

Diagnostic Radiology Case: 60 yo F w/ severe mid-epigastric pain

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RAD 4001

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Clinical History

- 60F presents as a direct admit from UTPB
- CC: severe mid-epigastric pain 10/10 radiating to LLQ & left flank for the last month, but now is unbearable
- Pain worse on empty stomach in AM
- Constipated for 3 days
- Vomited the day before admission

Medical History

HTN, DM2, obesity, OSA, anxiety & depression, gastric bypass

No smoking, no alcohol

Vitals at admission

- BP: 199/111
- HR: 83
- RR: 20
- SpO2: 98%
- Temp: 97.9F

ROS

- General: WNL
- HEENT: WNL
- Respiratory: WNL
- Cardiac: WNL
- GI: mid-epigastric pain radiating to LLQ and L flank
- Urinary: WNL
- MSK: WNL
- Neuro: WNL

Physical Exam

- General: AAO*3, pt in distress 2/2 severe pain
- HEENT: NC/AT, PERRLA, EOMI
- Neck: supple, no JVD, no LAD
- CV: RRR, S1S2 NL, no MRG
- Lungs: CTA B/L, no RRW
- Abdomen: + mid-epigastric tenderness & LUQ pain w/ deep palpation, soft, non-distended, BS+*4, no hepatosplenomegaly, no CVA tenderness
- Extremities: no C/C/E, movement intact in 4 extremities
- Skin: no rashes, scars
- Neurologic: WNL

Labs

- Amylase 42
- Lipase 92
- Na 140
- K 3.6
- CO2 29
- Glu 193 **H**
- Creat and BUN 0.87 and 12
- Total Protein 8.2
- ALT/AST 32/17
- Alk. Phosphatase 191 **H**
- WBC 5.5
- Hgb 11 **L**
- Plt 180
- T Bili 0.4

DDx

DDx

- Peptic Ulcer Disease
- Acute Gastritis
- Acute Pancreatitis
- MI
- Nephrolithiasis
- Hepatitis
- Biliary Disease
- Appendicitis

Initial Management

- Pt had been admitted to service for management of pain
- IV Morphine, NS, Hydralazine, GI consult
- CBC, CMP
- CXR, Abdominal XR, Abdominal CT, Chest CT, Abdominal US

ACR Appropriateness Criteria

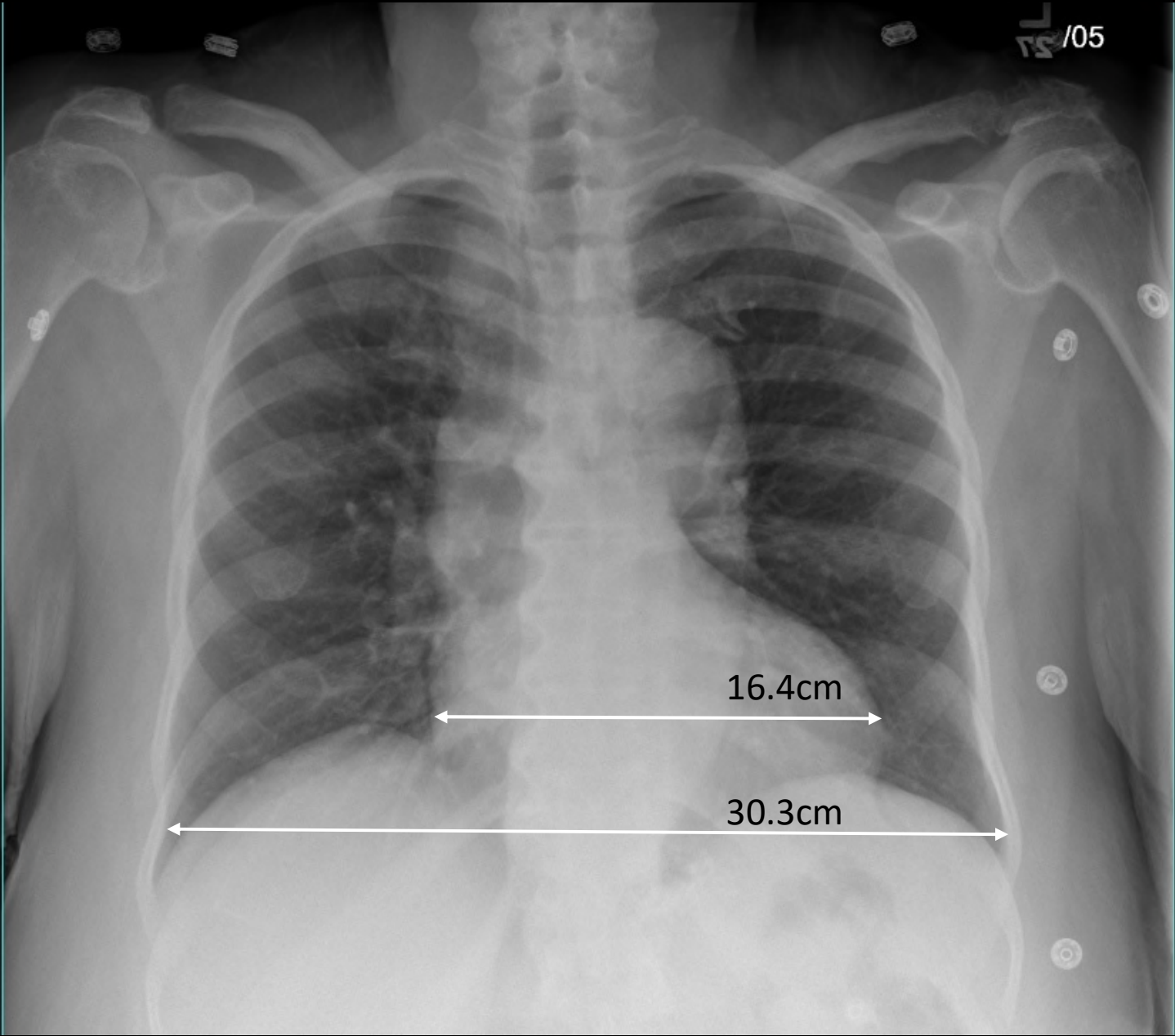
Suspected Acute Pancreatitis

Variant 2:

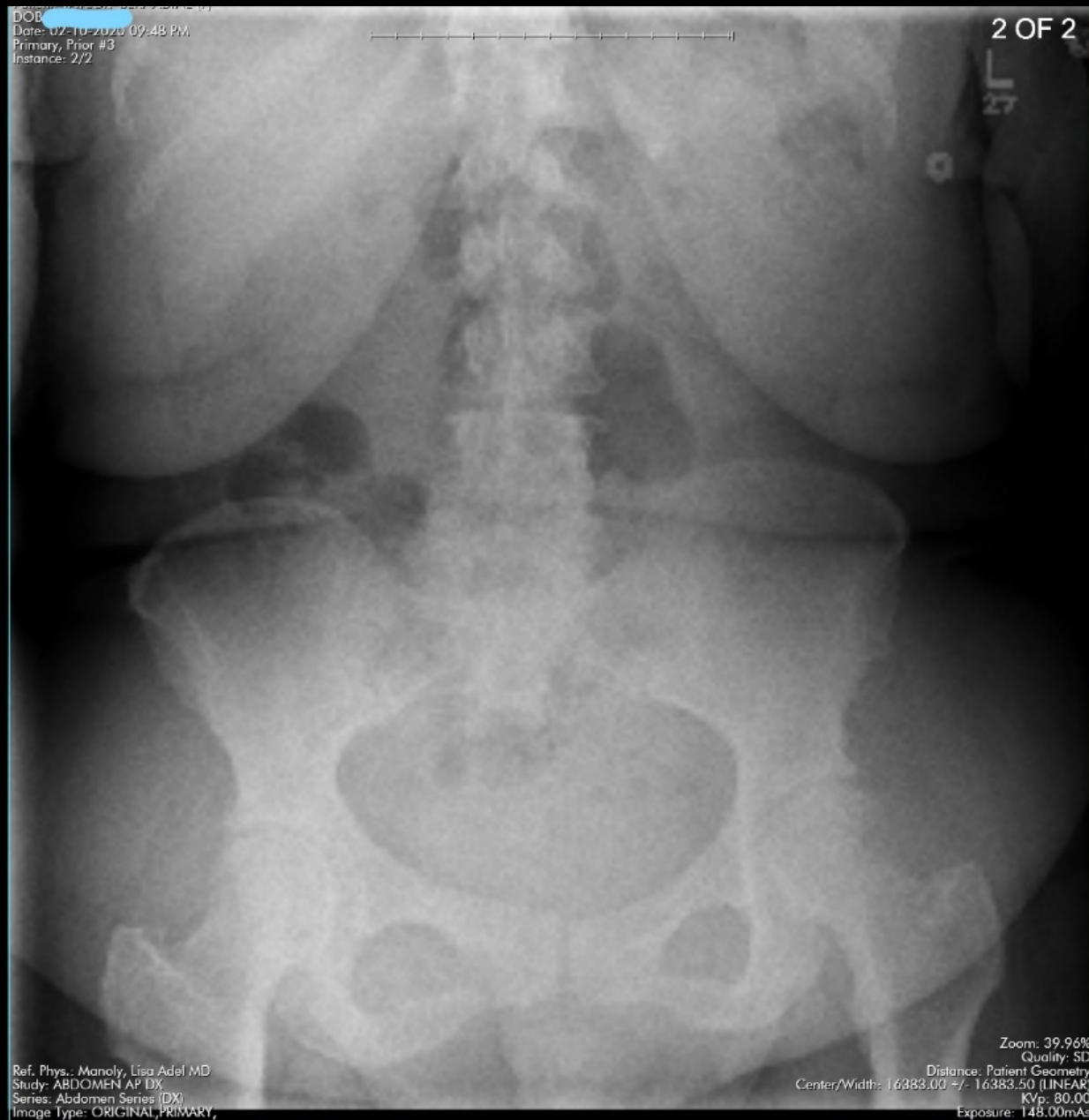
Suspected acute pancreatitis. Initial presentation with atypical signs and symptoms; including equivocal amylase and lipase values (possibly confounded by acute kidney injury or chronic kidney disease) and when diagnoses other than pancreatitis may be possible (bowel perforation, bowel ischemia, etc). Initial imaging.

Procedure	Appropriateness Category	Relative Radiation Level
CT abdomen and pelvis with IV contrast	Usually Appropriate	☼☼☼
MRI abdomen without and with IV contrast with MRCP	Usually Appropriate	○
CT abdomen and pelvis without IV contrast	May Be Appropriate	☼☼☼
MRI abdomen without IV contrast with MRCP	May Be Appropriate	○
US abdomen	May Be Appropriate	○
US duplex Doppler abdomen	May Be Appropriate	○
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	☼☼☼☼
US abdomen with IV contrast	Usually Not Appropriate	○

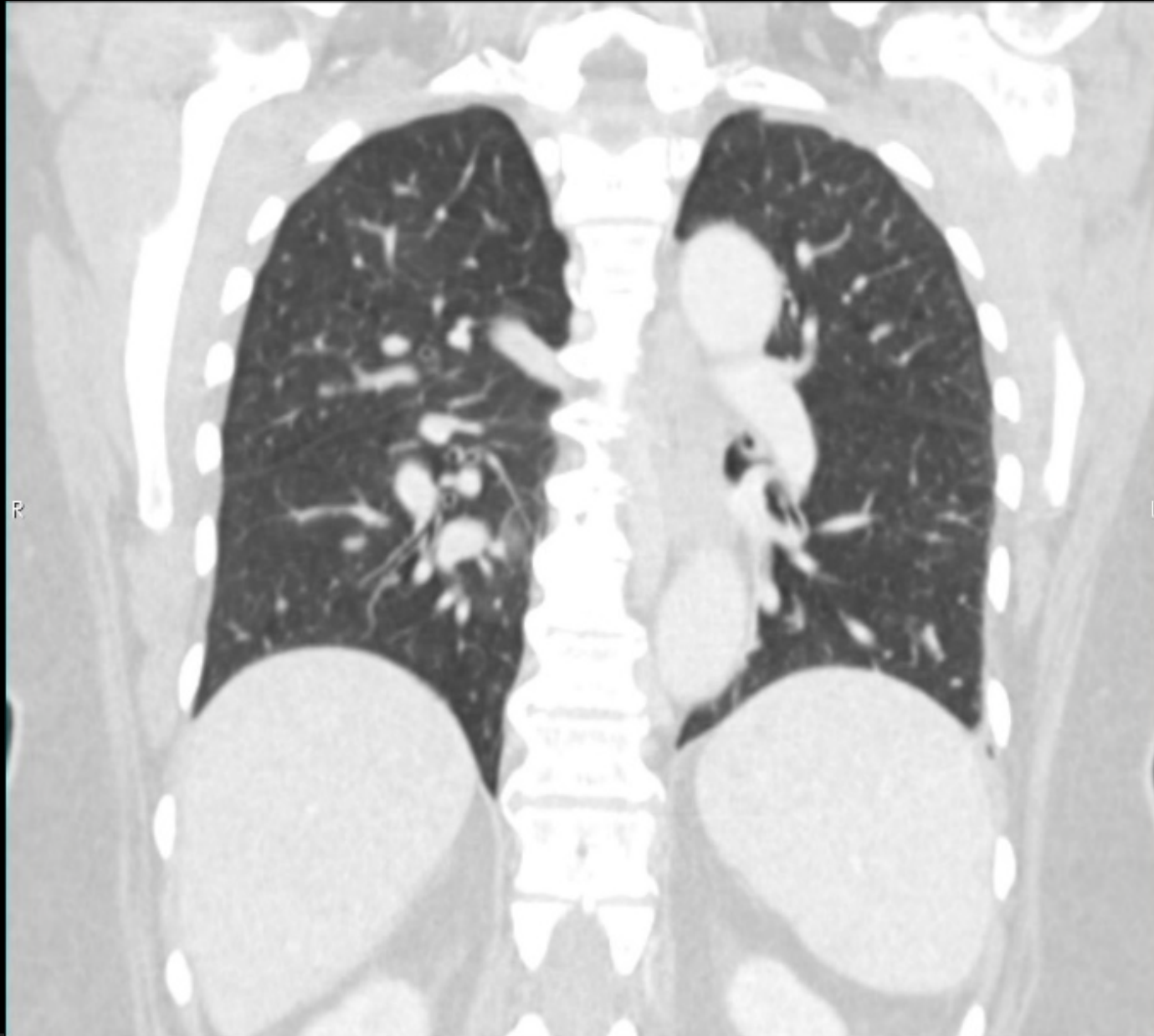
CXR PA



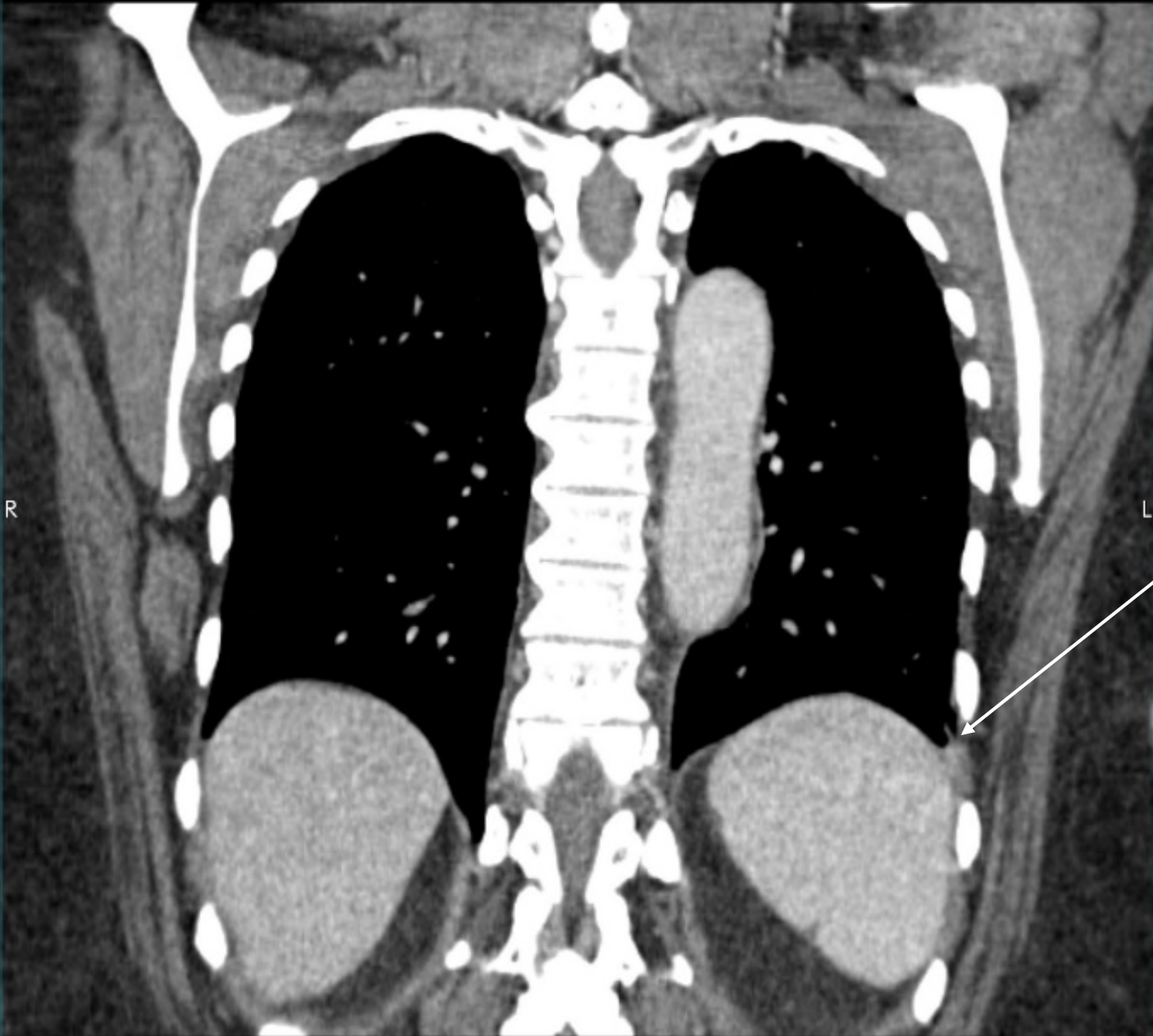
Abdominal XR AP



Chest CT

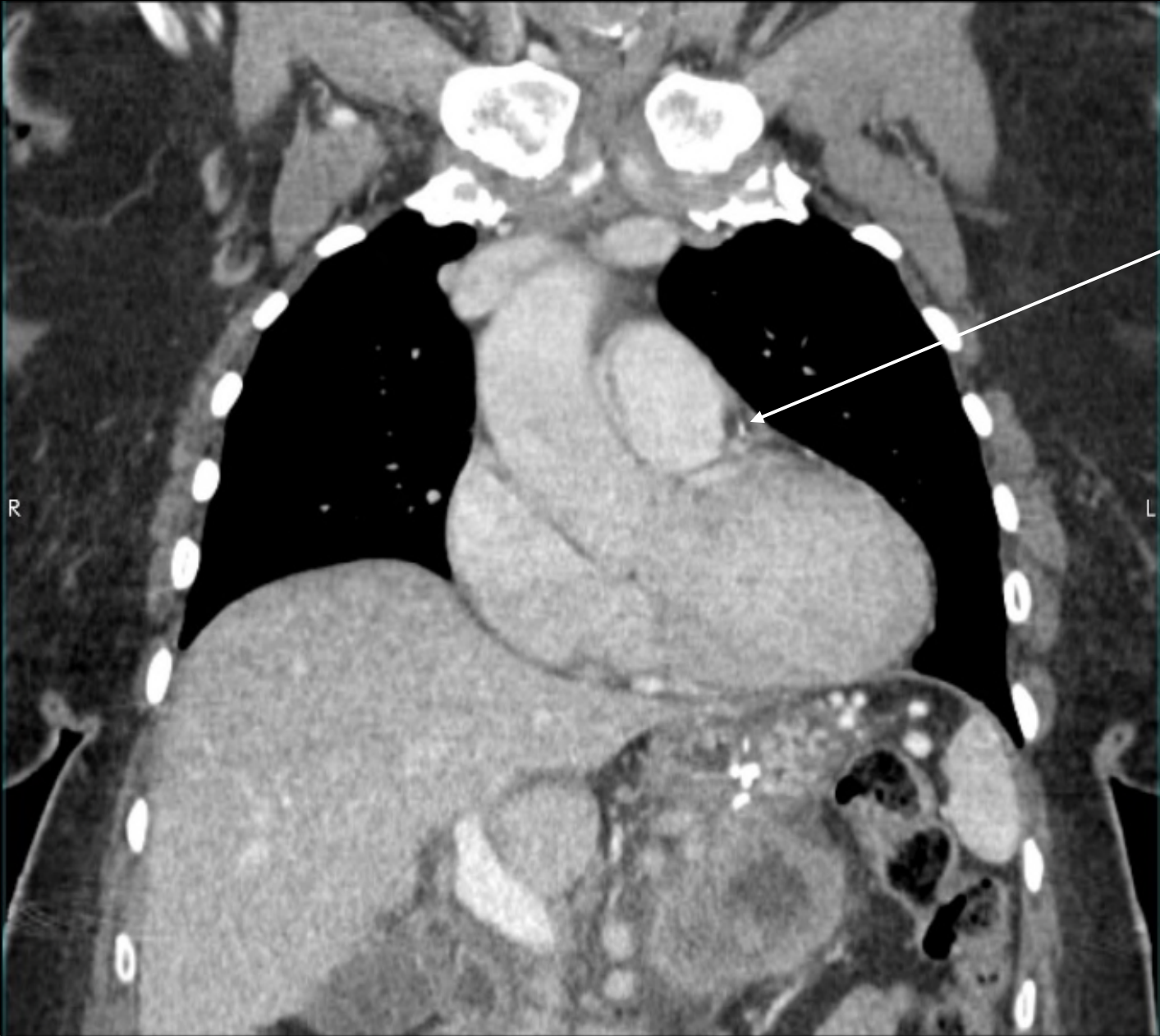


Chest CT



Tiny effusion

Chest CT



LAD calcification

Abd. CT, precontrast

Hypodense mass in
pancreas

Descending colon

Spleen

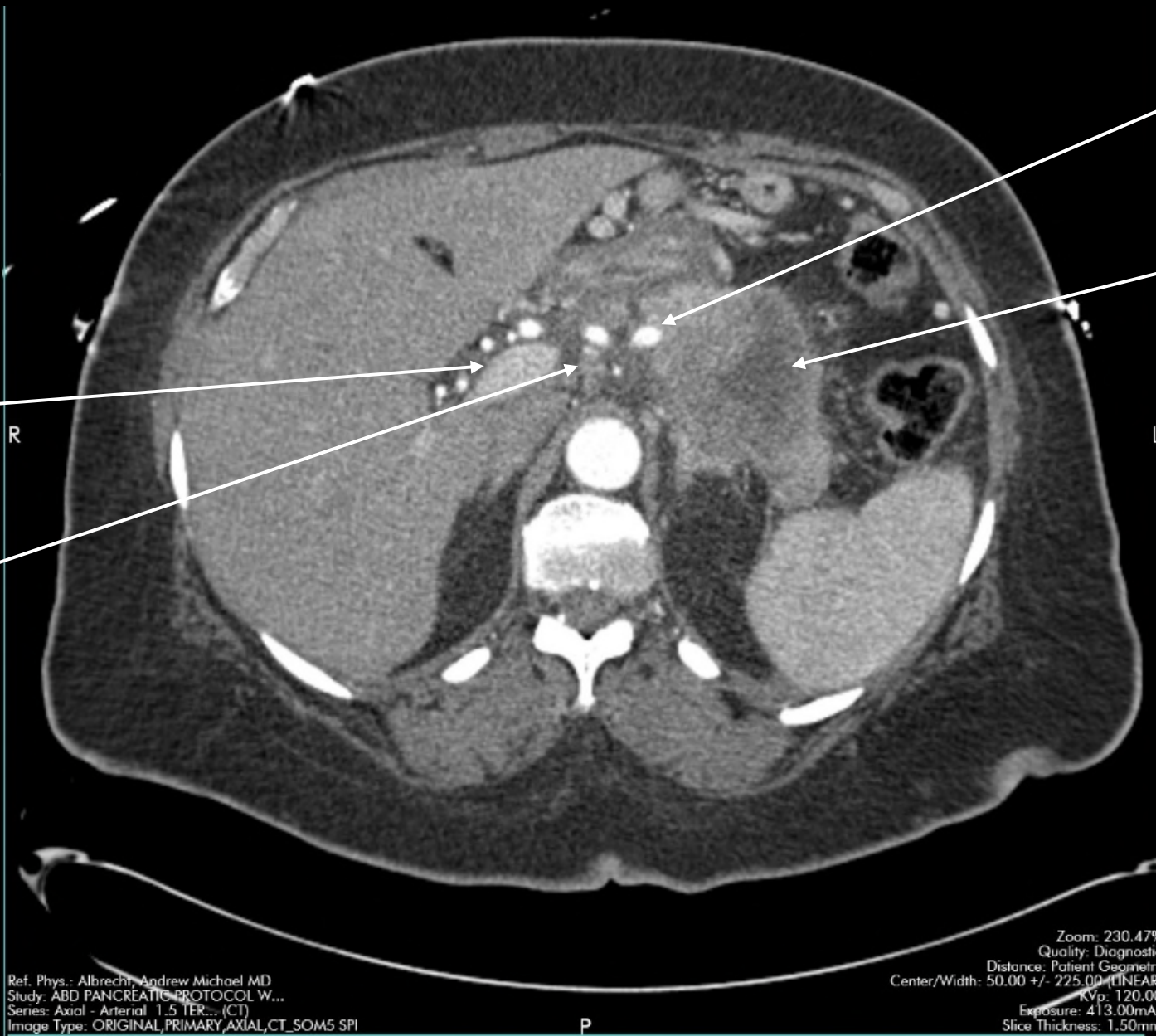
Abdominal Aorta



Ref. Phys.: Albrecht, Andrew Michael MD
Study: ABD PANCREATIC PROTOCOL W...
Series: Axial - Abd wo 3.0 (CT)
Image Type: ORIGINAL,PRIMARY,AXIAL,CT_SOM5 SPI

Zoom: 230.47%
Quality: Diagnostic
Distance: Patient Geometry
Center/Width: 50.00 +/- 225.00 (LINEAR)
KVp: 120.00
Exposure: 390.00mAs
Slice Thickness: 3.00mm

Abd. CT w/ contrast, art. phase



Splenic artery

Hypodense mass with
peripheral enhancement

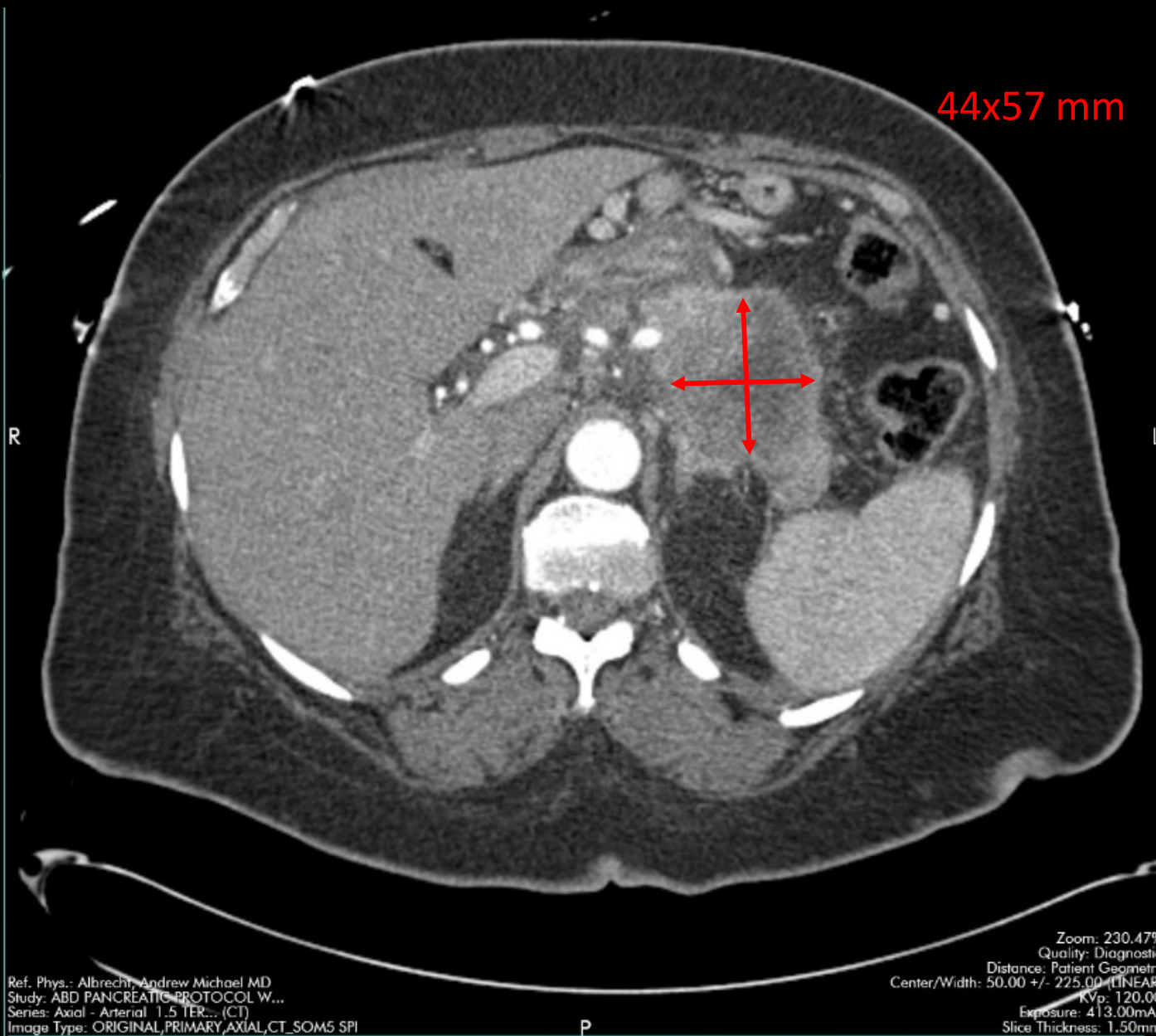
Portal vein

Coeliac lymph nodes

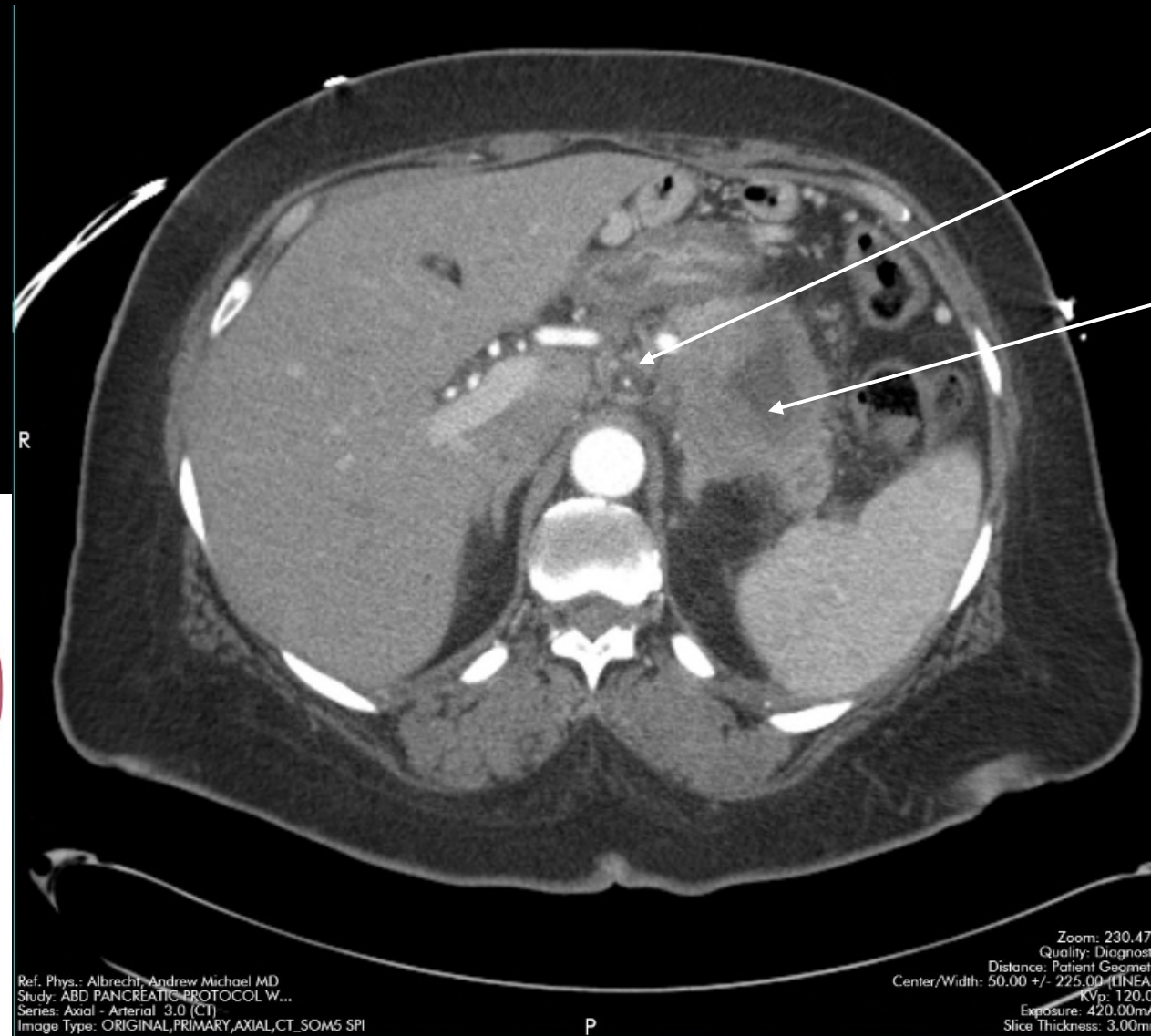
Ref. Phys.: Albrecht, Andrew Michael MD
Study: ABD PANCREATIC PROTOCOL W...
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Image Type: ORIGINAL, PRIMARY, AXIAL, CT_SOM5 SPI

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Quality: Diagnostic
Distance: Patient Geometry
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Abd. CT
w/ contrast,
art. phase

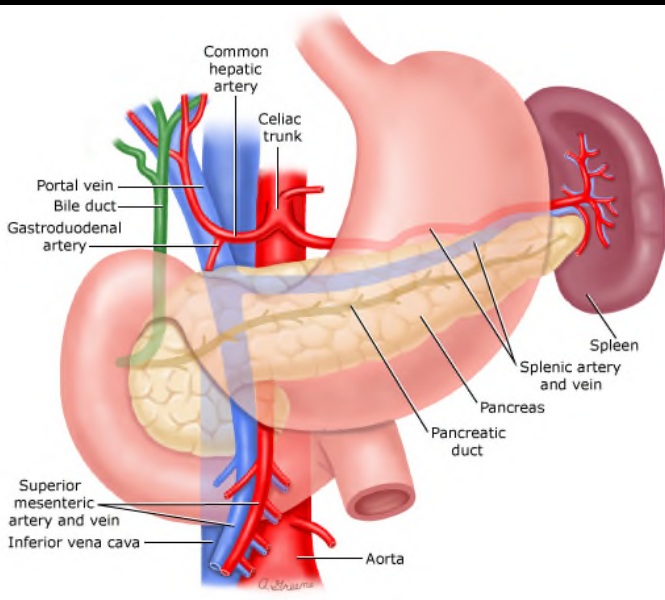


Abd. CT w/ contrast, art. phase

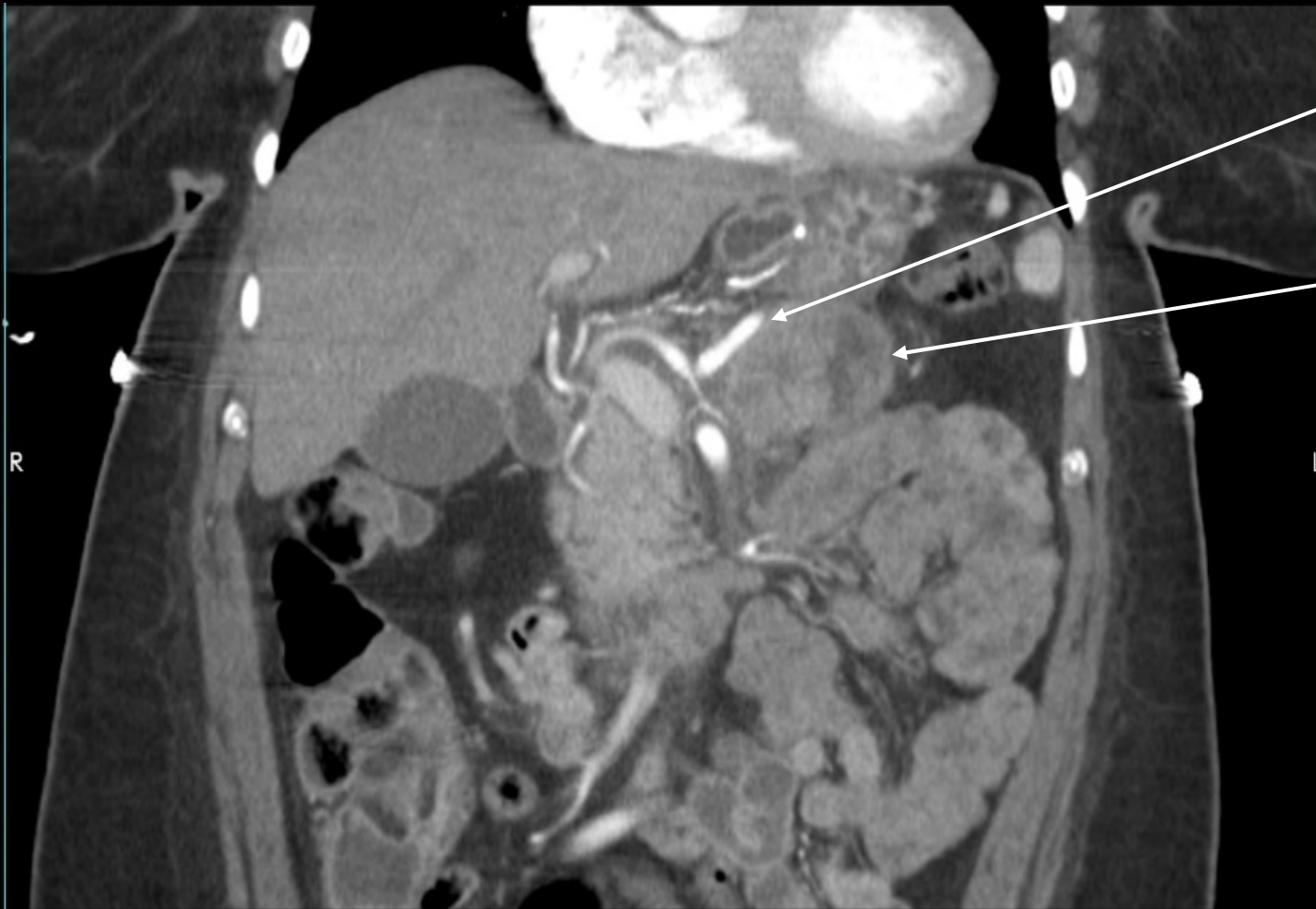


Splenic artery

Pancreatic mass



Abd. CT
w/ contrast,
art. phase



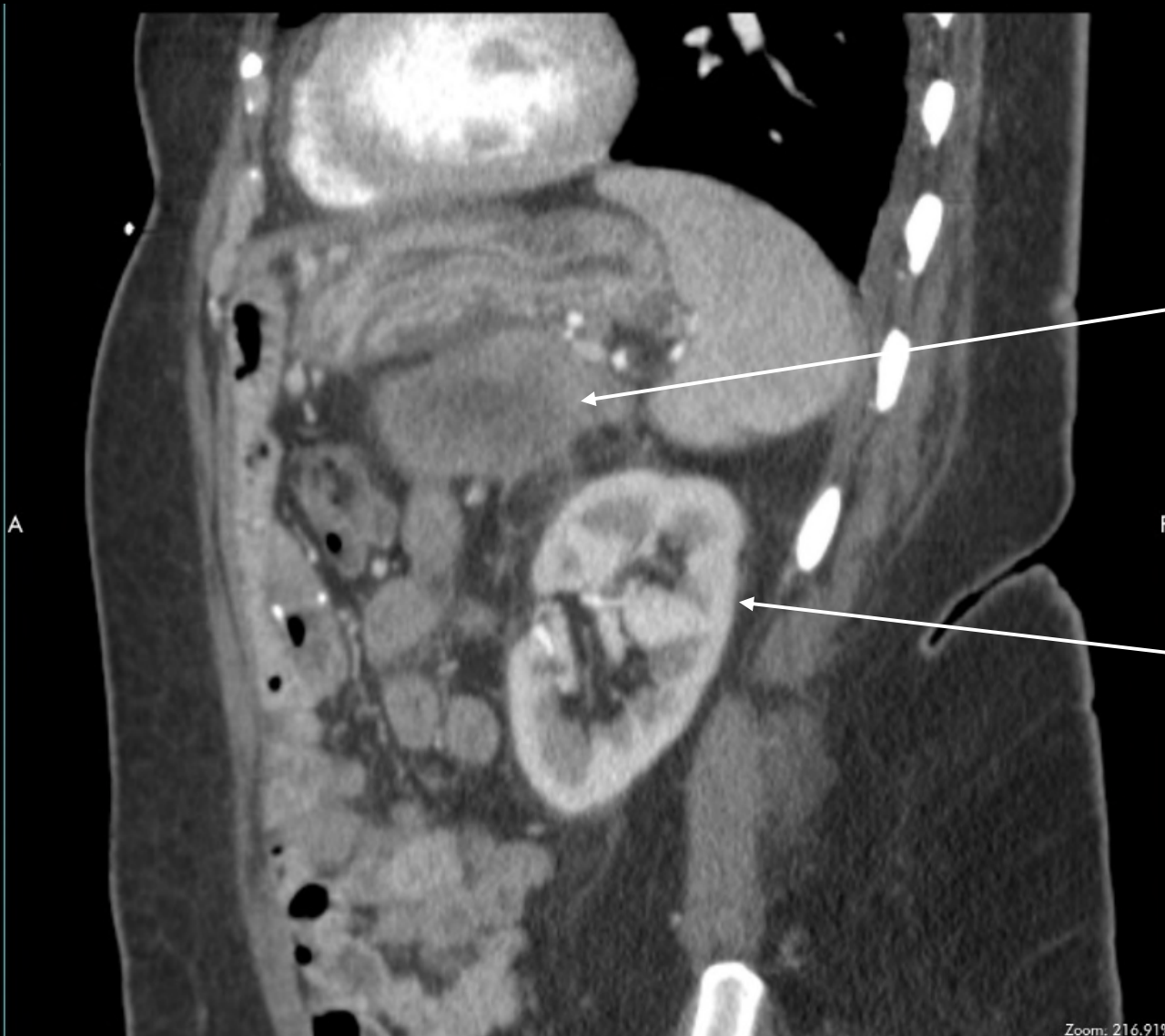
Splenic artery

Pancreatic mass

Ref. Phys.: Albrecht, Andrew Michael MD
Study: ABD PANCREATIC PROTOCOL W...
Series: Cor SPO - Arterial 3.0 [CT]
Image Type: DERIVED,PRIMARY,AXIAL,CT_SOM5 SPO

Zoom: 159.46%
Quality: Diagnostic
Distance: Patient Geometry
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Exposure: 421.00mAs
Slice Thickness: 3.00mm

Abd. CT w/ contrast, art. phase



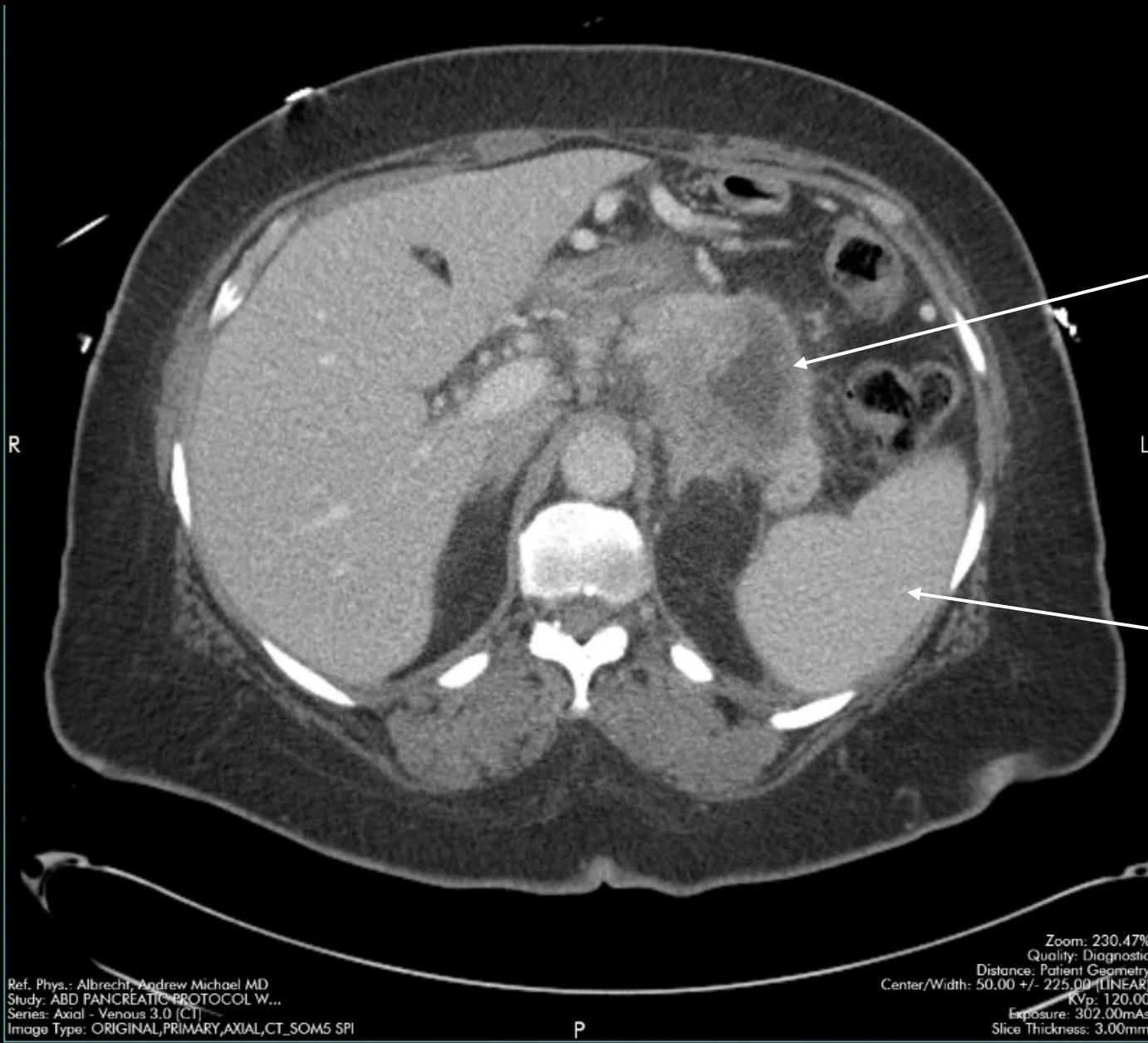
Pancreatic mass

Left kidney

Ref. Phys.: Albrecht, Andrew Michael MD
Study: ABD PANCREATIC PROTOCOL W...
Series: Sag - Arterial 3.0 (CT)
Image Type: DERIVED,PRIMARY,AXIAL,CT_SOM5 SPO

Zoom: 216.91%
Quality: Diagnostic
Distance: Patient Geometry
Center/Width: 50.00 +/- 225.00 (LINEAR)
KVp: 120.00
Exposure: 421.00mAs
Slice Thickness: 3.00mm

Abd. CT
w/ contrast,
ven. phase



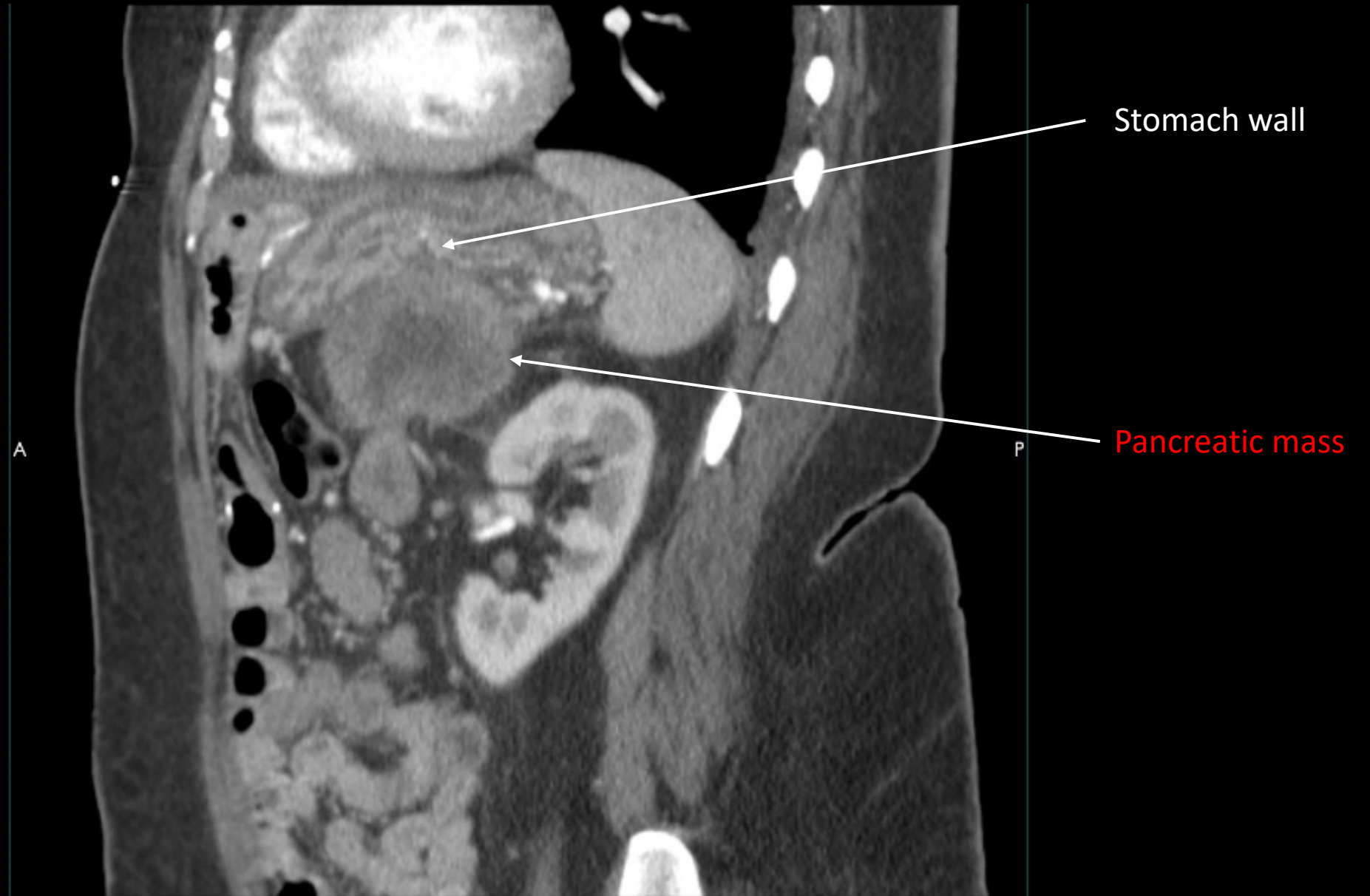
Pancreatic mass

Spleen

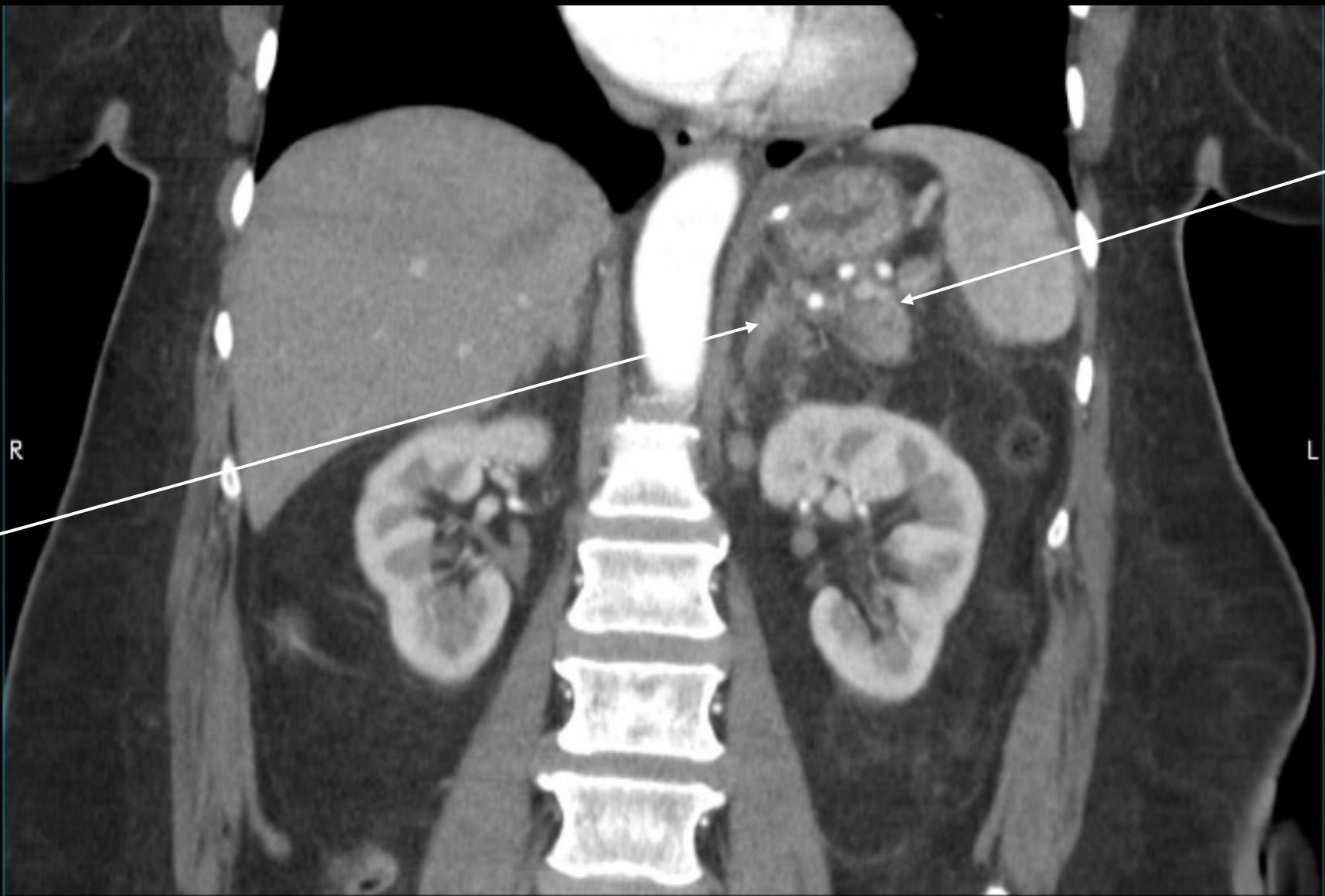
Ref. Phys.: Albrecht, Andrew Michael MD
Study: ABD PANCREATIC PROTOCOL W...
Series: Axial - Venous 3.0 (CT)
Image Type: ORIGINAL_PRIMARY_AXIAL_CT_SOM5 SPI

Zoom: 230.47%
Quality: Diagnostic
Distance: Patient Geometry
Center/Width: 50.00 +/- 225.00 (LINEAR)
KVp: 120.00
Exposure: 302.00mAs
Slice Thickness: 3.00mm

Abd. CT, sagittal



Abd. CT,
coronal



Pancreatic mass

Left adrenal gland

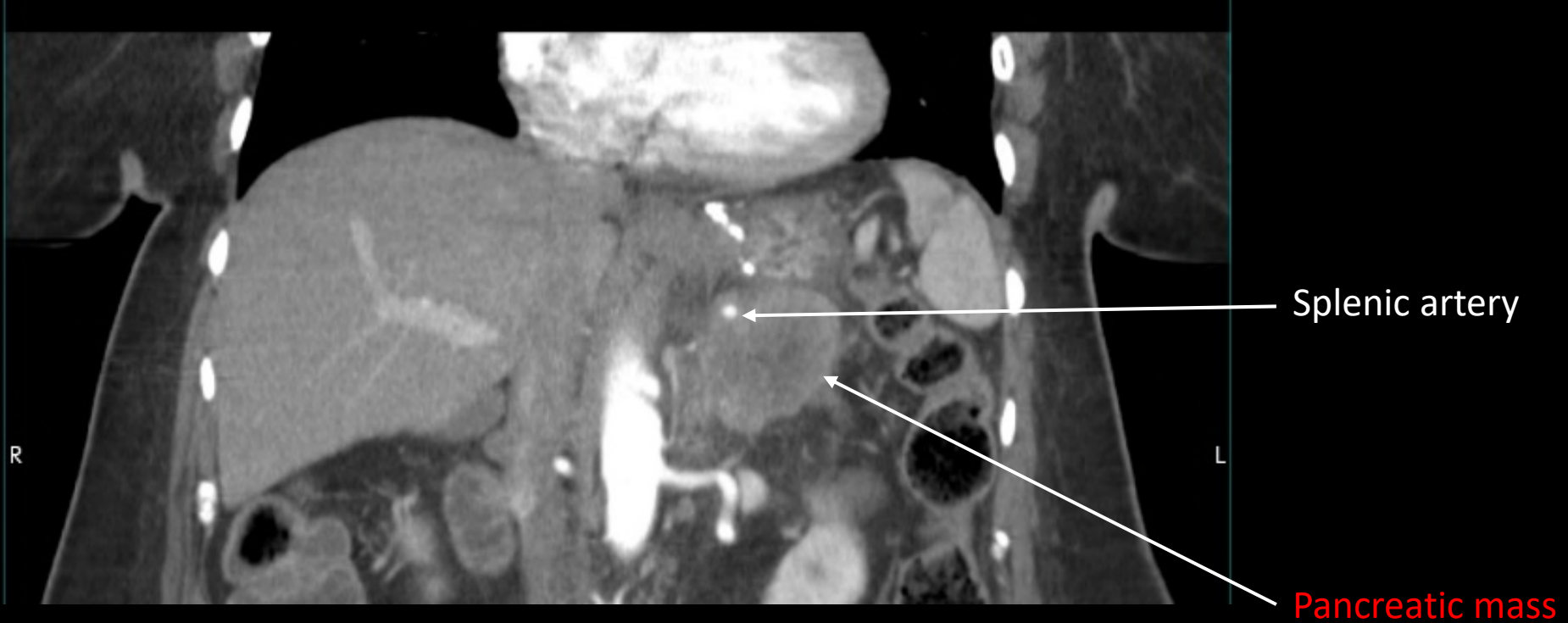
Abd. CT,
coronal



Splenic artery

Pancreatic mass

Abd. CT,
coronal

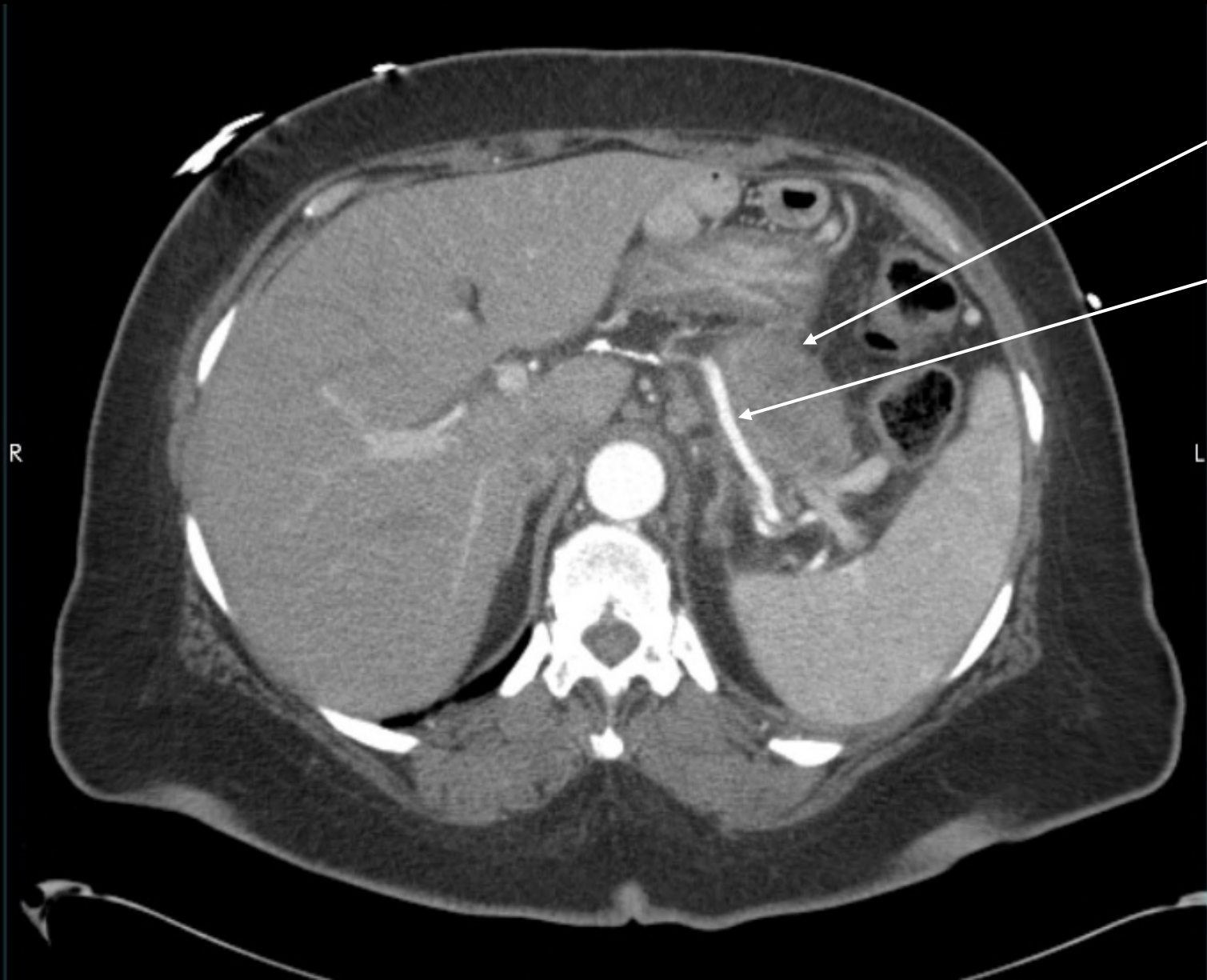


Abd. CT,
coronal



Splenic artery

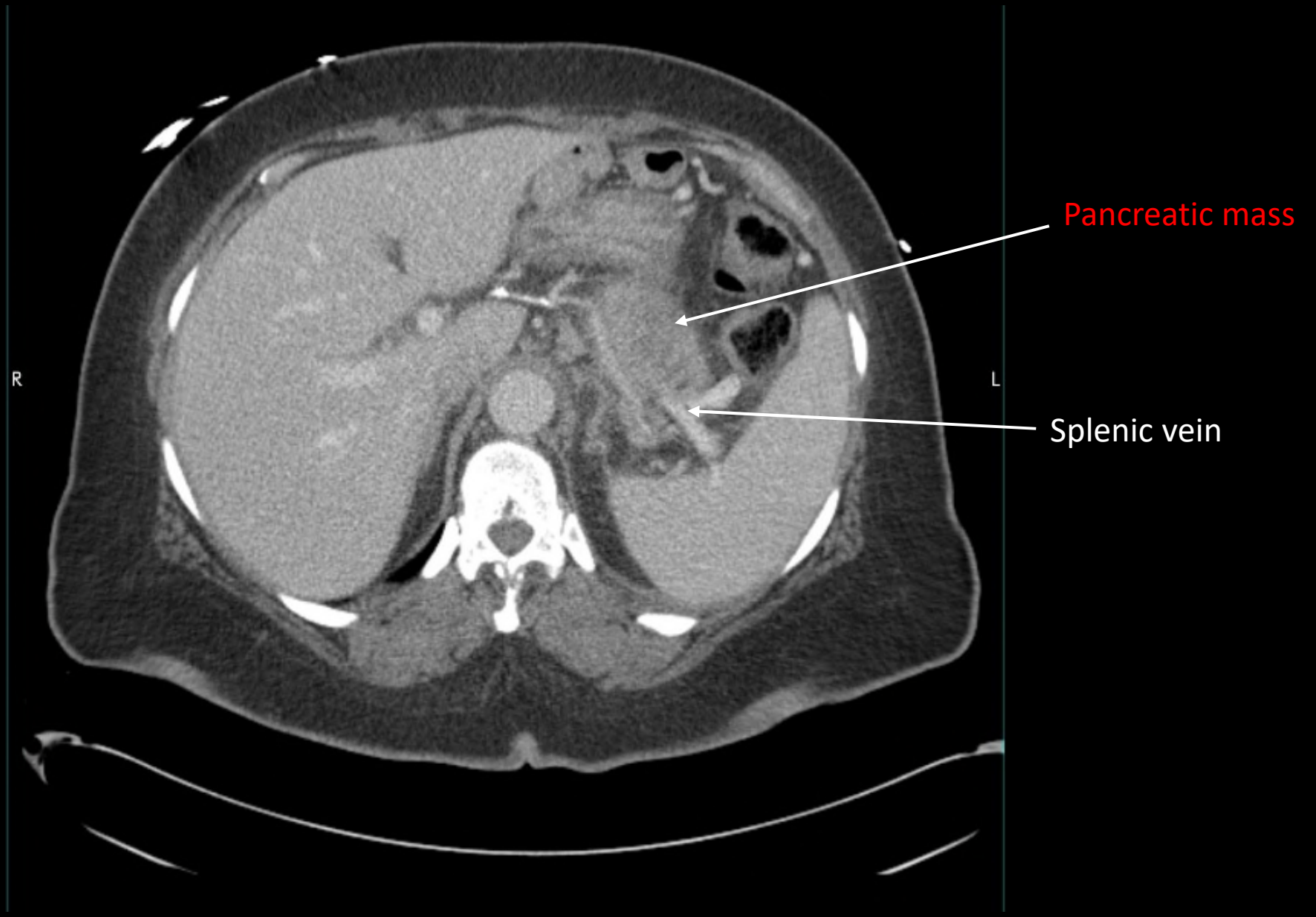
Abd. CT,
axial



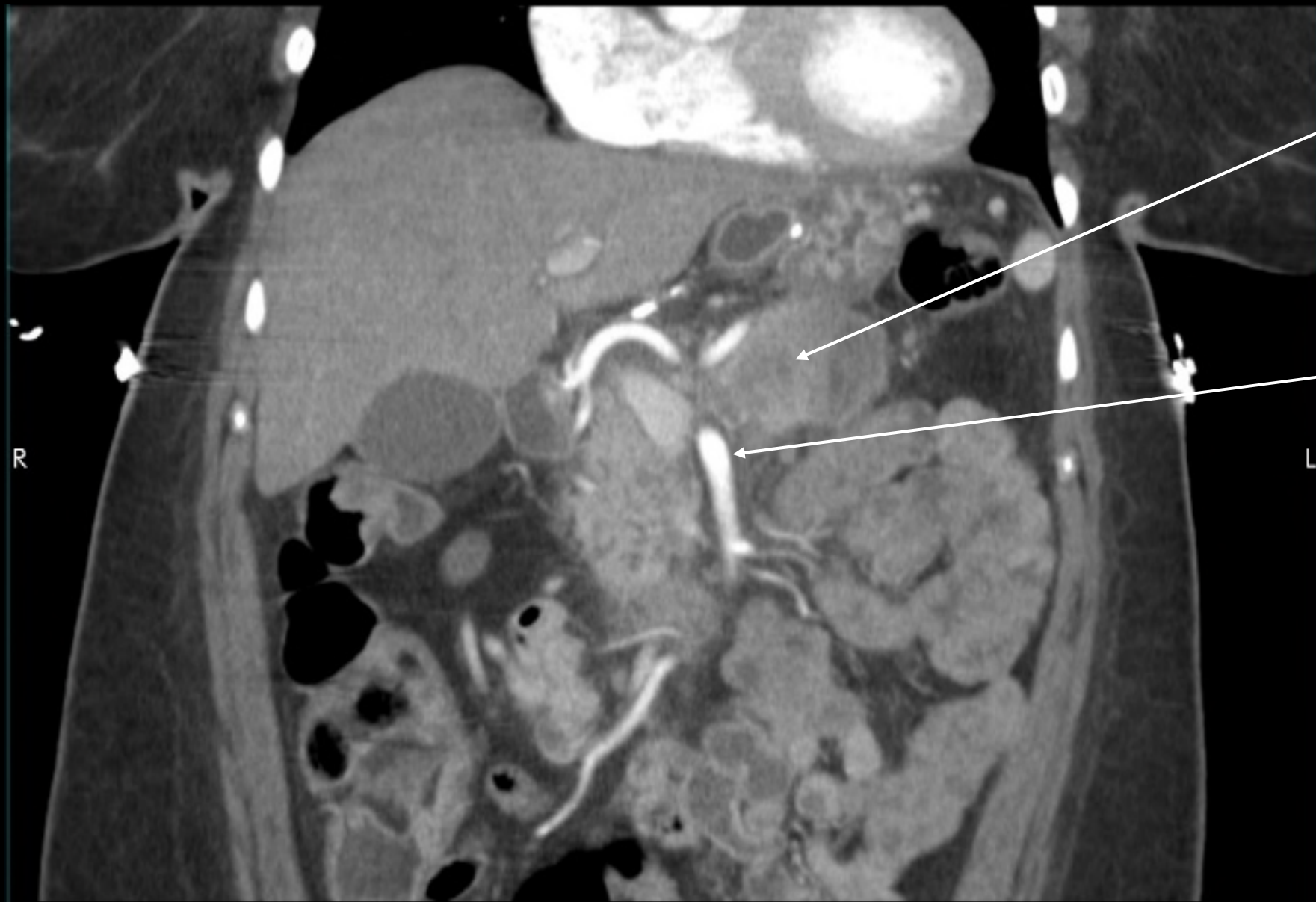
Pancreatic mass

Splenic artery

Abd. CT,
axial



Abd. CT,
coronal



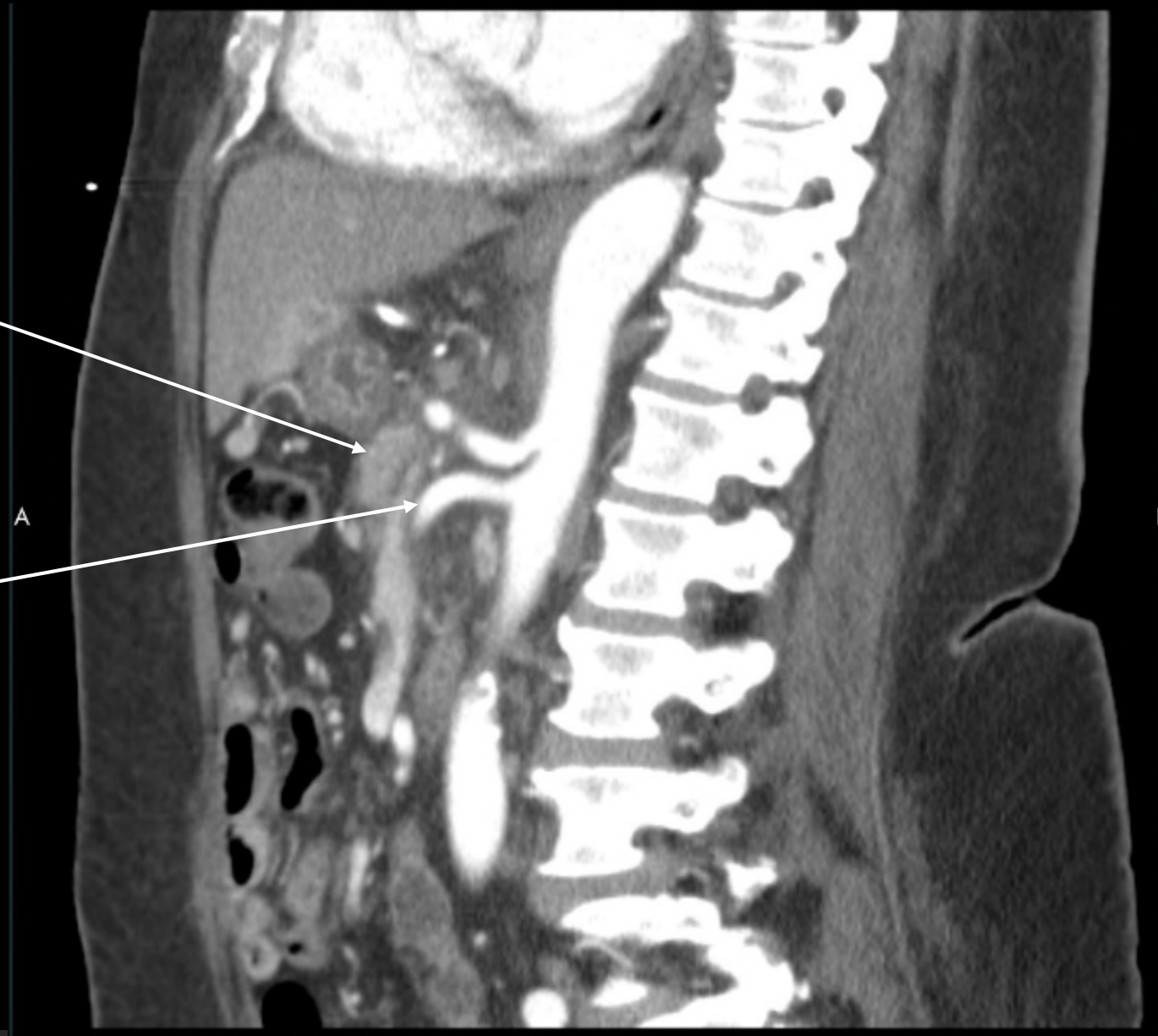
Pancreatic mass

SMA

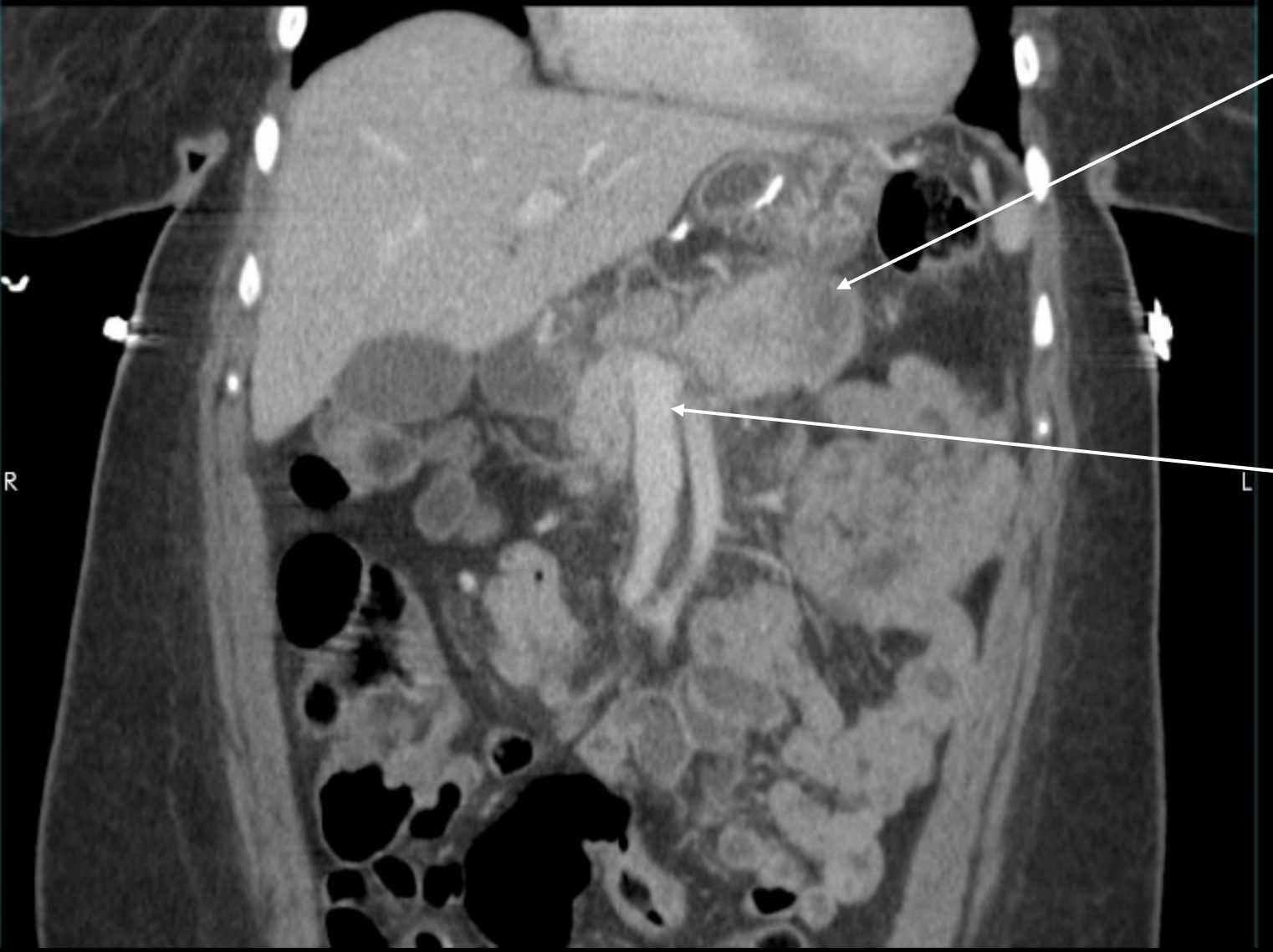
Abd. CT,
sagittal

Pancreatic mass

SMA



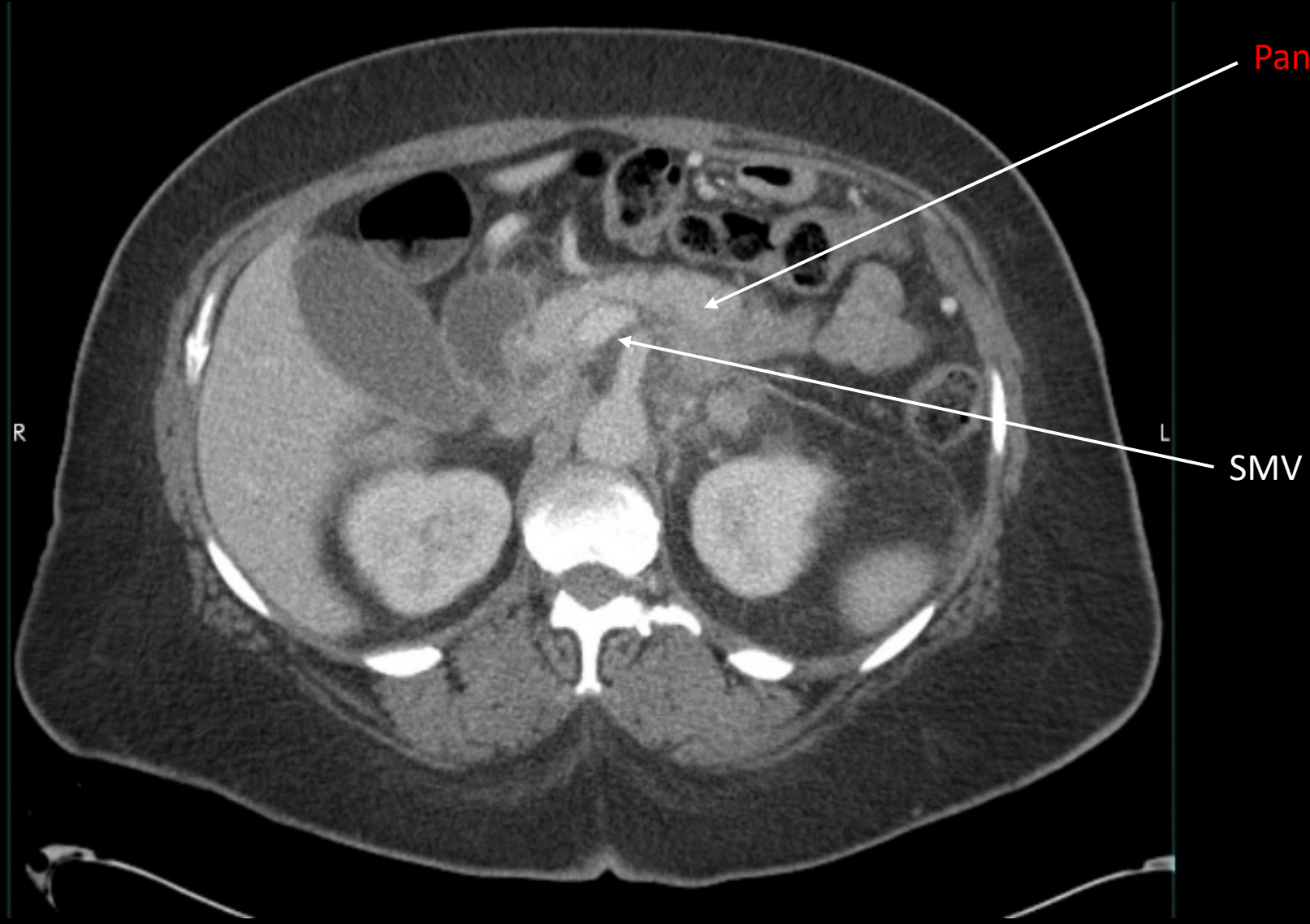
Abd. CT,
coronal



Pancreatic mass

SMV

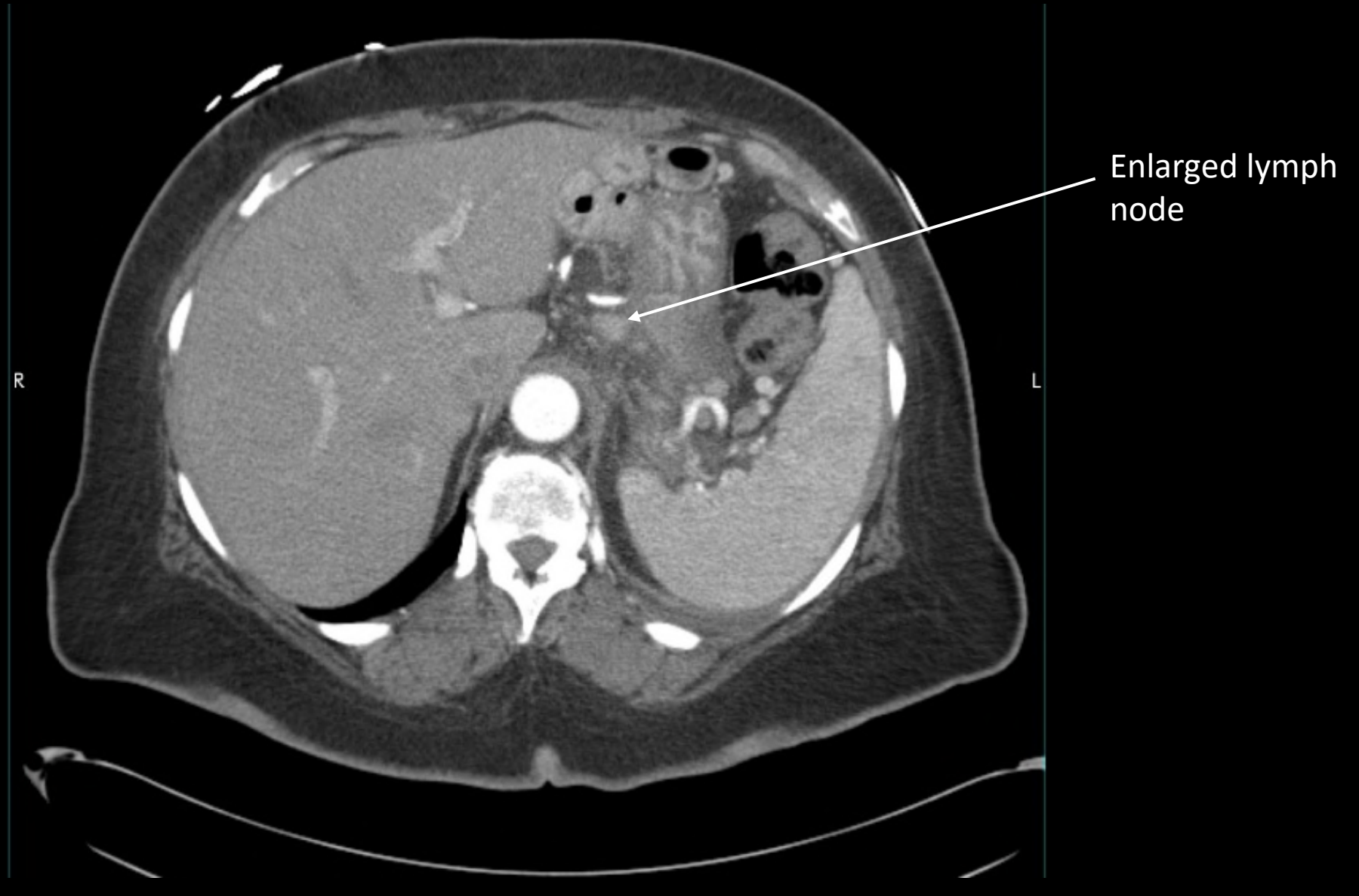
Abd. CT,
axial



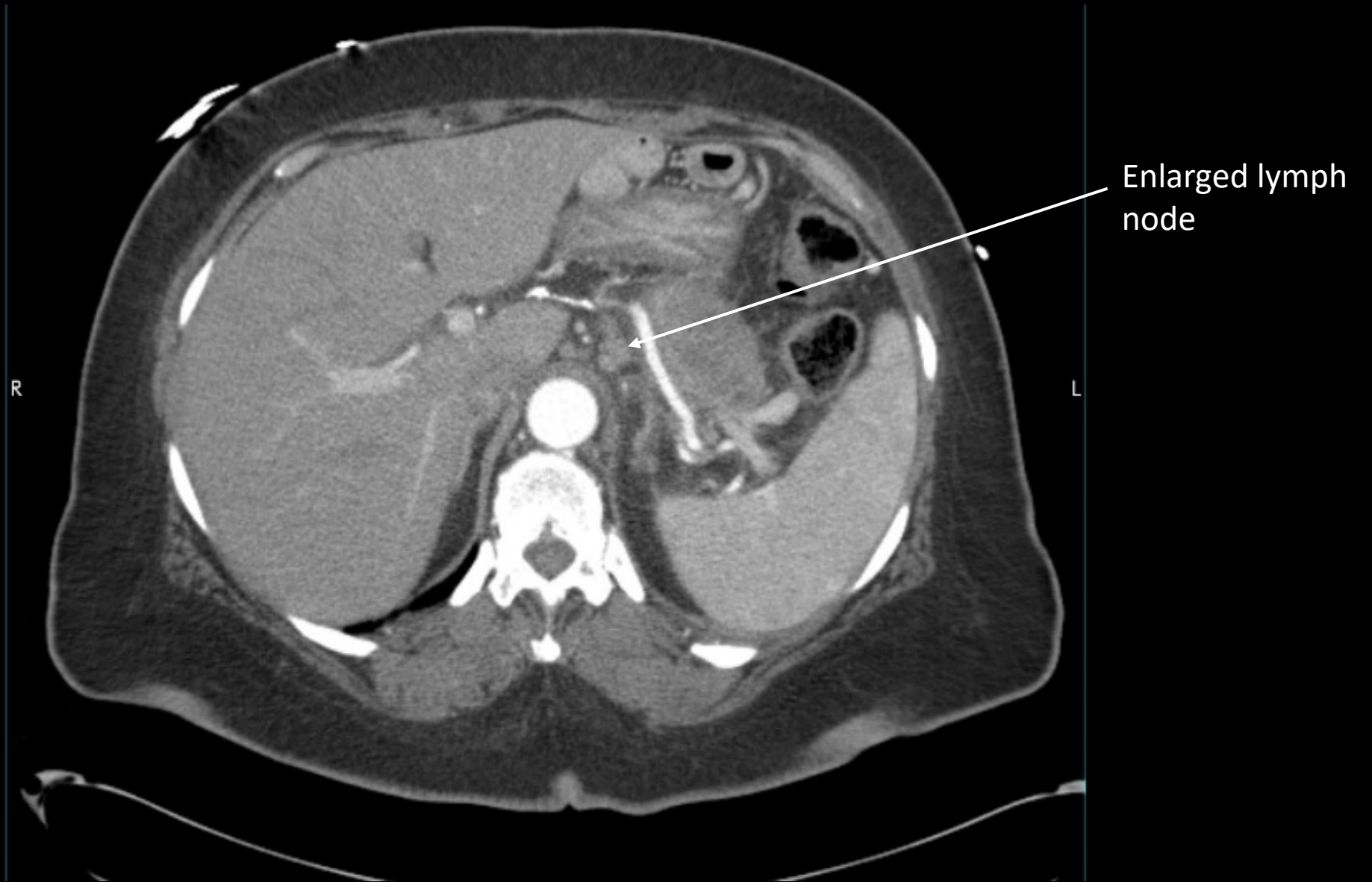
Pancreatic mass

SMV

Abd. CT,
axial



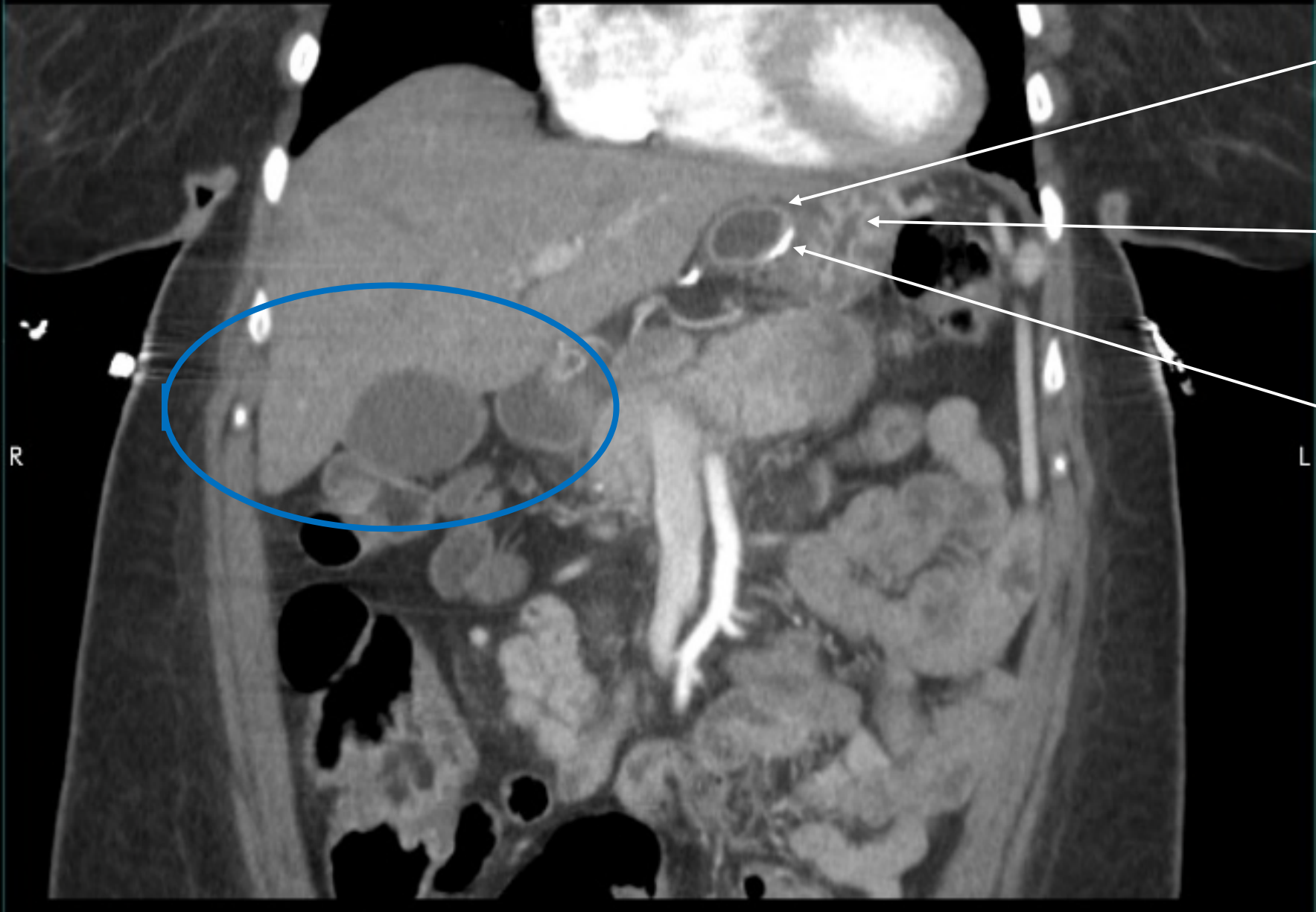
Abd. CT,
axial



Abd. CT,
axial



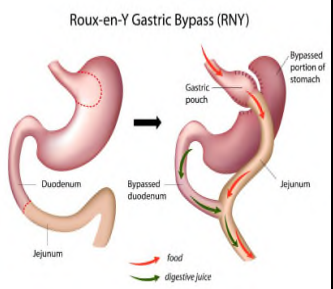
Abd. CT, coronal



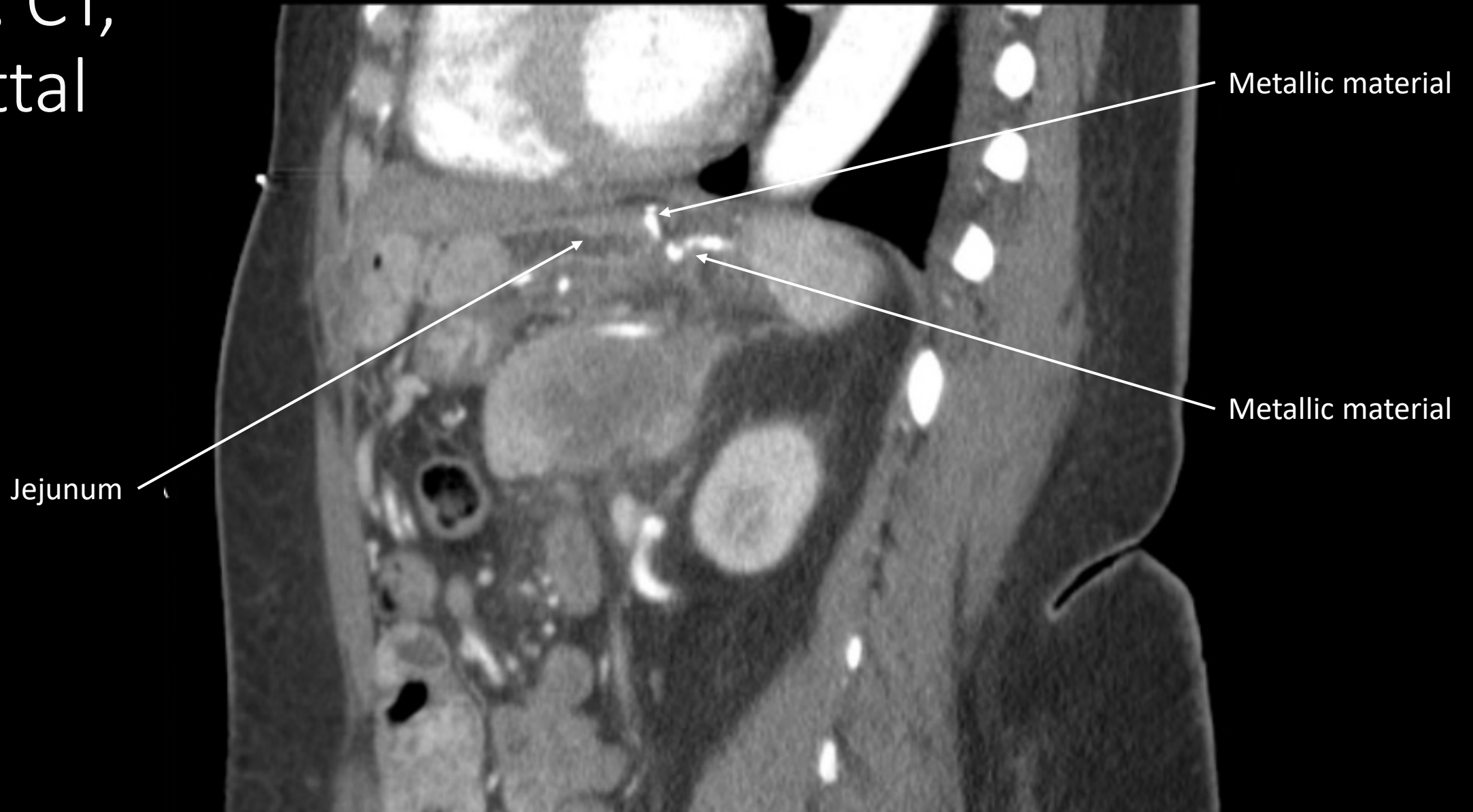
Jejunum

Stomach

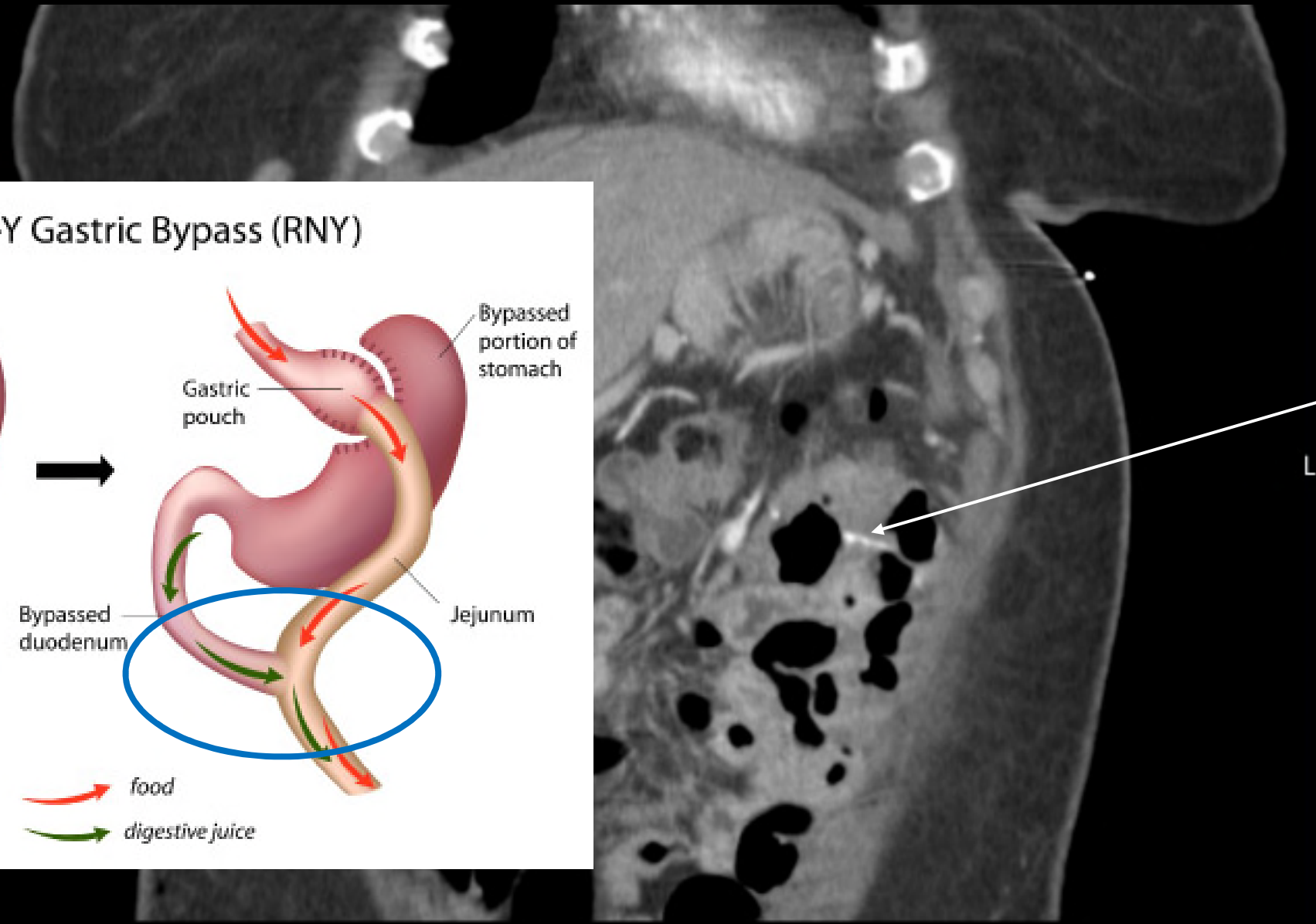
Metallic material



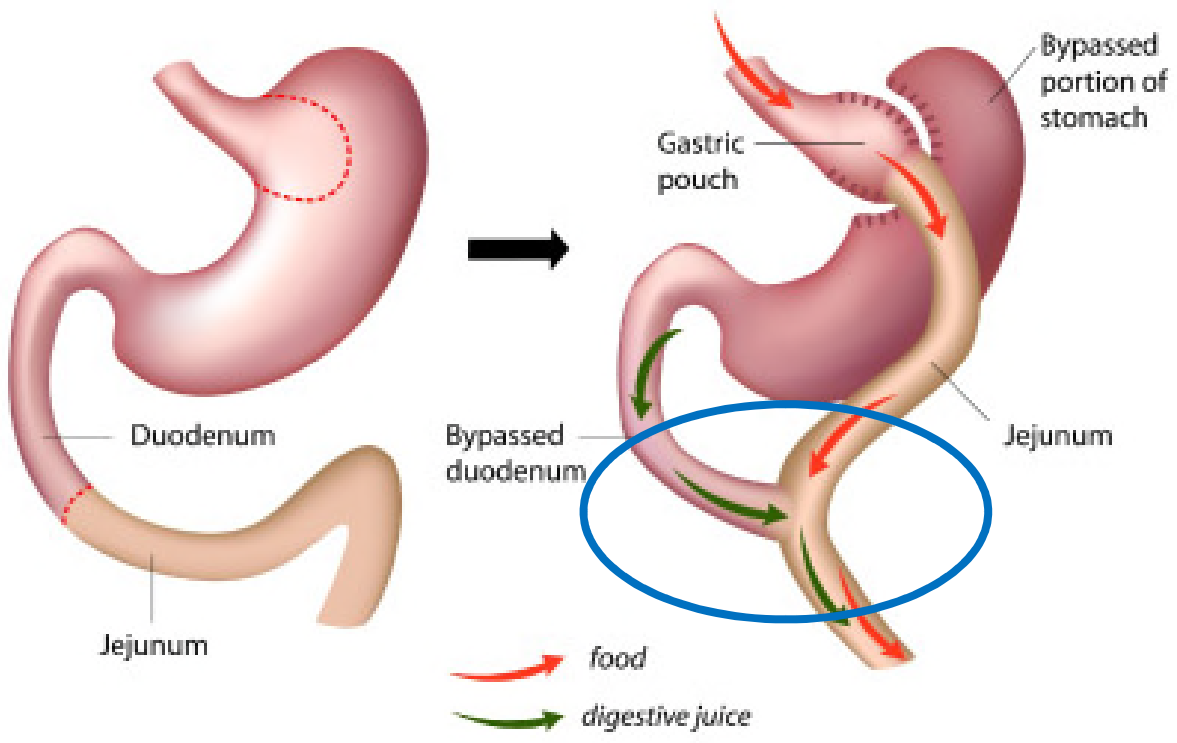
Abd. CT,
sagittal



Abd. CT, coronal



Roux-en-Y Gastric Bypass (RNY)



Metallic material

L

Abd. CT,
axial



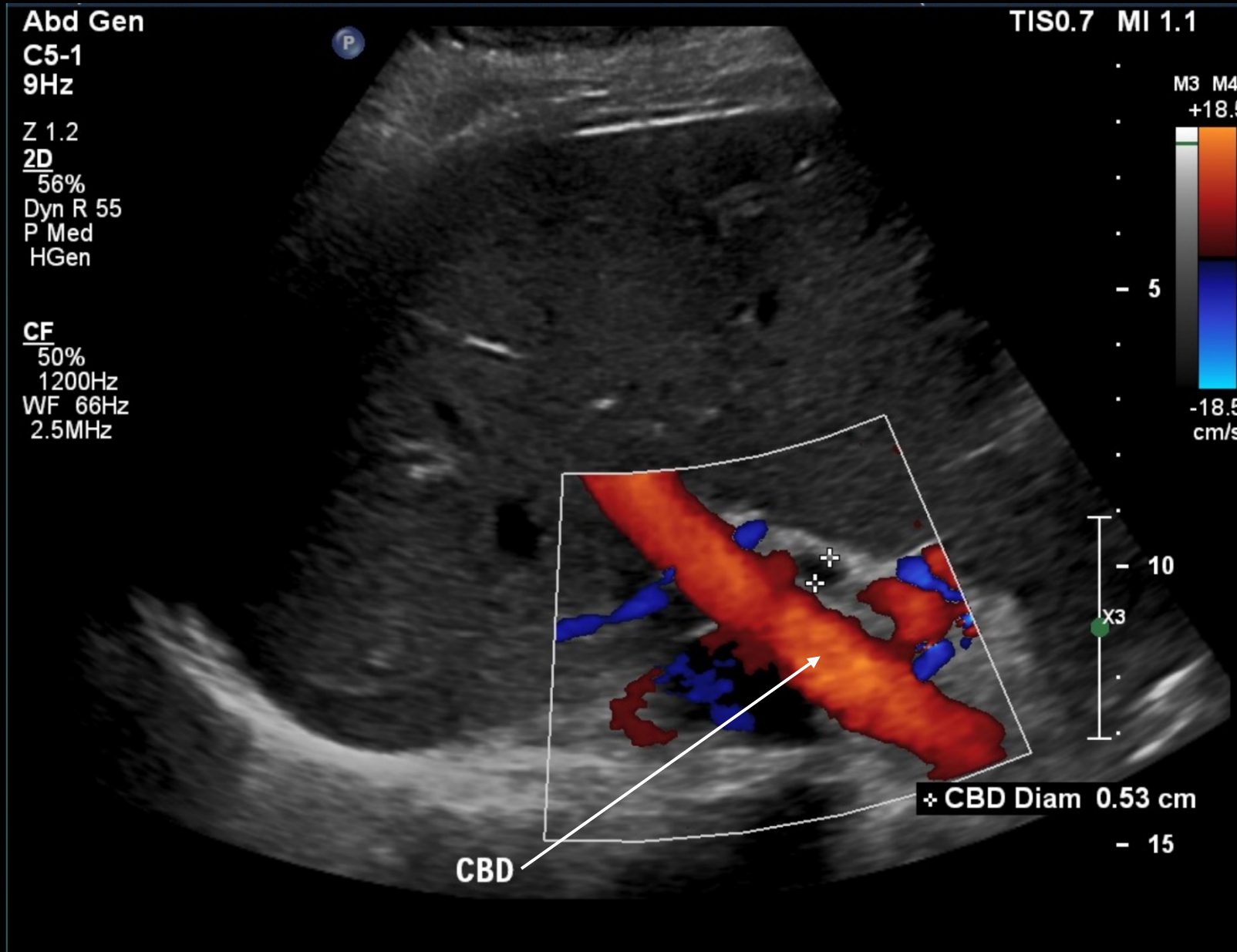
Metallic material

Abd CT L
kidney
cyst



L kidney
hypodense round
structure

Abd. US, CBD



Abd. US, Gallbladder

Abd Gen
C5-1
35Hz
RS

2D
59%
Dyn R 55
P Low
HGen

TIS0.3 MI 1.2

M3

- 0

- 5

- 10

Liver

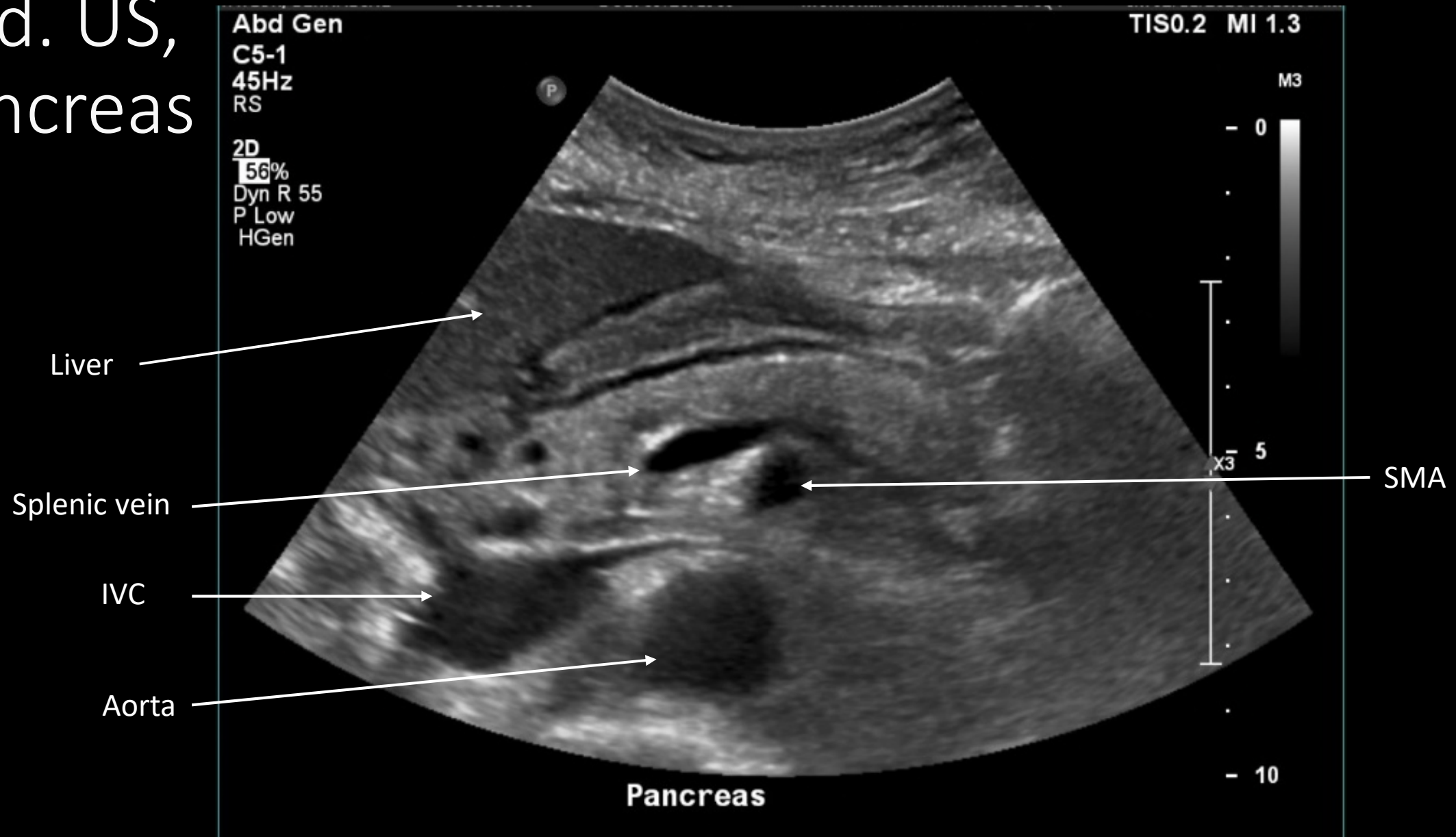


Gallbladder



Long GB

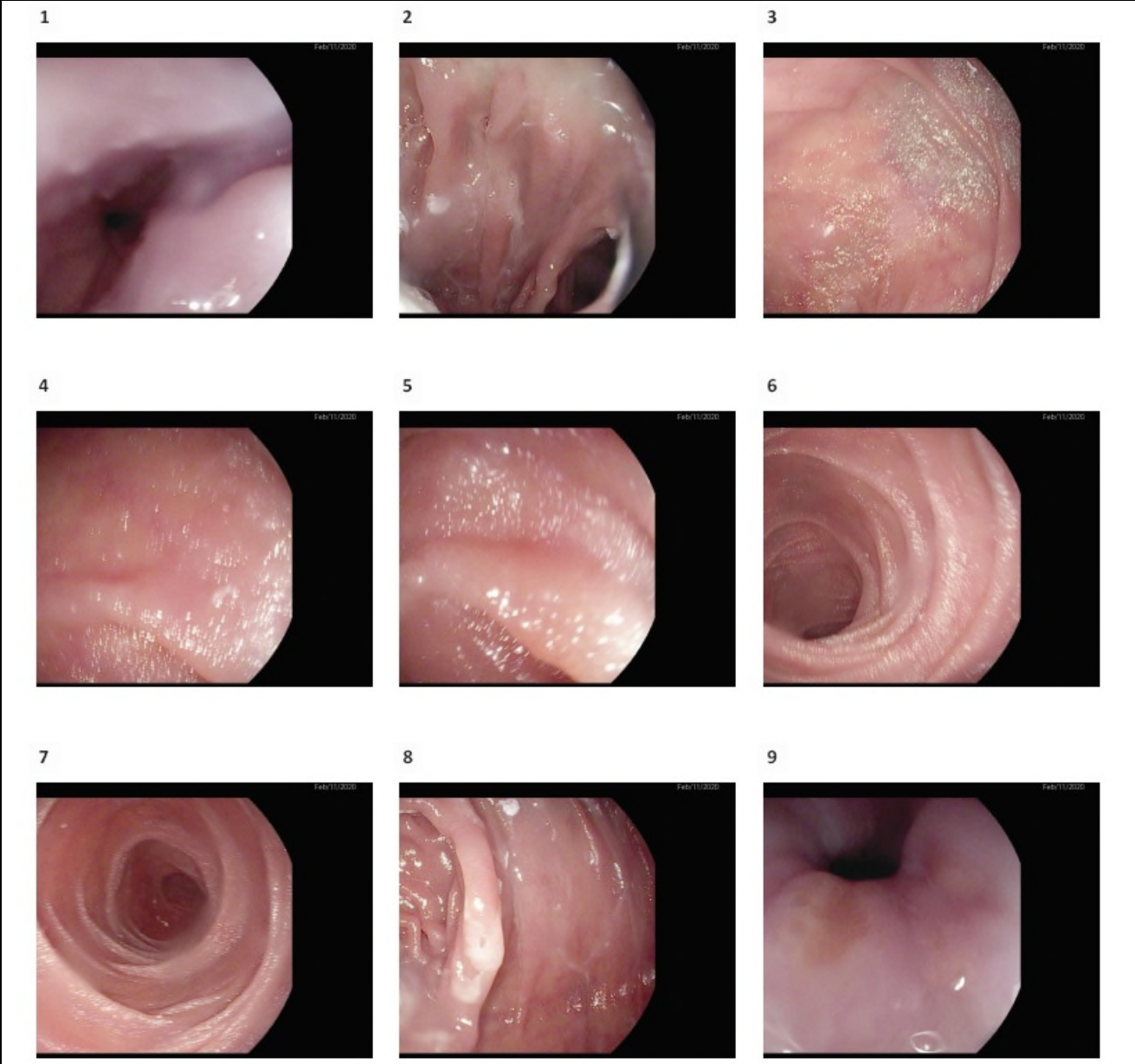
Abd. US, Pancreas



Following Management

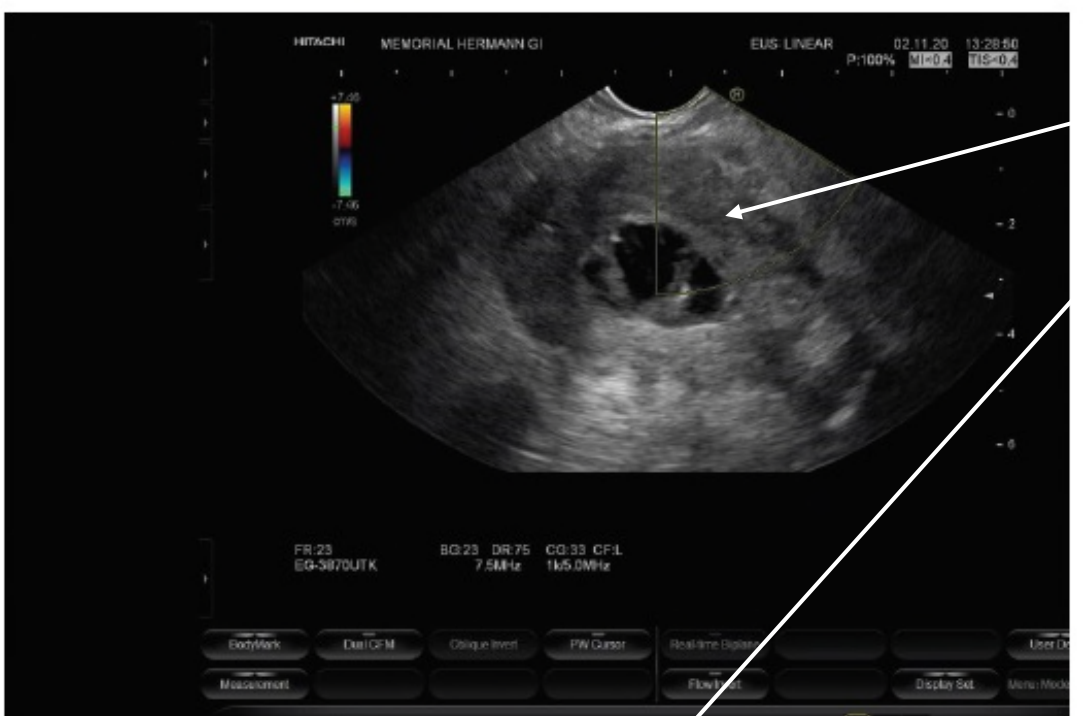
- EUS – FNA biopsy of pancreatic tail mass

EGD

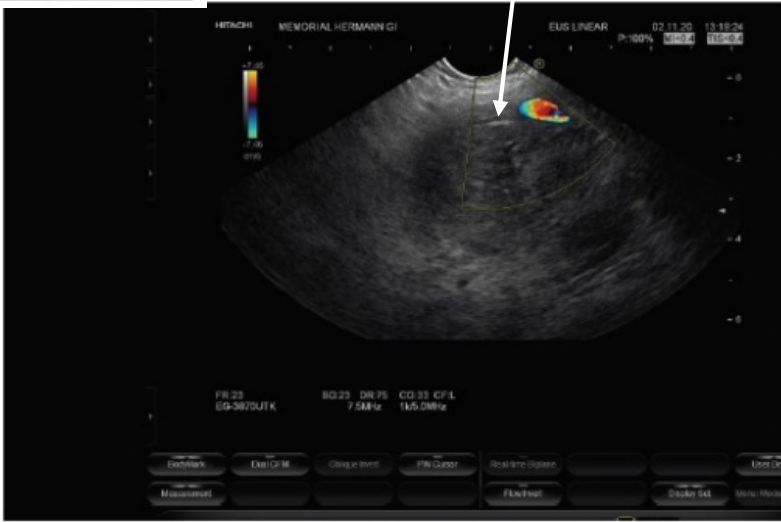
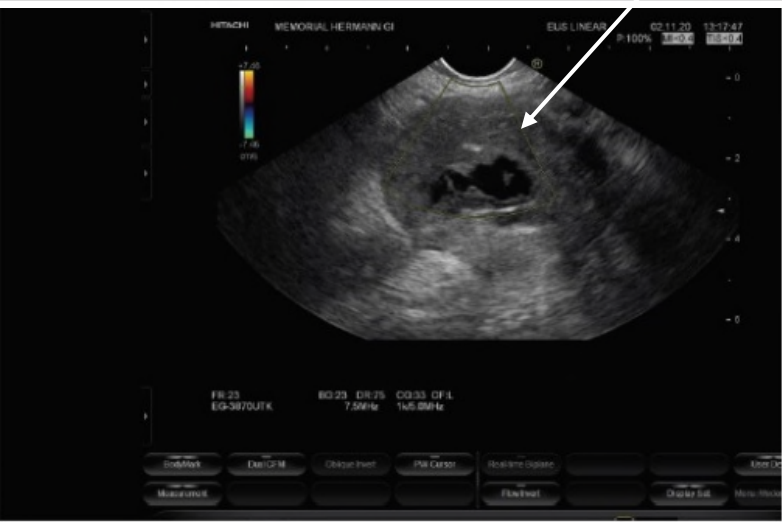


EGD-US

16



Hypoechoic heterogeneous solid like mass w/ central anechoic areas



Surgical Pathology Report

Pancreatic tail mass, EUS-FNA biopsy:

Positive for carcinoma with adenocarcinoma and squamous differentiation. Consistent with **adenosquamous carcinoma**

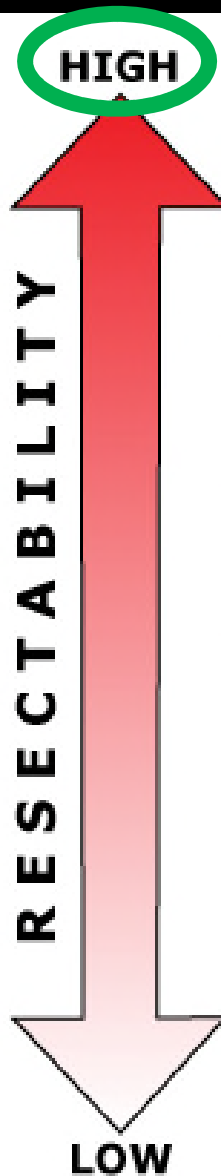
Histological type ¹²⁵	Frequency (%)
<i>Ductal adenocarcinoma</i> ^{125, 126}	80
Ductal adenocarcinoma variants	
Undifferentiated (anaplastic) carcinoma	5
Mucinous non-cystic	2
Adenosquamous	2
Mucinous non-cystic carcinoma	<1
Signet-ring cell carcinoma	<1
<u>Adenosquamous carcinoma</u>	<1
Mixed ductal-endocrine carcinoma	<1
Osteoclast-like giant cell tumour	<1

Staging

- **T3** (above 4 cm in greatest dimension)
- **N2** (4 and more regional lymph nodes)
- **M0** (no distant mets)

stage	TNM classification	clinical classification (in terms of treatment)	median survival (months)
0	Tis, N0, M0	resectable	
IA	T1, N0, M0	resectable	24.1
IB	T2, N0, M0	resectable	20.6
IIA	T3, N0, M0	resectable	15.4
IIB	T1/2/3, N1, M0	locally advanced potentially resectable	12.7
III	T4, N0/1, M0	locally advanced unresectable	10.6
IV	T1/2/3/4, N0/1, M1	metastatic	4.5

- **Prognostic group 3** according to American Joint Committee on Cancer (AJCC)/Union for International Cancer Control (UICC)
- 5 year survival – **11%**

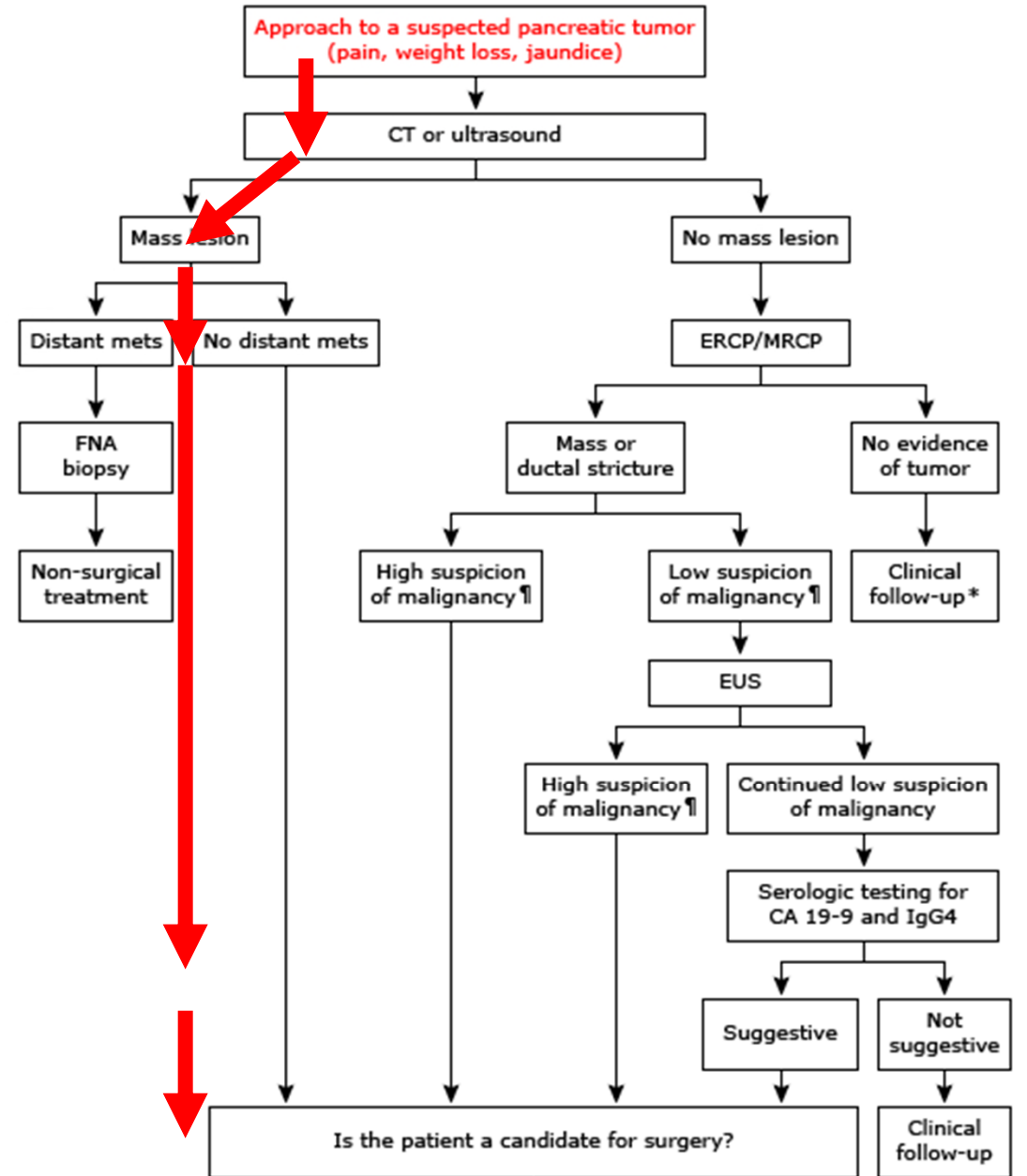


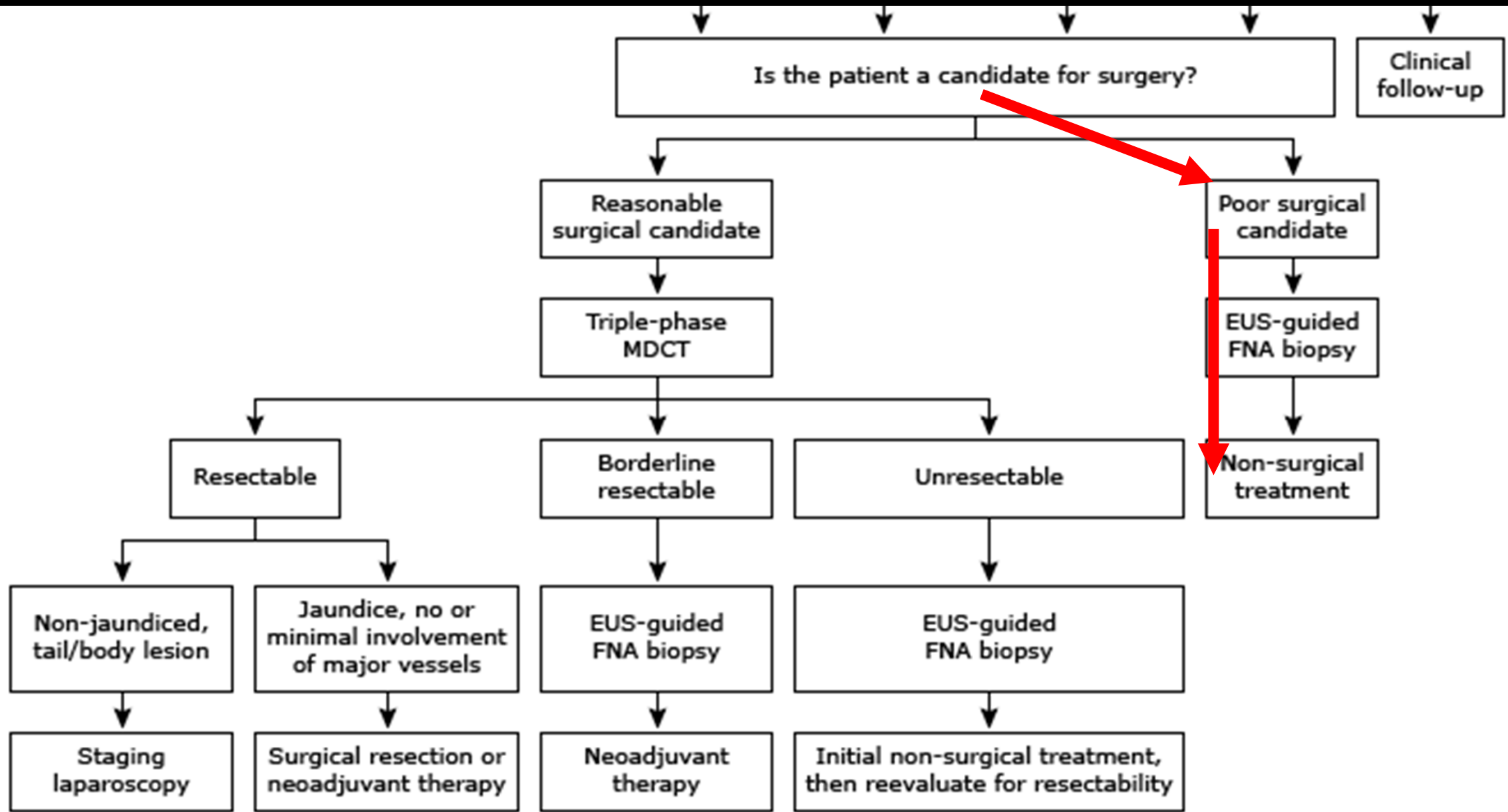
- No distant metastases **NO**
- No arterial or venous involvement **Present**
- Attachment to other organs (eg, spleen) **NO**
- Venous involvement (SMV or portal) less than 180 degrees, as long as there is suitable vessel proximal and distal to the areas of involvement for reconstruction **NO**
- Gastroduodenal artery encasement up to the common hepatic artery with other short segment encasement or abutment of the hepatic artery, but without extension to celiac trunk **NO**
- Tumor abutment of the SMA less than one-half the circumference of the vessel wall.
- Greater than 180 degree encasement or occlusion/thrombus of SMA, unreconstructable SMV or SMV-portal vein confluence occlusion **NO**
- Direct involvement of the inferior vena cava, aorta, celiac trunk or hepatic artery, as defined by absence of a fat plane between low density tumor and these structures on CT or EUS. **NO**
- Metastases to lymph nodes beyond the peripancreatic tissues **NO**
- Distant metastases **NO**

Current status of patient

- Pt is proceeding with CTx (gemcitabine/paclitaxel)
- Pt was scheduled for port placement with IR
- Due to pt's uncontrolled HTN at the day of procedure, date of port placement had to be rescheduled
- Till that time better pharmacological control of BP

Summary





Imaging Cost at Memorial Hermann

- Chest + Abdomen Xray 2 Views - \$1.533
- CT Chest w/ contrast - \$3.936
- CT Abdomen w/ contrast - \$5.540
- US Abdomen Complete - \$1.730
- EUS – FNA - \$8.471
- Total Imaging Cost = \$21.210

Take Home Points

- Pa cancer – vague clinical symptoms (pain, jaundice, and weight loss)
- Proceed with lab tests, imaging
- No definite Dx without biopsy
- Although surgery may be possible w/o biopsy
- Only surgery is curative (as high as 15-20% of pts are candidates, and even R0 resection has over 70% lethality in 5 years)



Questions?

References

Radiopedia.org

Radiologyassistant.nl

Uptodate.com