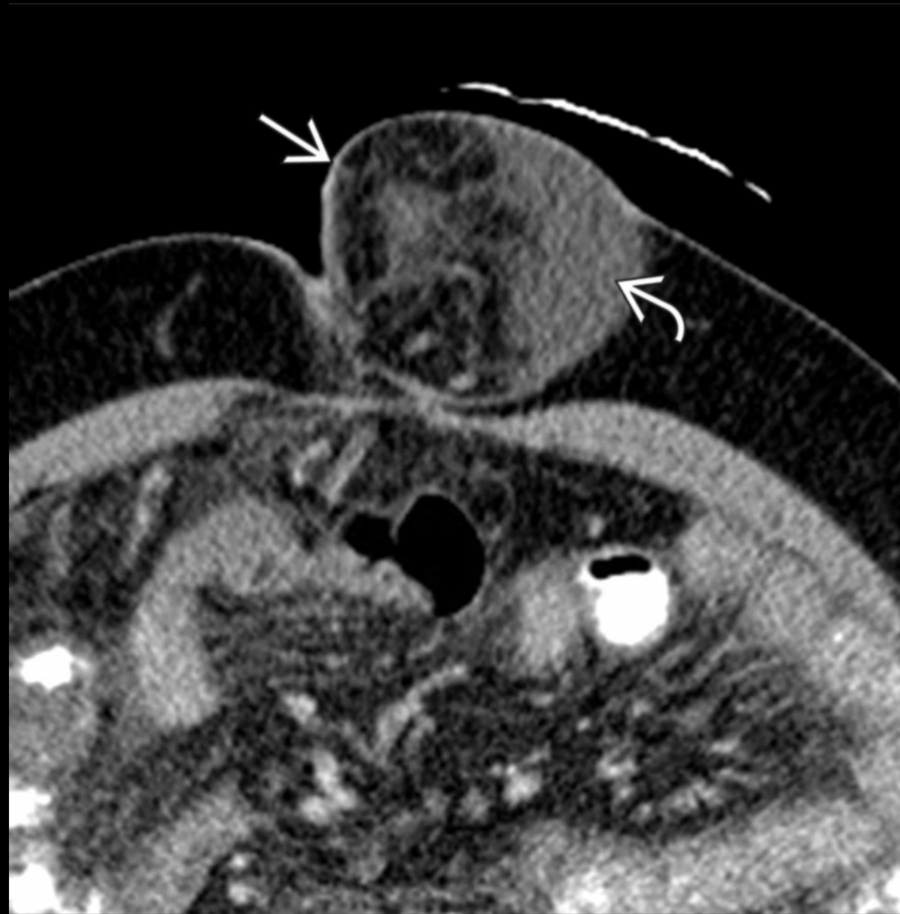
[L]

Axial - Abd wo 5.0

[P]

C50
W450

Example of incarcerated umbilical hernia with fat necrosis



From STATdx

Summary of Key Imaging Findings

- Hepatomegaly with severe diffuse fatty infiltration
  - Hx of alcohol abuse
- Fat containing supraumbilical hernia. Mild haziness of mesenteric fat associated with the hernia could relate to congestion or strangulation in the setting of persistent abdominal pain (1/20)
  - Could be causing referred abdominal pain.
  - Imaging on 1/22 did not support any strangulation of hernia

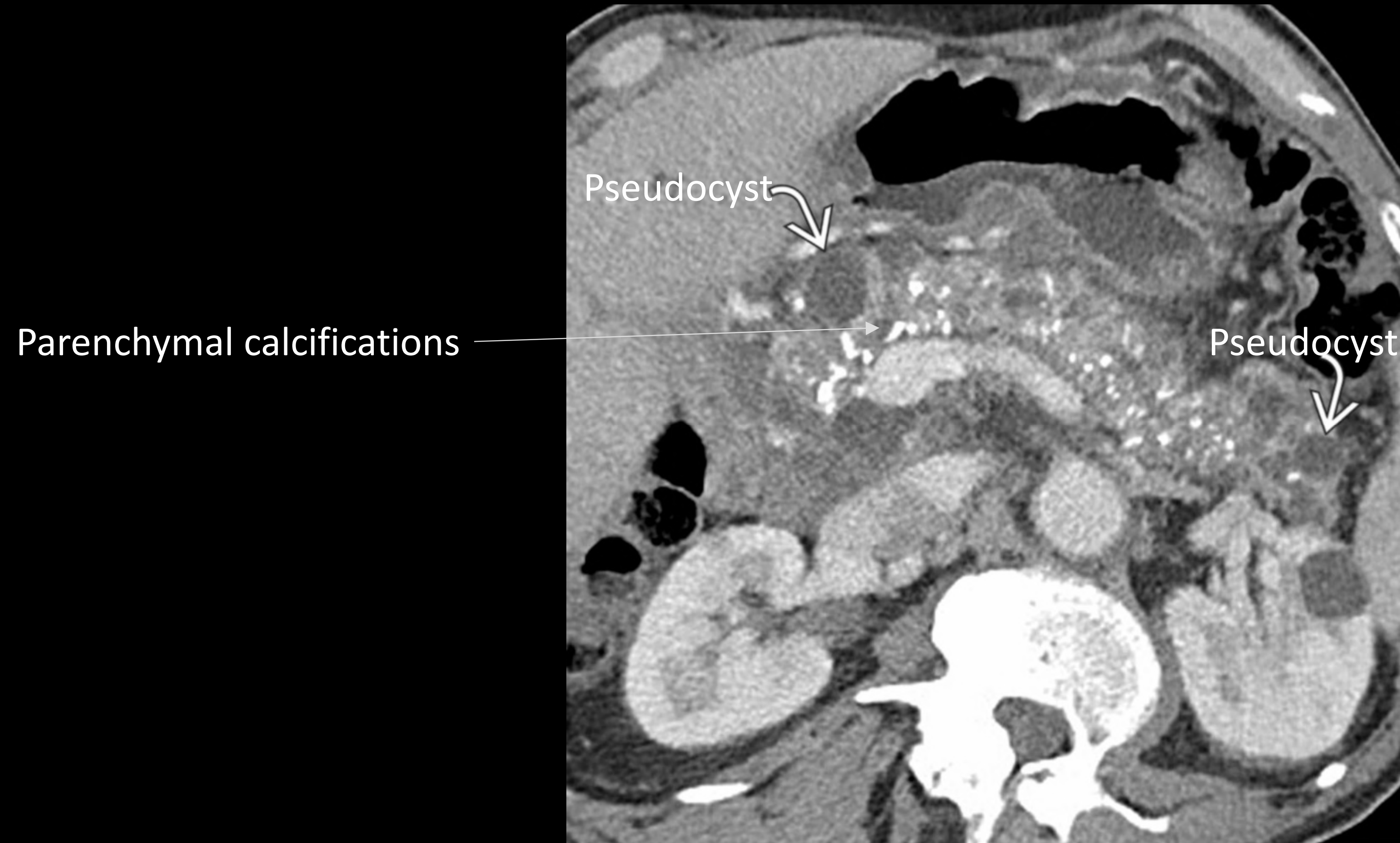
Differential Diagnosis

- Referred pain from fat stranding of umbilical hernia
- Chronic pancreatitis
- Acalculous cholecystitis
- Duodenal ulcer
- Gastric ulcer
- Gastritis
- Steatosis

Discussion

- Pt could be having some referred pain from supraumbilical hernia and fat stranding
  - Omental strangulation within a hernia can cause chronic abdominal wall pain
- No further workup for umbilical hernia is needed but patient should be followed due to risk of incarceration
- Chronic pancreatitis
  - Diarrhea, epigastric pain in hx of chronic alcohol abuse
  - Pancreas can appear normal on CT with normal lipase/amylase
  - Can consider doing MRCP, which will show calcifications and PD obstruction

Example of Chronic Pancreatitis



From STATdx

Discussion

- Umbilical hernia is a protrusion of abdominal contents (omental fat +/- bowel) into or through anterior abdominal wall via umbilical ring
- Results from weakening of cicatricial tissue that normally closes umbilical ring
  - Secondary to inc. intraabdominal pressure (obesity, multiple pregnancies, tense ascites, etc.)
- Overall, more common in women (3:1) but incarceration is more likely in men

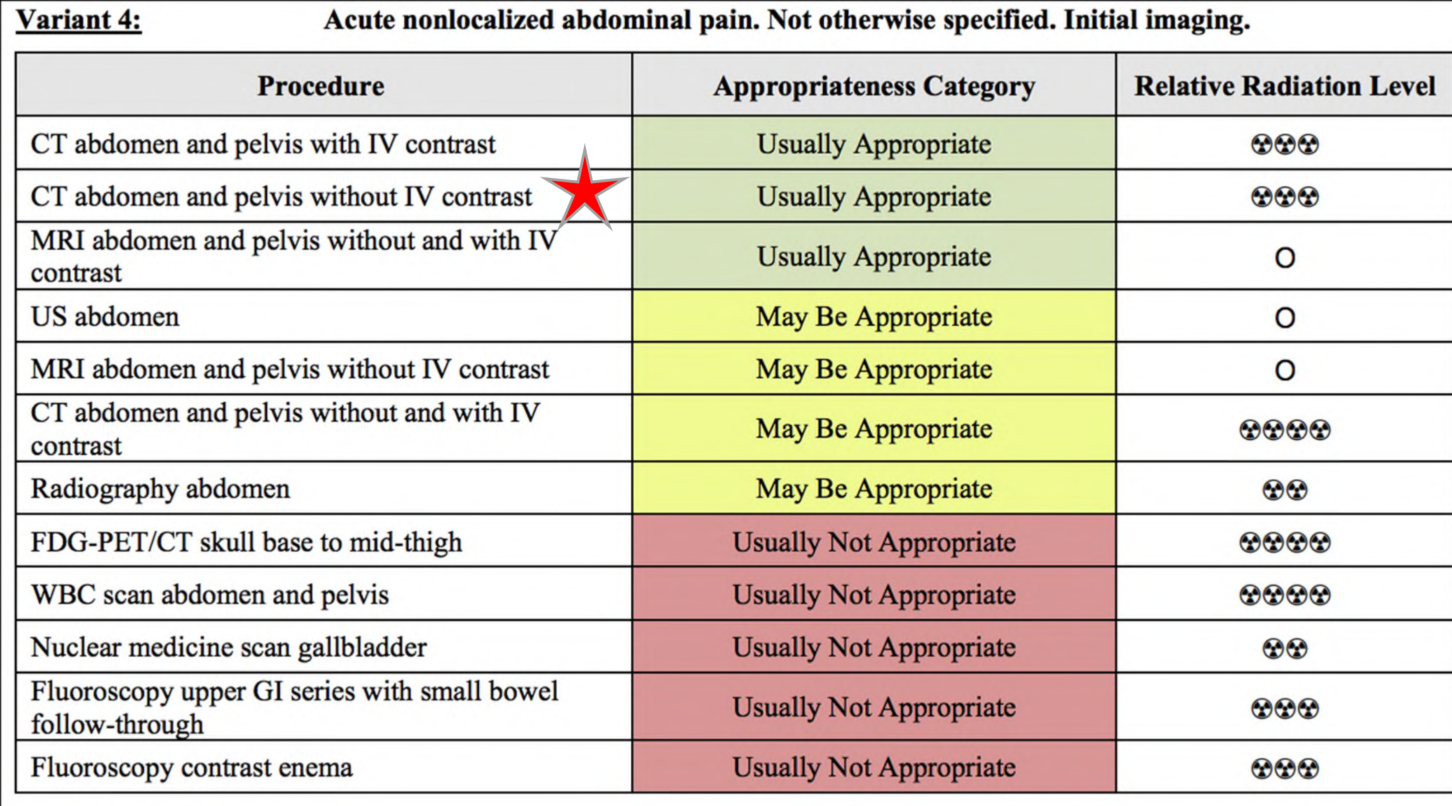
Treatment

- Repair (open surgery or laparoscopic)
- Prosthetic mesh used for defects > 3cm
- Surgery for umbilical hernias depends on
  - Symptoms, size of hernia, incarceration
- Complications of surgery
  - Recurrence, infected and noninfected fluid collection and complications from using prosthetic material
- Recurrence rates range from 0 to 3 percent after a mesh repair to up to 14 percent after a sutured repair

Outcome

- 1/23- Begins to eat, N/V has improved. Regular bowel movements. Tramadol controlling pain.
- 1/24- GI consulted and assesses the situation is suspicious for chronic pancreatitis. Pt is discharged with further outpatient workup needed.

ACR appropriateness Criteria



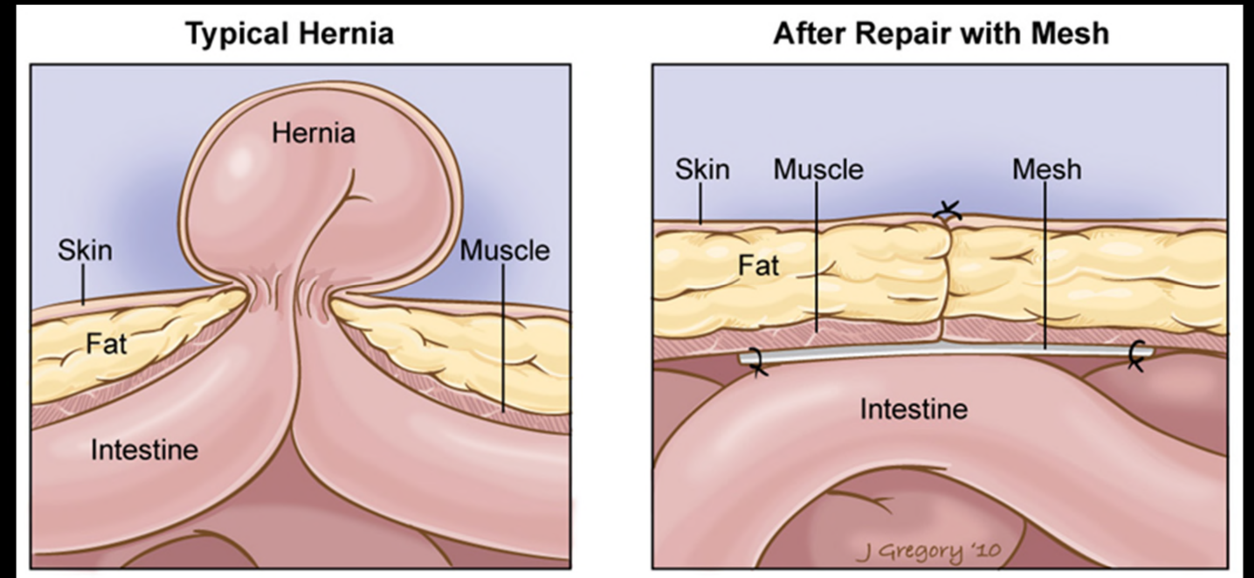
Variant 4: **Acute nonlocalized abdominal pain. Not otherwise specified. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	☢☢☢
CT abdomen and pelvis without IV contrast	Usually Appropriate	☢☢☢
MRI abdomen and pelvis without and with IV contrast	Usually Appropriate	O
US abdomen	May Be Appropriate	O
MRI abdomen and pelvis without IV contrast	May Be Appropriate	O
CT abdomen and pelvis without and with IV contrast	May Be Appropriate	☢☢☢☢
Radiography abdomen	May Be Appropriate	☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
WBC scan abdomen and pelvis	Usually Not Appropriate	☢☢☢☢
Nuclear medicine scan gallbladder	Usually Not Appropriate	☢☢
Fluoroscopy upper GI series with small bowel follow-through	Usually Not Appropriate	☢☢☢
Fluoroscopy contrast enema	Usually Not Appropriate	☢☢☢

https://acsearch.acr.org/docs/69467/Narrative/

Cost

- CT Pelvis/Abdomen w/out contrast
  - $2,114 x2= $4,228
- Hernia procedure
  - $42,812-$112,332



https://www.premierherniacenter.com/treatment/

https://www.memorialhermann.org/patients-caregivers/pricing-estimates-and-information/

Take Home Points

- Hernias can cause referred pain due to fat stranding but especially if they are incarcerated
- However, an incarcerated hernia is rare
- Look for other causes of abdominal pain
  - Do more studies, if needed
  - No need to repeat same imaging technique if exam has not changed

References

- Aguirre DA et al: Abdominal wall hernias: imaging features, complications, and diagnostic pitfalls at multi-detector row CT. Radiographics. 25(6):1501-20, 2005
- Kavic MS. Hernias as a source of abdominal pain: a matter of concern to general surgeons, gynecologists, and urologists. *JSLS*. 2005;9(3):249–251.
- T. Germain, S. Favelier, J.P. Cercueil, A. Denys, D. Krausé, B. Guiu. Liver segmentation: practical tips. Diagn Interv Imaging, 95 (2014), pp. 1003-1016
- StatDx

Questions?