

NOVEL AND STANDARD IMAGING TECHNIQUES:
RADIOGRAPHS, CT, & PET
FLASCO 2019

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Jacksonville FL

Disclosure

- No relevant financial disclosures

Introduction

Radiology imaging studies form
a pivotal role in diagnosis,
staging, monitoring treatment,
detect anatomic complications

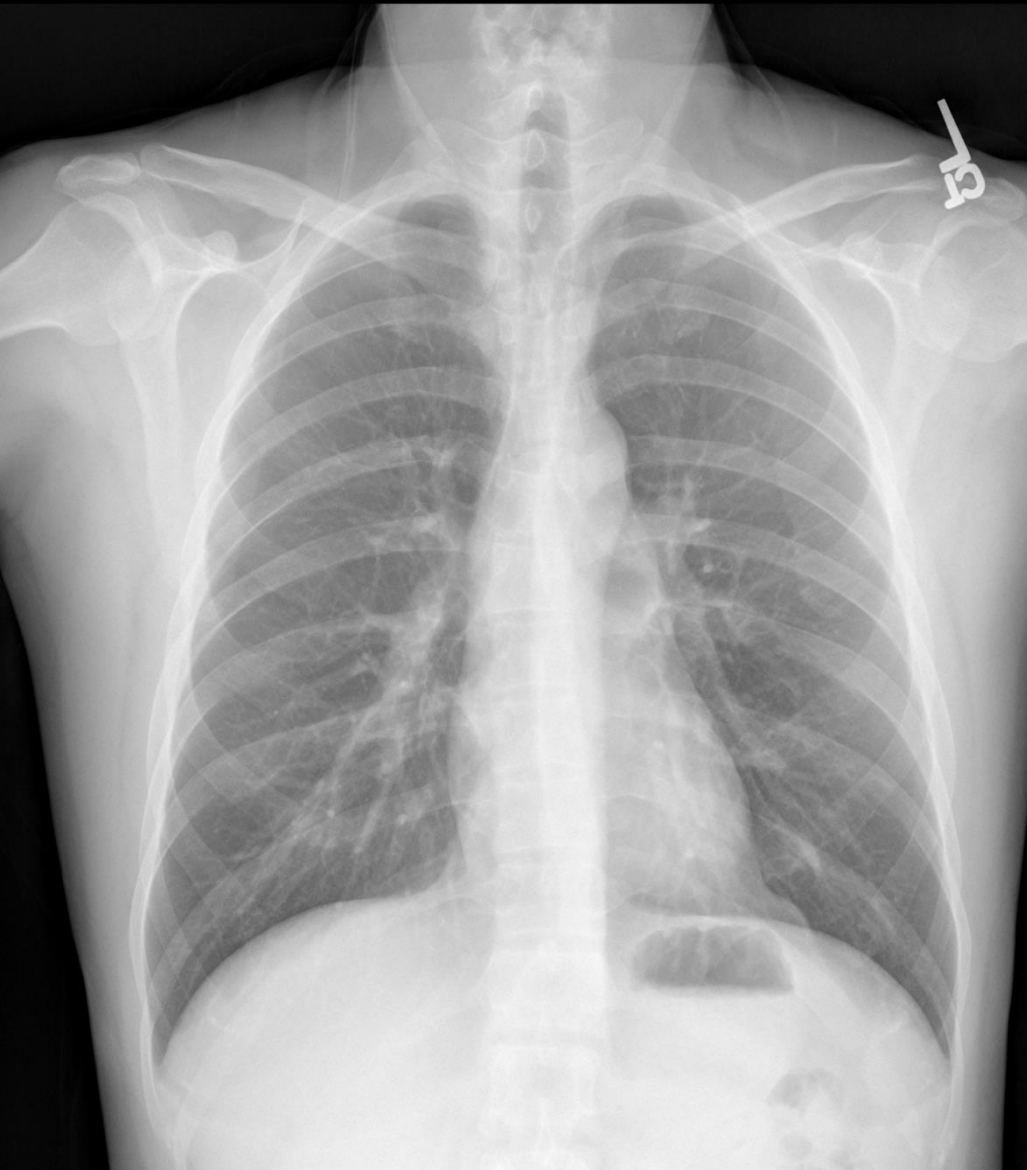
Oncologic complications

- Direct/Structural
 - Invasion or compression of adjacent structures
- Indirect-
 - Immunocompromised status
 - Hypercoagulability
 - Paraneoplastic syndromes

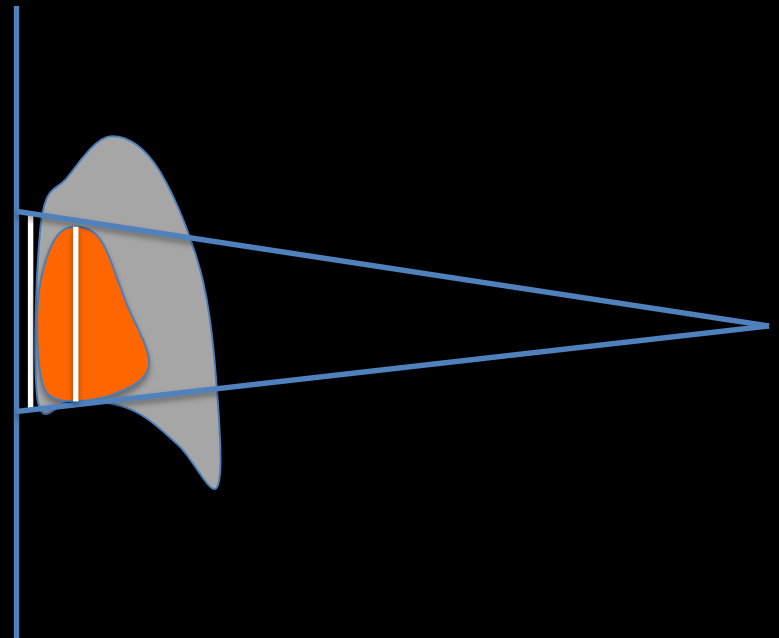
Imaging Modalities

- Plain radiography: X-ray
- CT: X-ray
- Ultrasound: Sound waves
- MR: Magnetic field
- PET-CT: Radioisotope

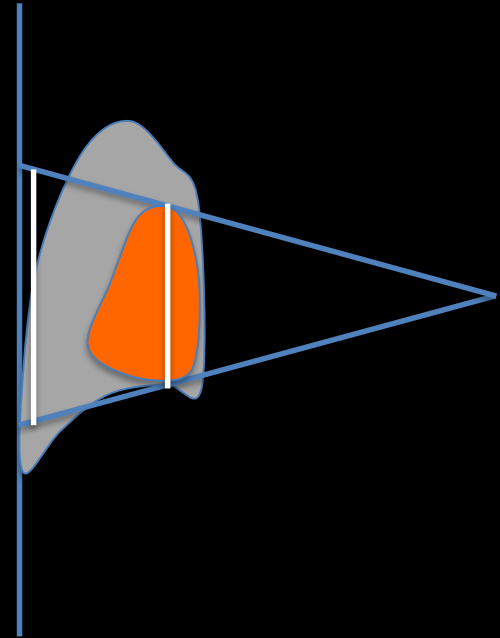
Chest PA & Lateral



Standard Vs Portable Radiography



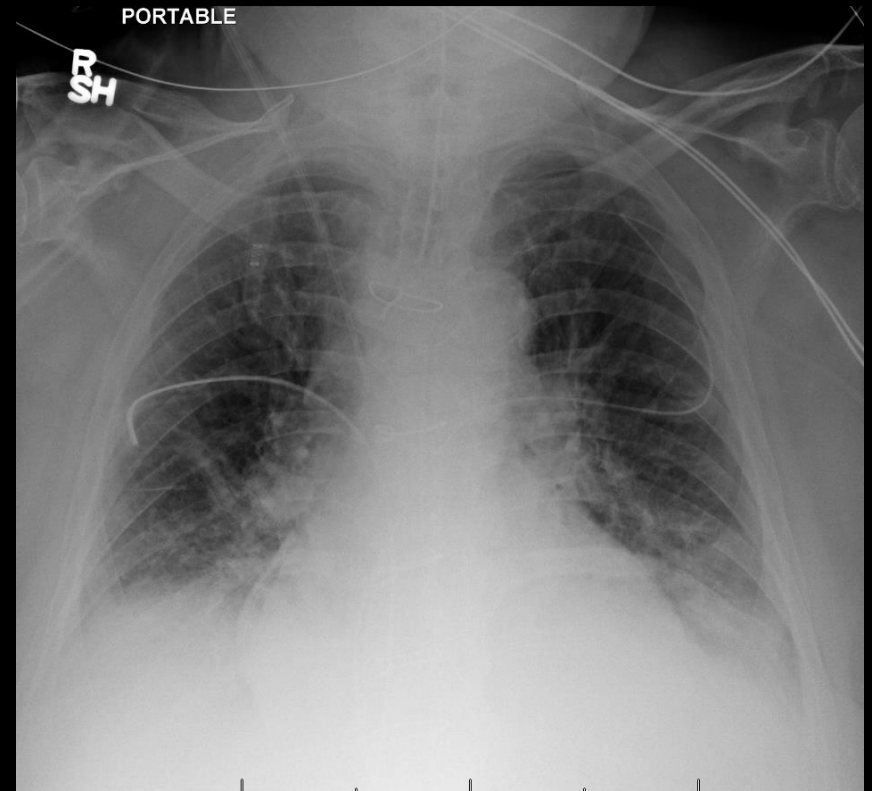
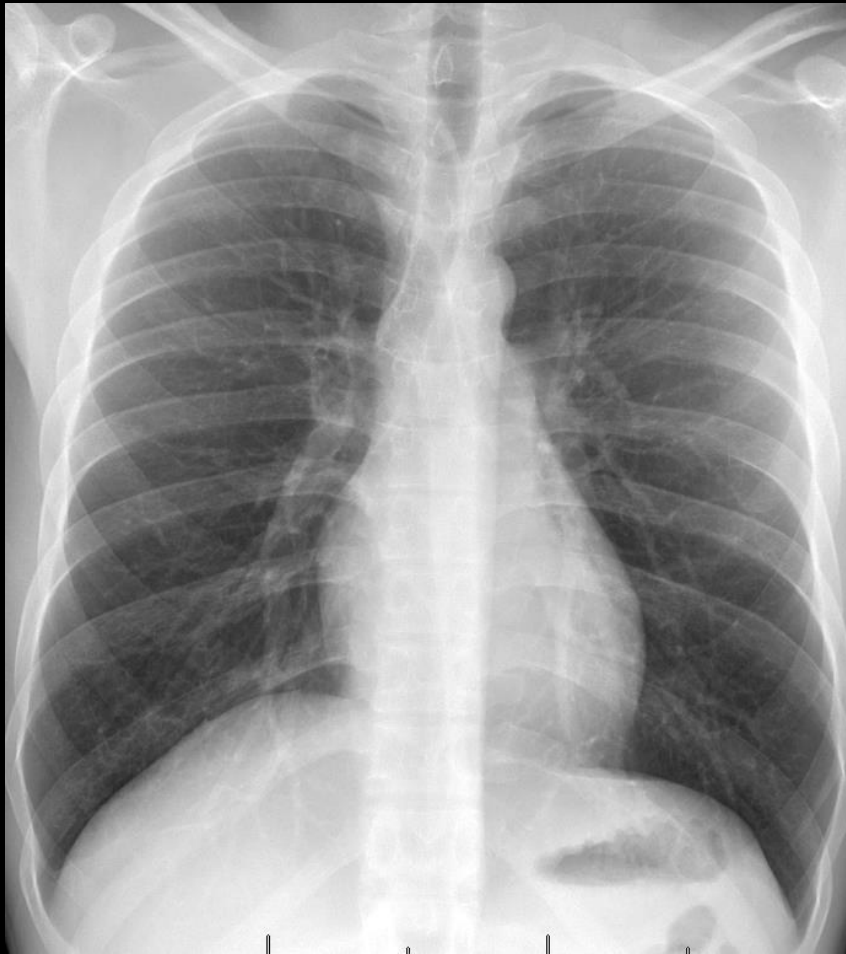
Standard Vs Portable Radiography



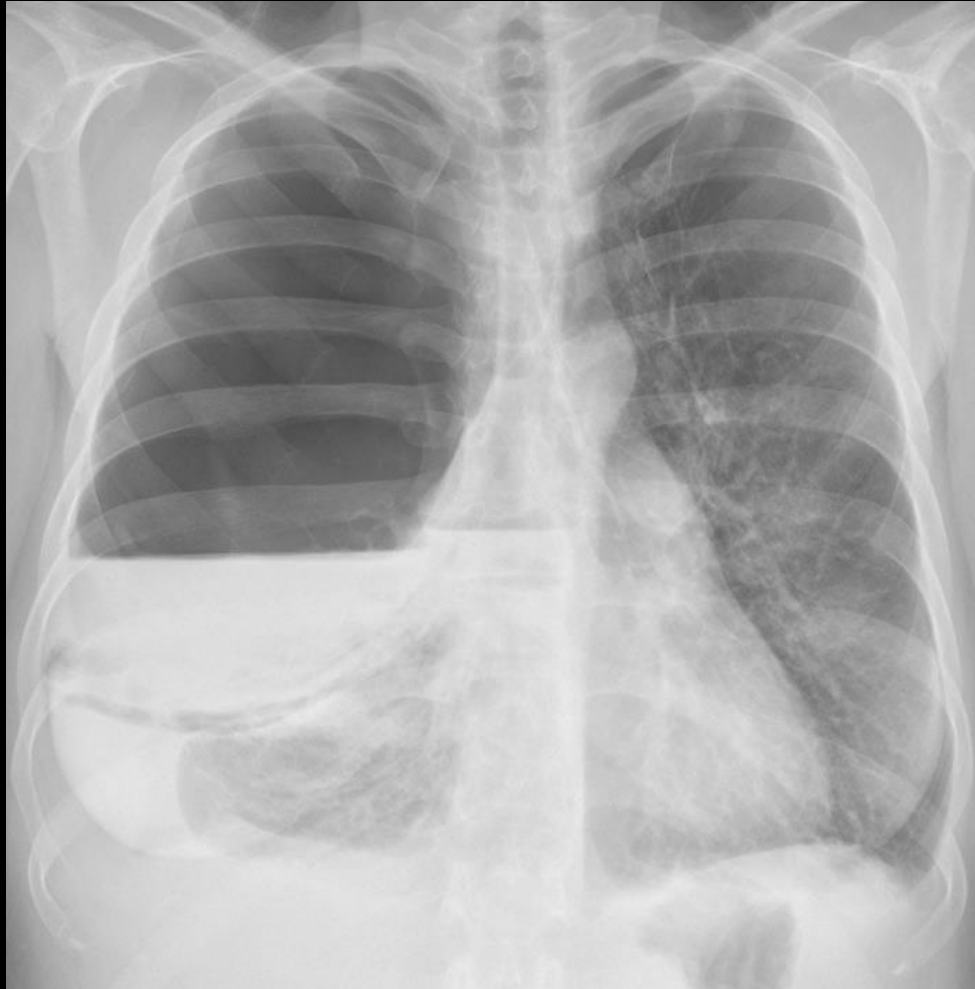
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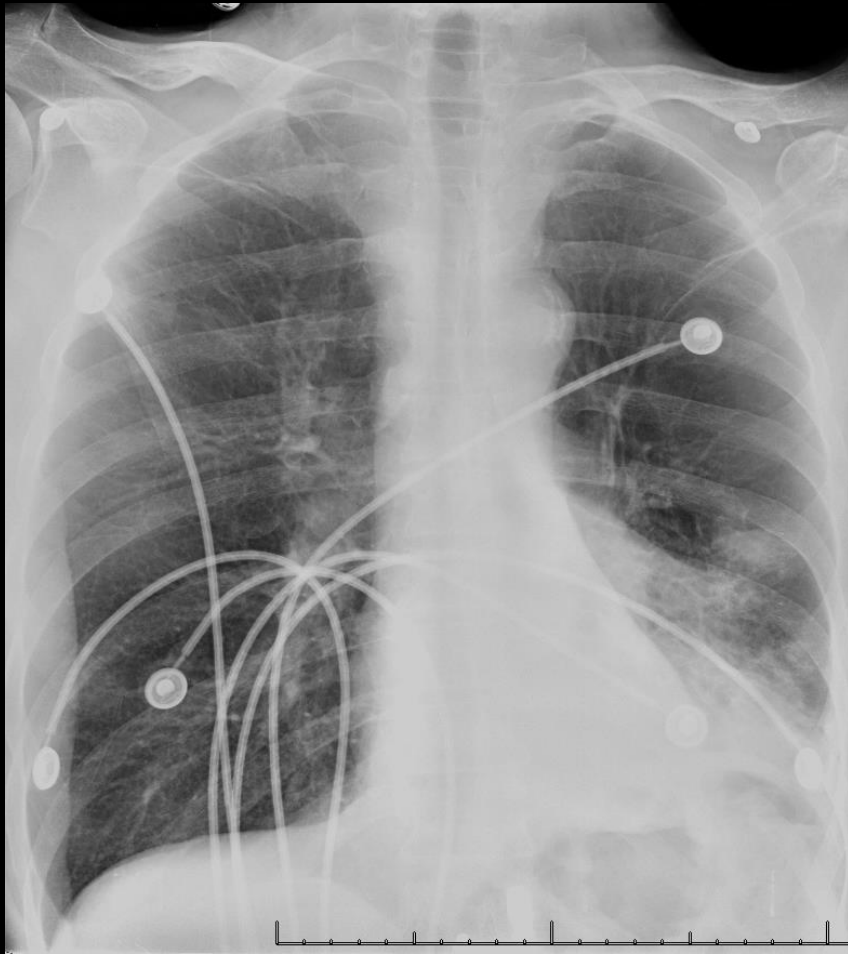
Standard Vs Portable Radiography



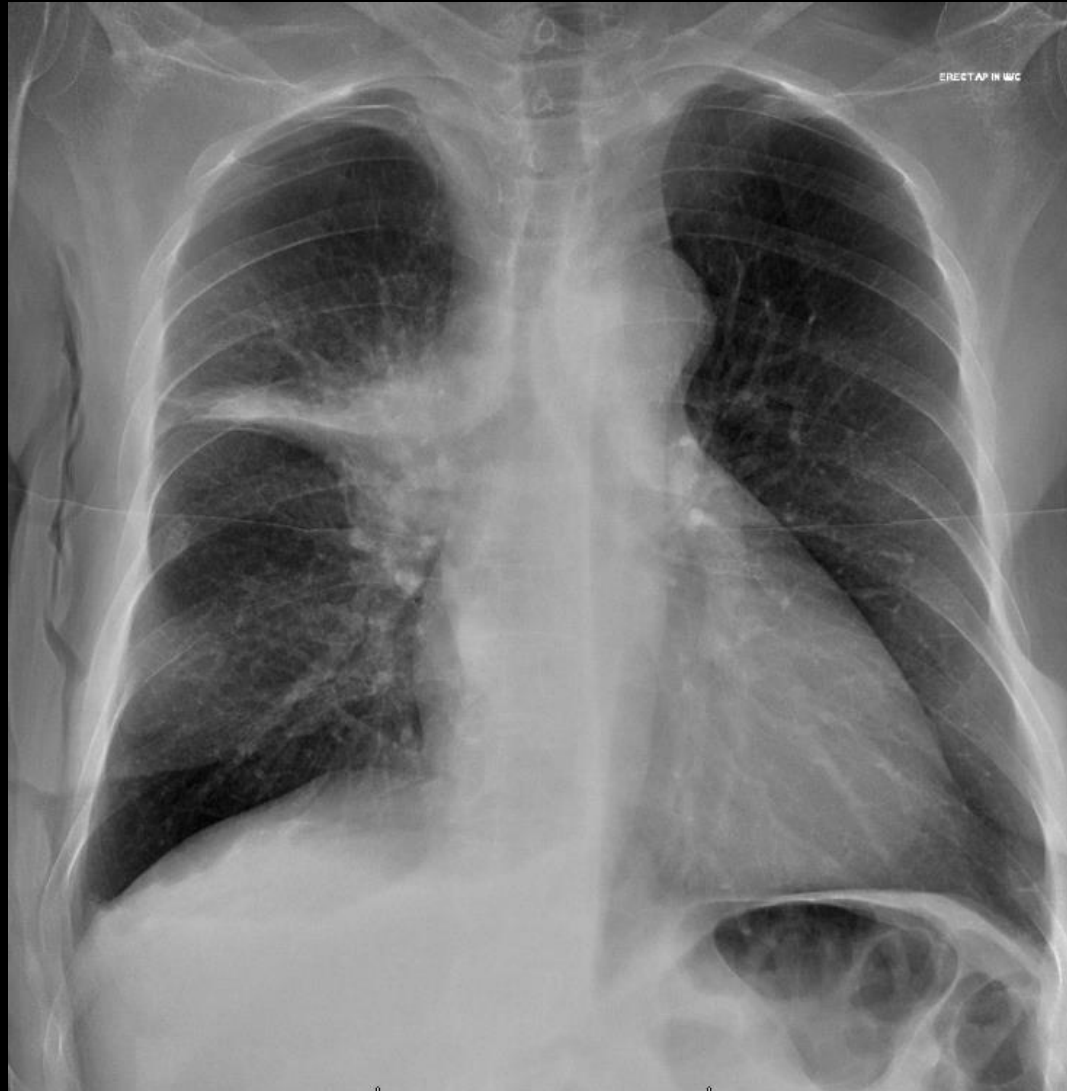
Opacity versus lucency



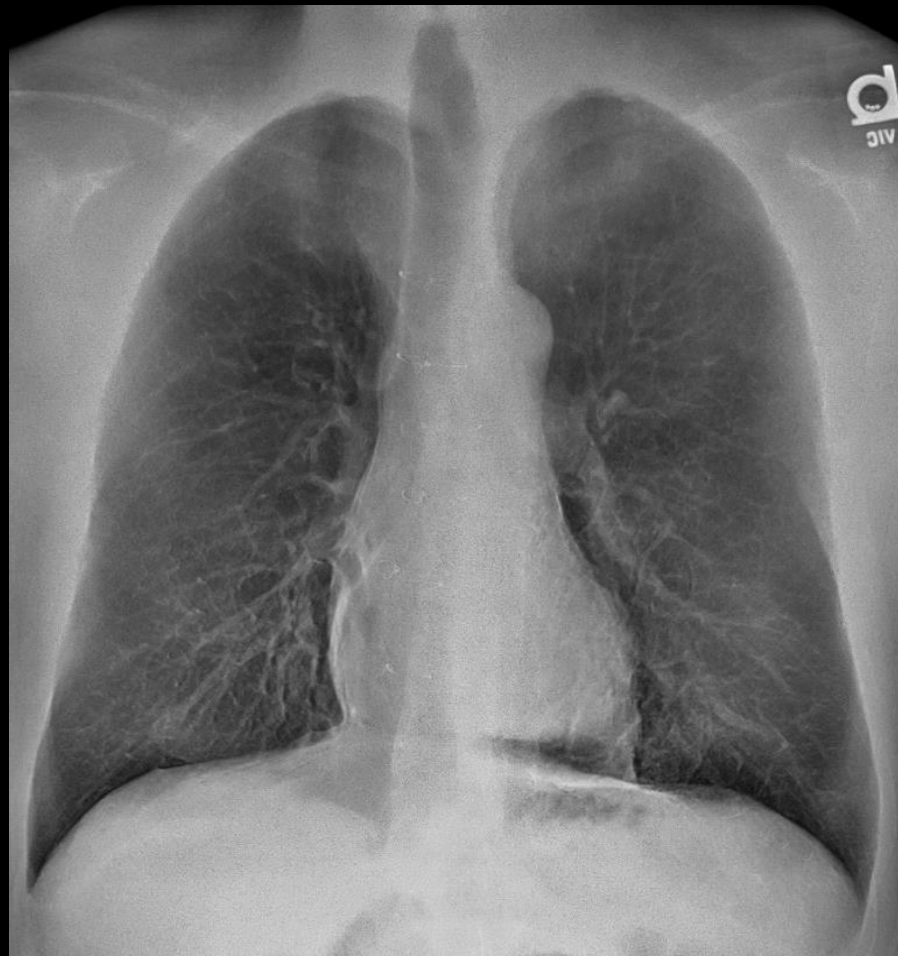
69-year-man, chronic smoker,
presented with cough and fever



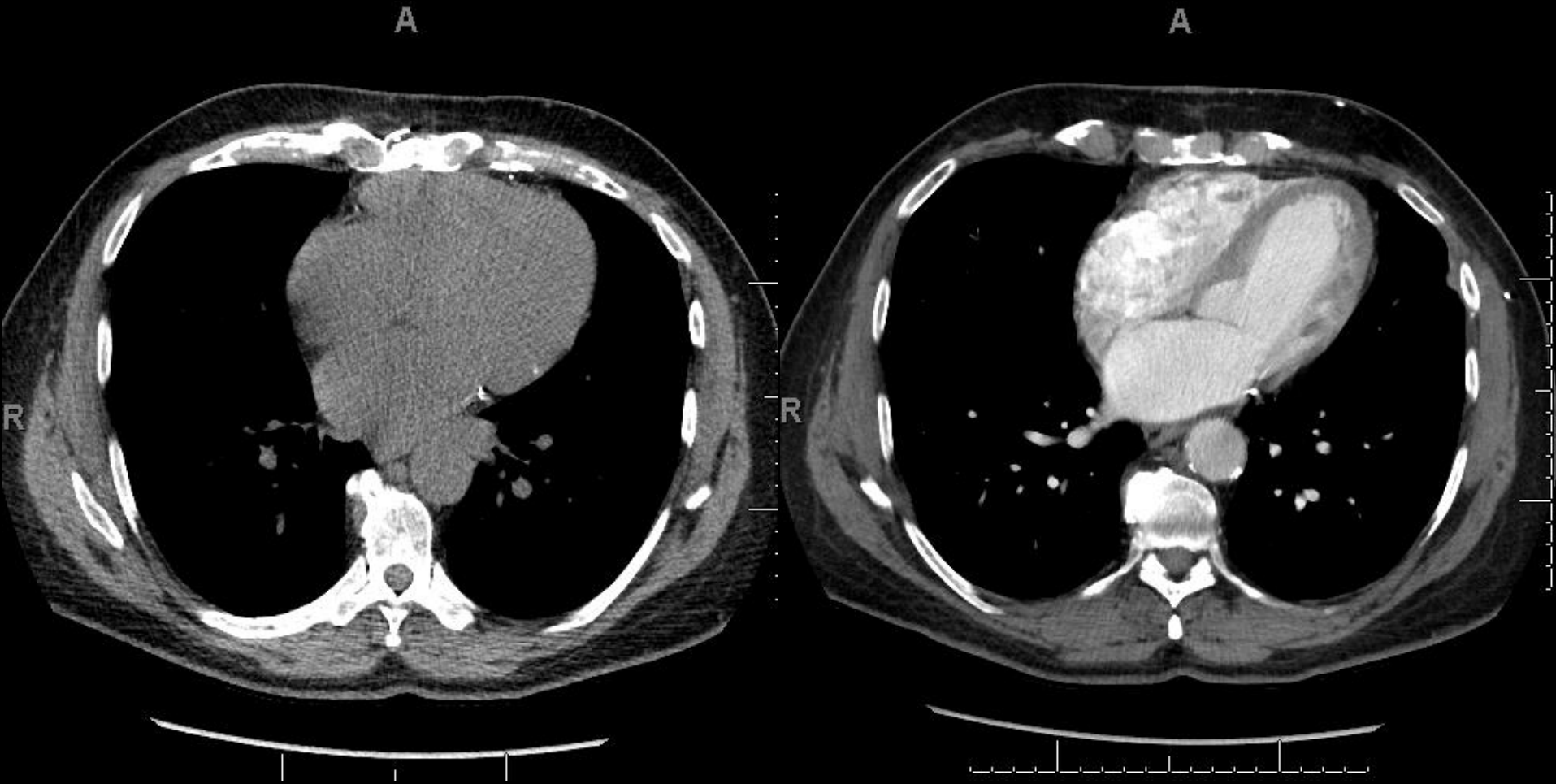
65-year-man, smoker for 25 years,
chronic dry cough since 4 months



Chest- Dual energy

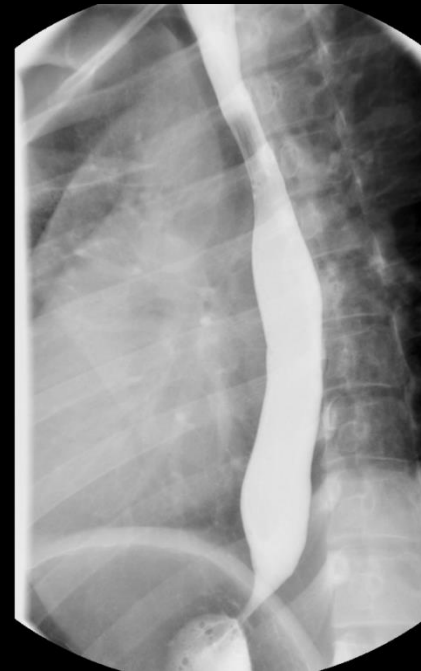
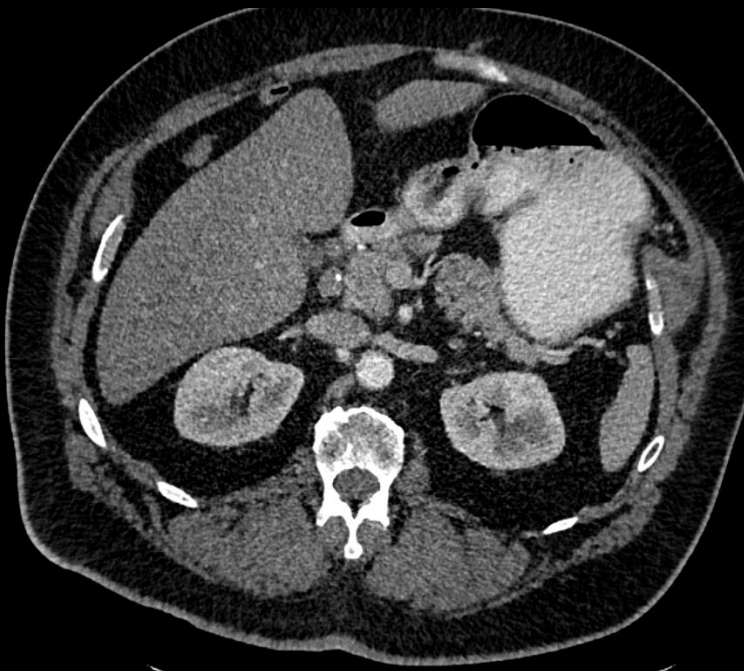


Non-contrast versus Contrast



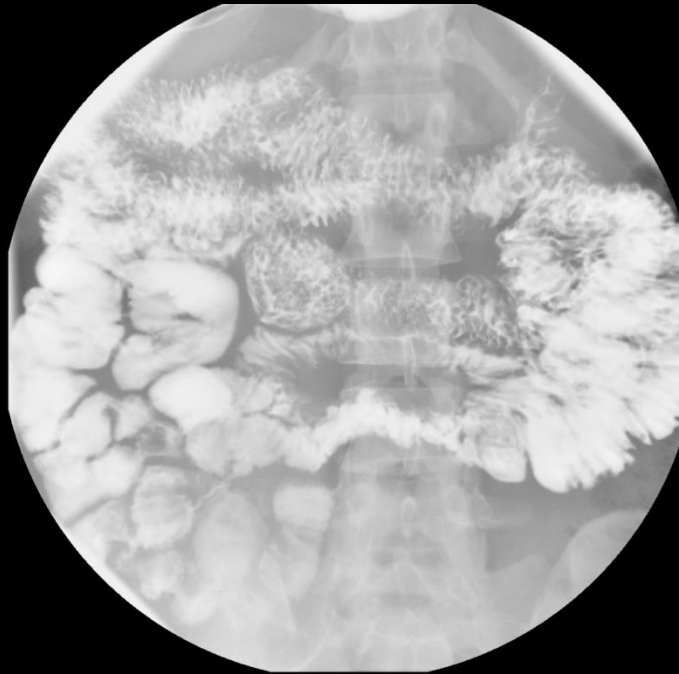
Contrast media

- Intravenous
- Oral



Role of Oral contrast study

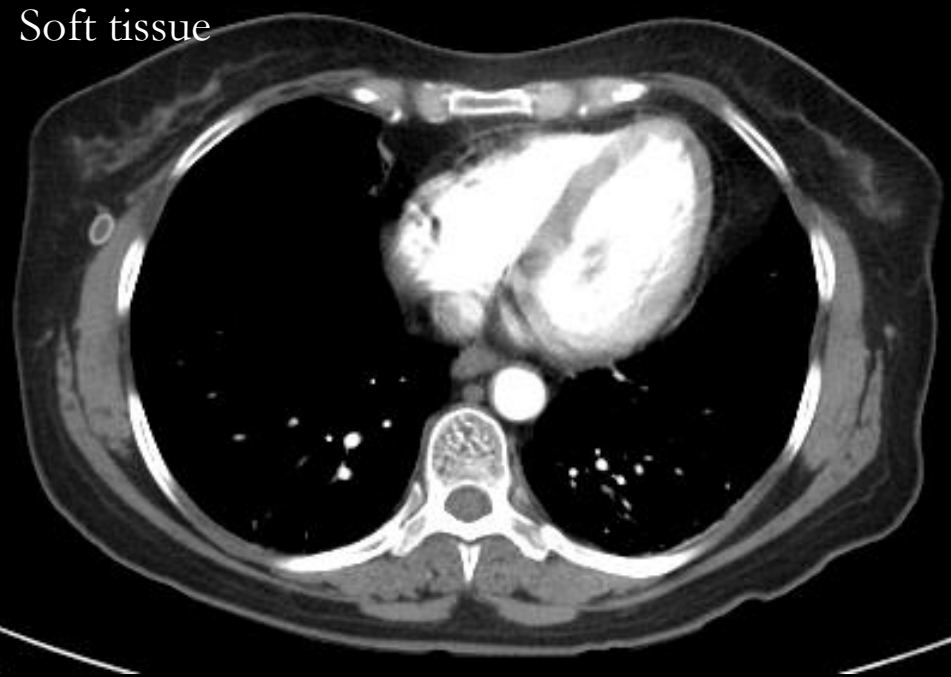
- Luminal details of the bowel
- Obstruction
- Perforation



Role of IV contrast study

- Heart and Blood vessels
- Solid organs
- Lymph nodes
- Tumor characteristic- solid versus necrotic
- Tumor invasion
- Fluid collection versus abscess

Soft tissue



Bone



Lung



Contraindications for intravenous contrast

- Renal failure:
 - Serum creatinine
 - eGFR <30
- Contrast reaction:
 - Mild: hives, rash, itching
 - Premeditation- steroid, antihistaminic
 - Severe: Anaphylaxis, angioedema, stridor

Contrast Induced Nephropathy

Increase in Serum creatinine (SCr)

- 25% relative increase, or
- 0.5 mg/dL (44 μ mol/L) absolute increase,
- within 72 h of contrast exposure,
- in the absence of an alternative explanation

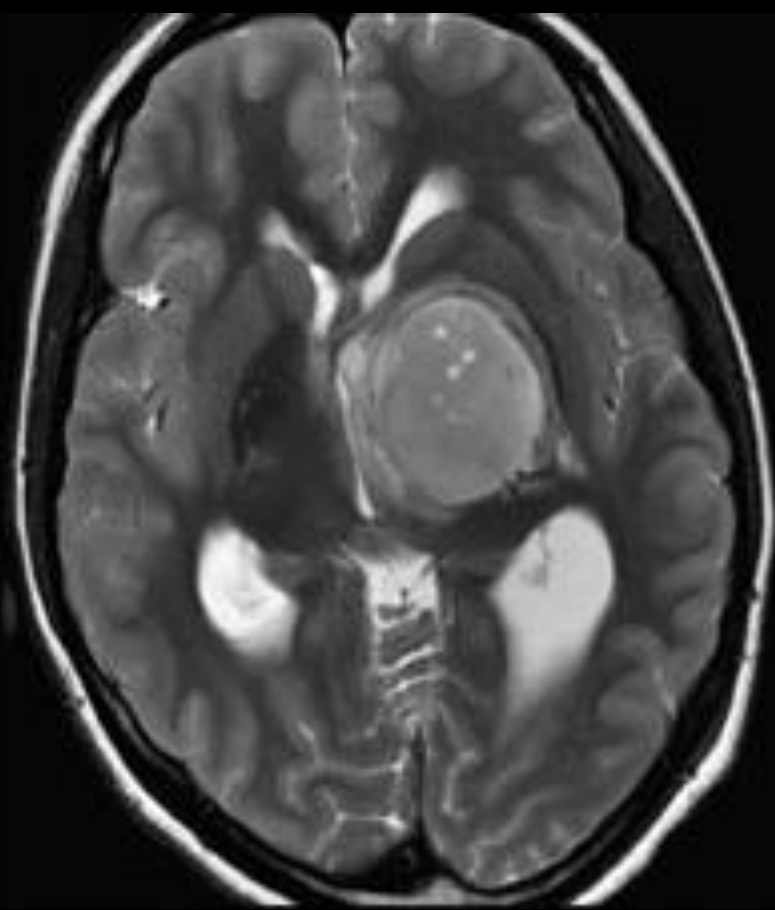
MR

- Better soft tissue characterization
- Longer study
- No radiation

MR contrast Gadolinium Based

Risk of NSF among patients exposed to standard or lower than standard doses of **group II** GBCAs is sufficiently low or possibly nonexistent such that assessment of renal function with a questionnaire or laboratory testing is optional prior to intravenous administration.

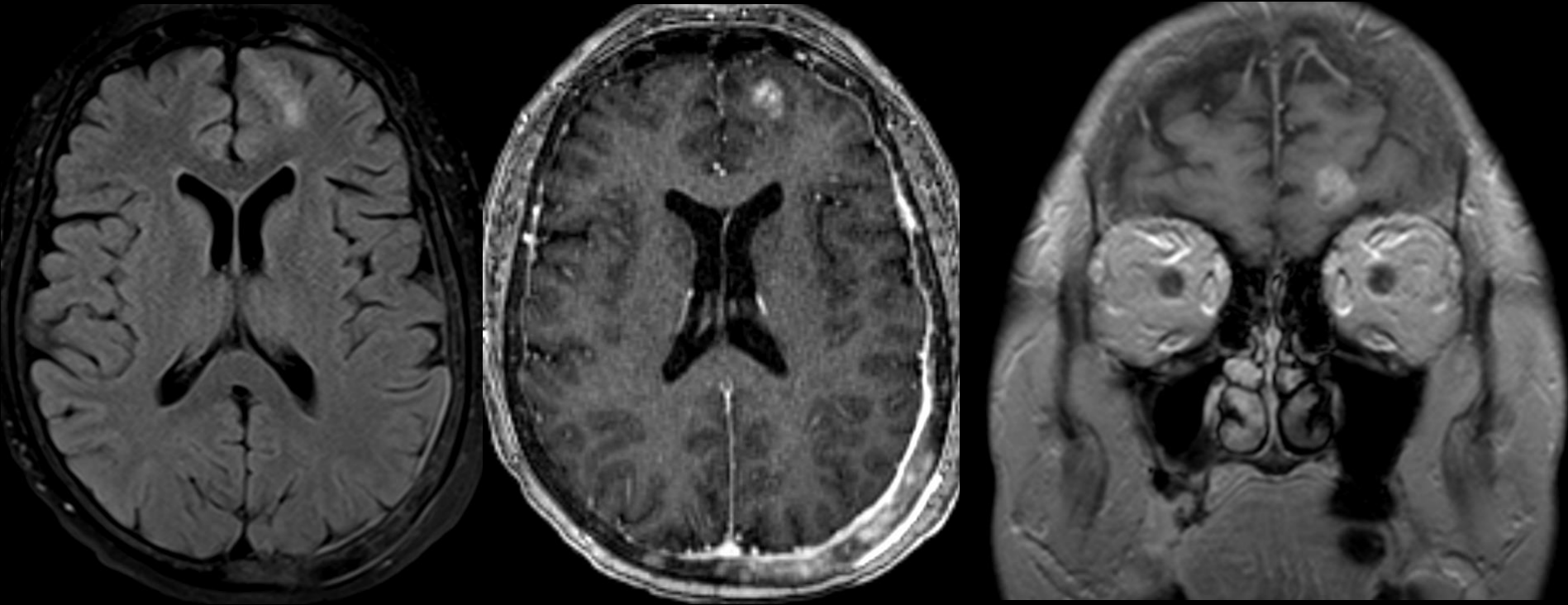
ACR Contrast Manual Version 10.3 (2018)







H/O Breast cancer, now presented with altered mental status



Lung Ca

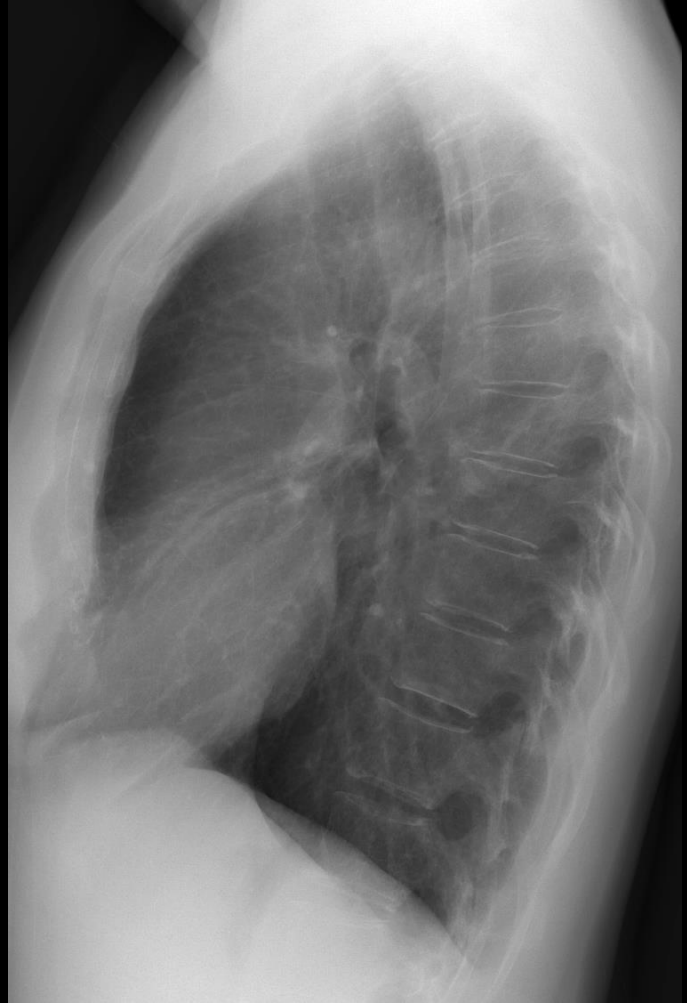
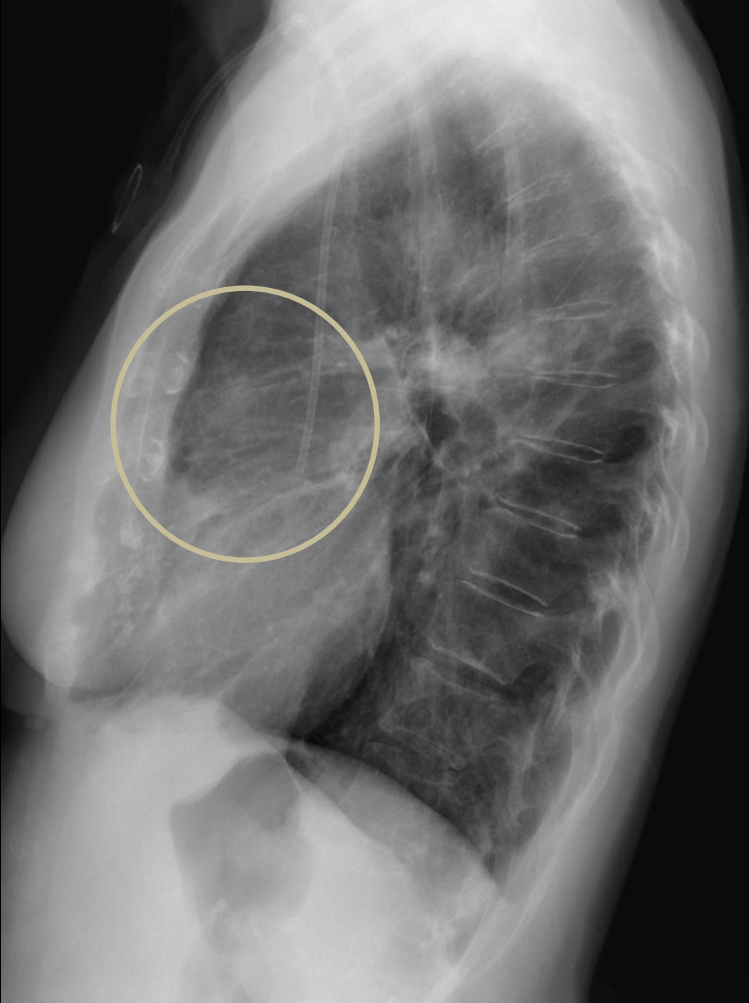


Oncologic Emergencies

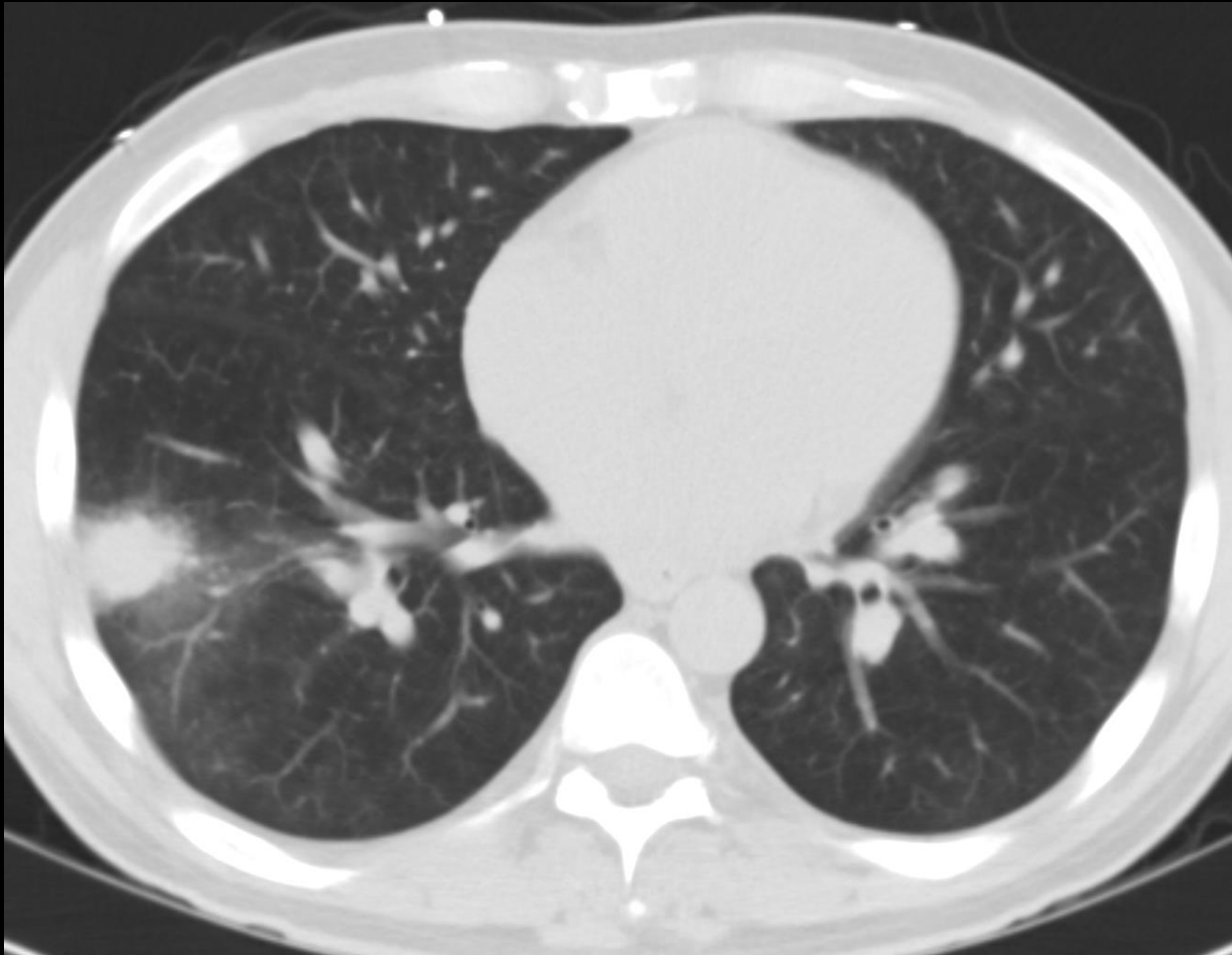
- Abdomen:
 - Intestinal obstruction
 - Hemorrhage
 - Urinary tract obstruction
- Chest:
 - Pleural effusion
 - Pericardial effusion
 - SVC syndrome
- CNS:
 - Spinal cord compression
 - Herniation

Pneumonia



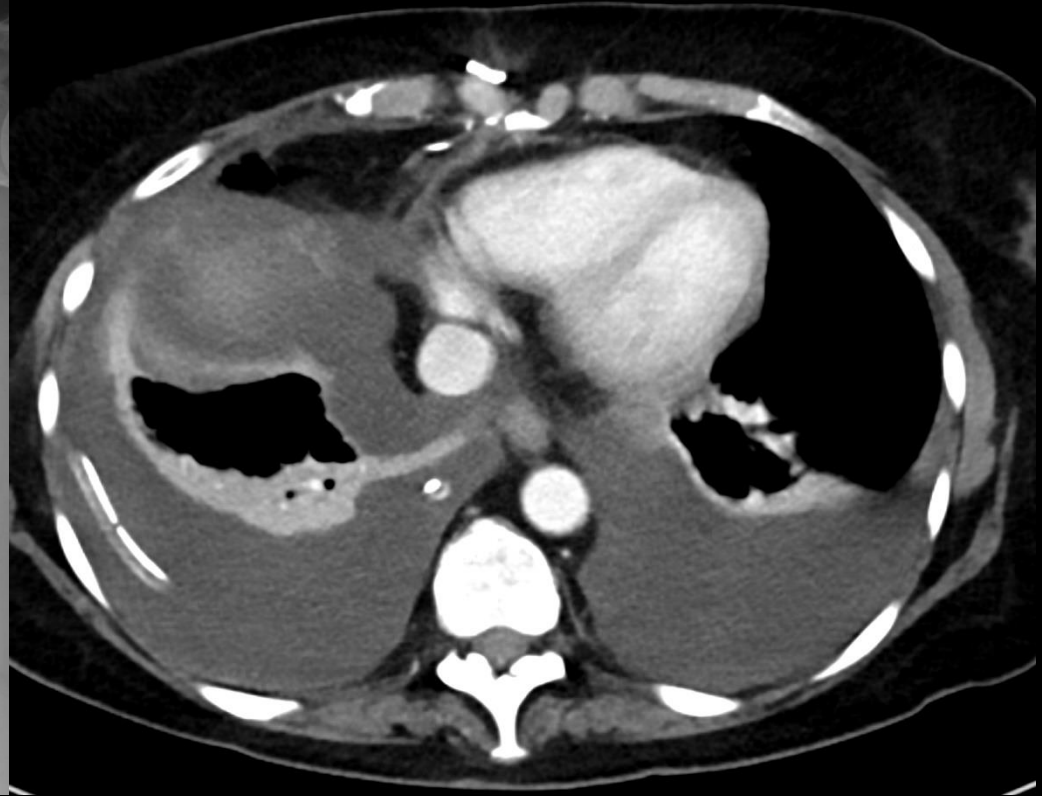
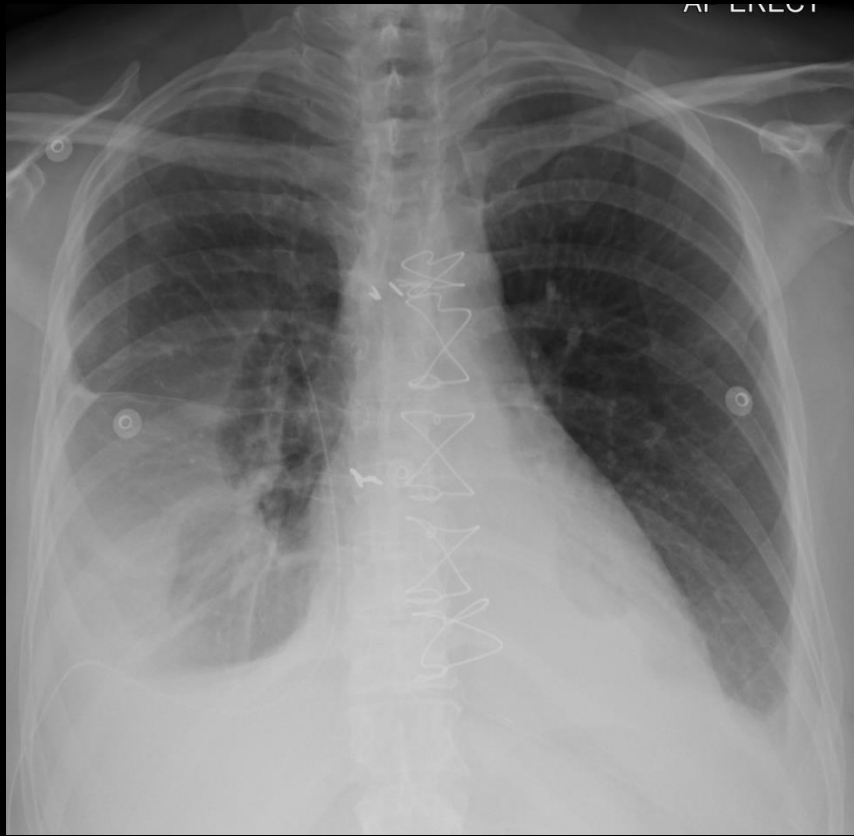


52-year man undergoing chemotherapy for lymphoma.
Presents with lethargy and fever

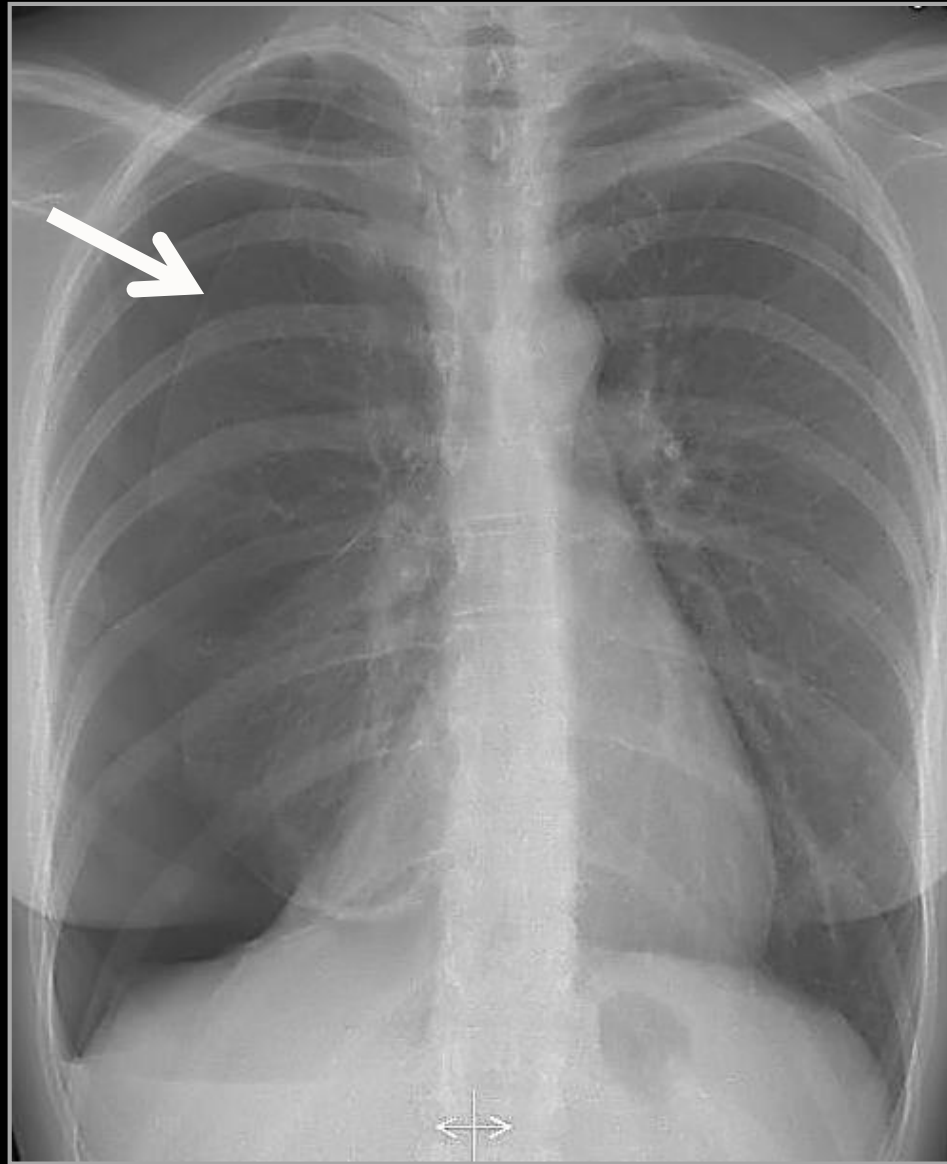


Angio-invasive aspergillosis

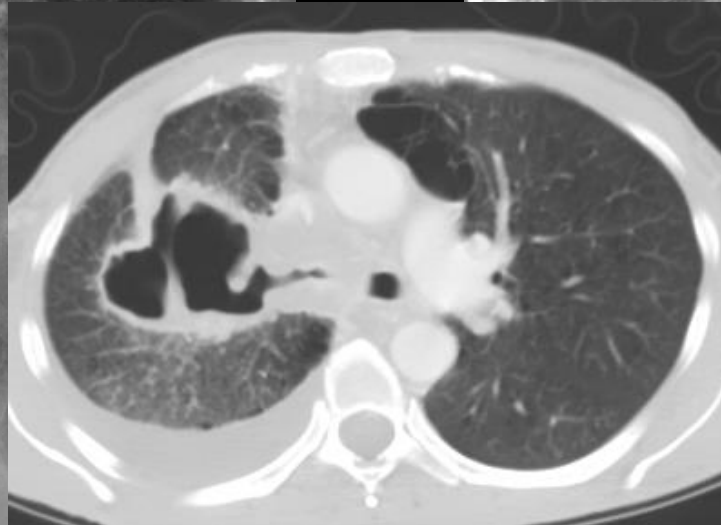
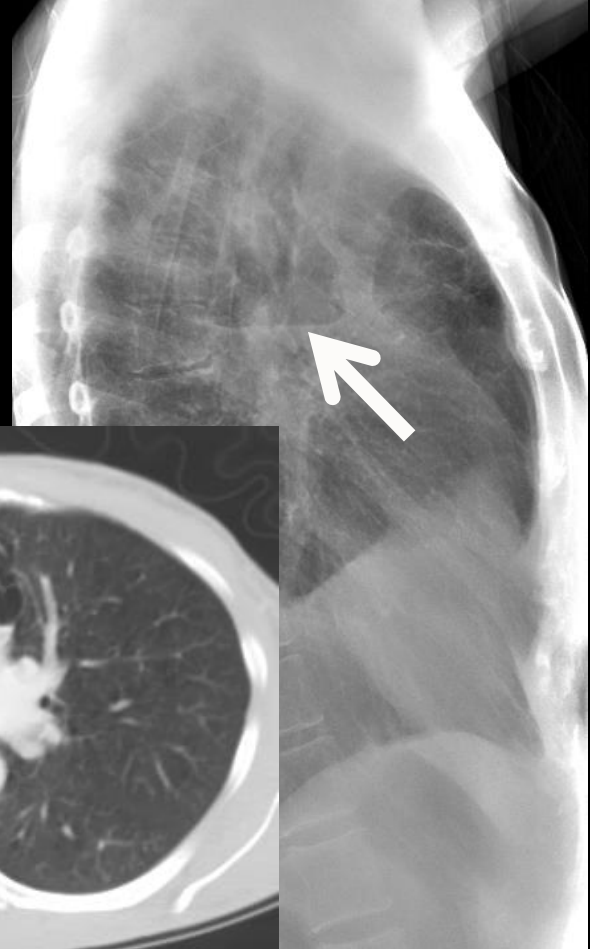
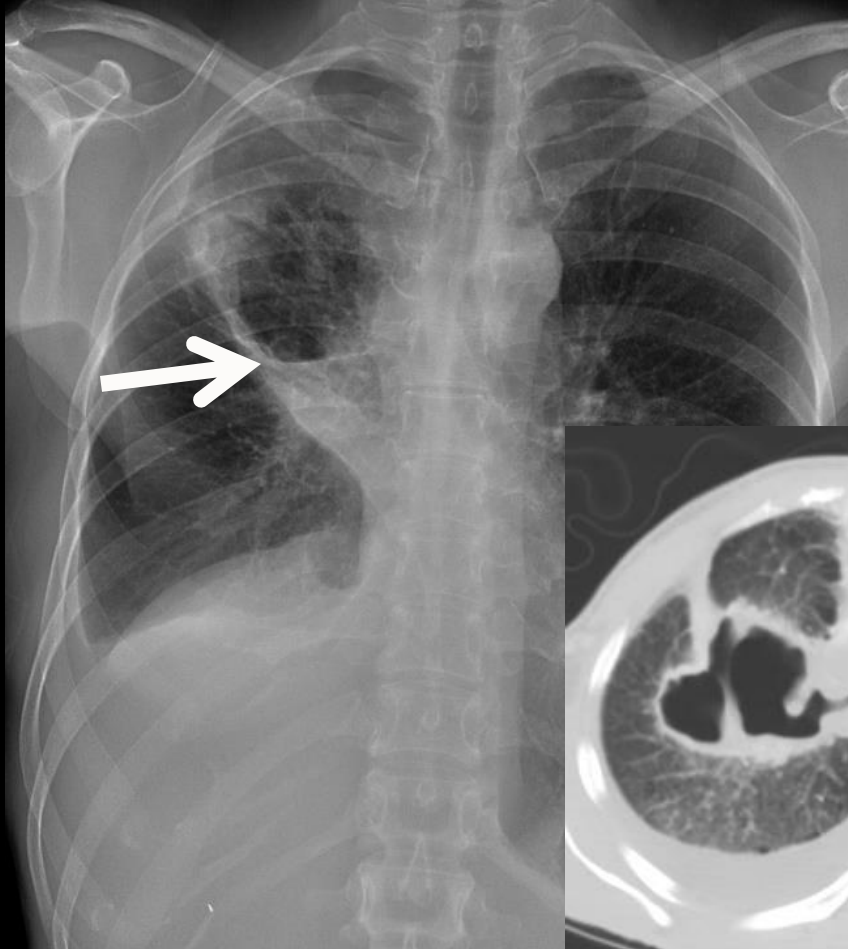
Pleural effusion



Pneumothorax



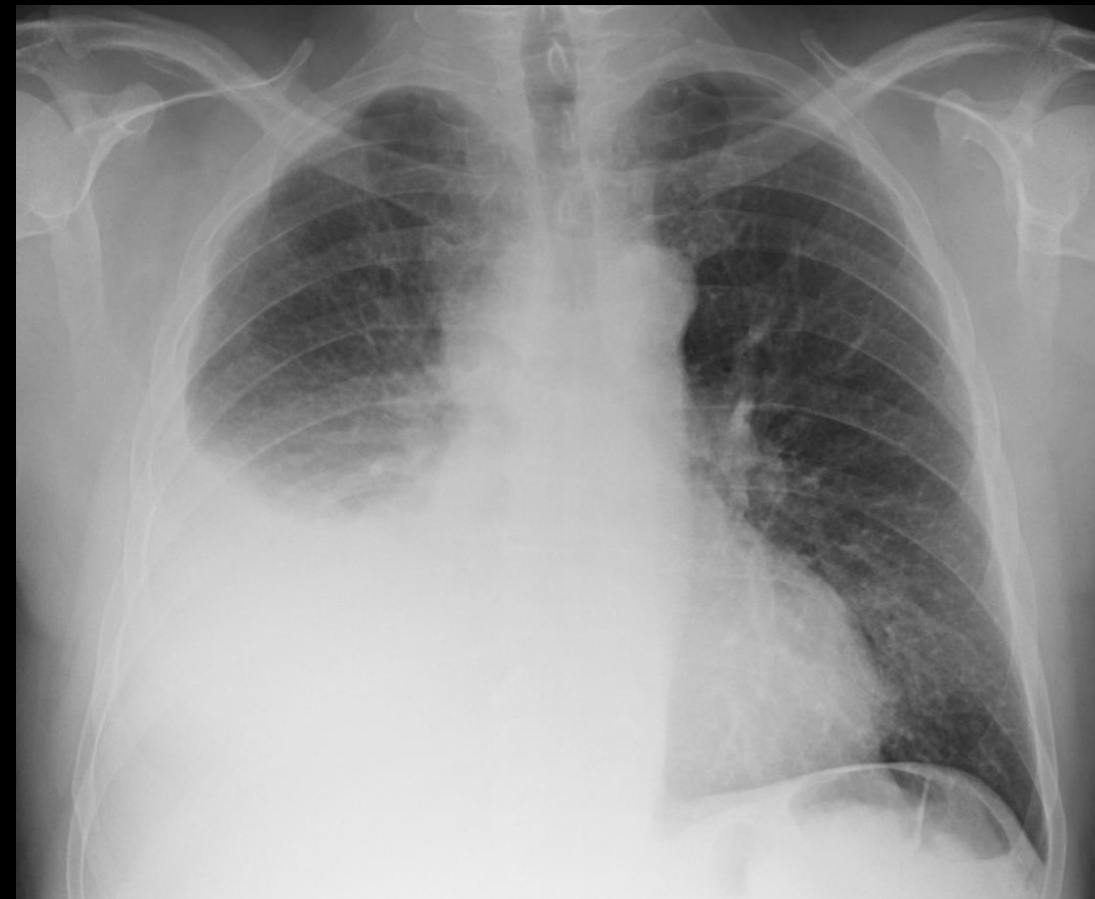
Cavitation

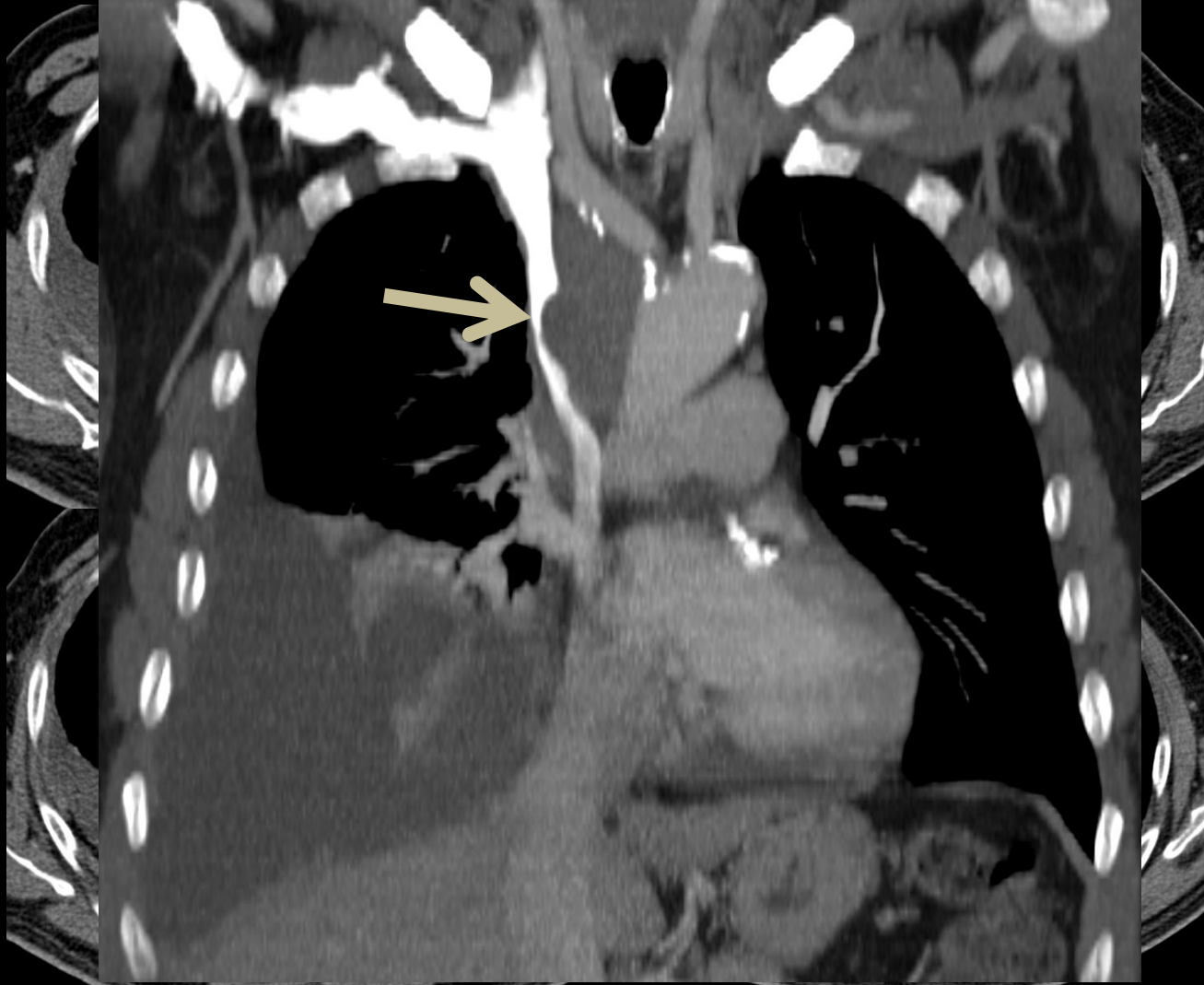


Pericardial effusion

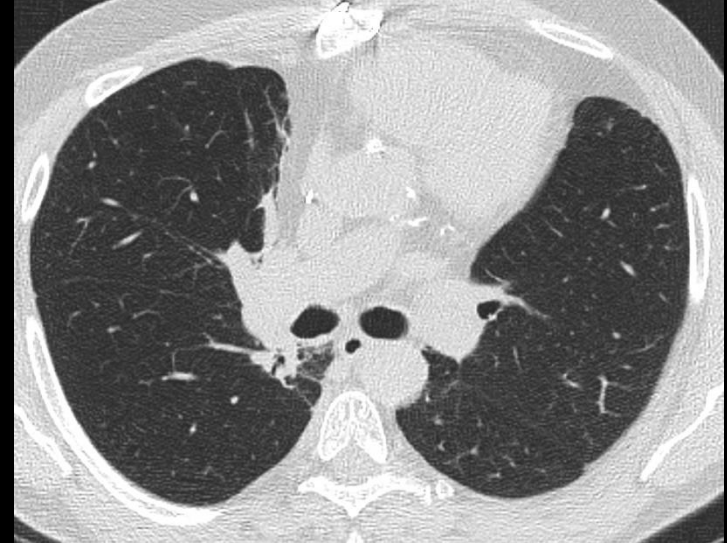
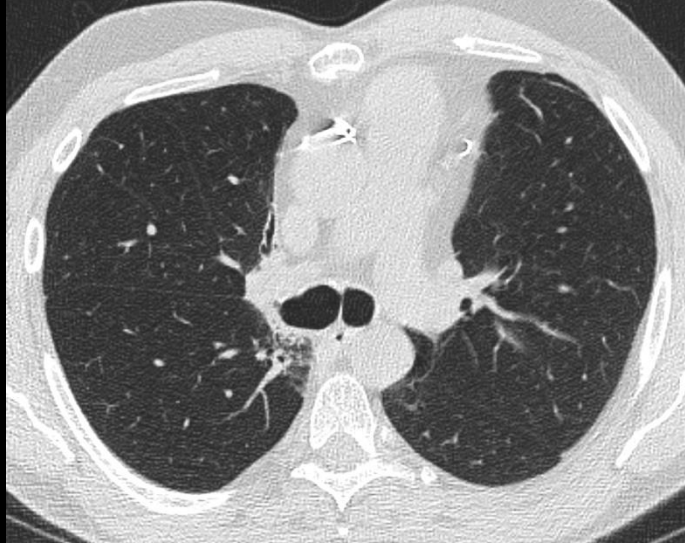
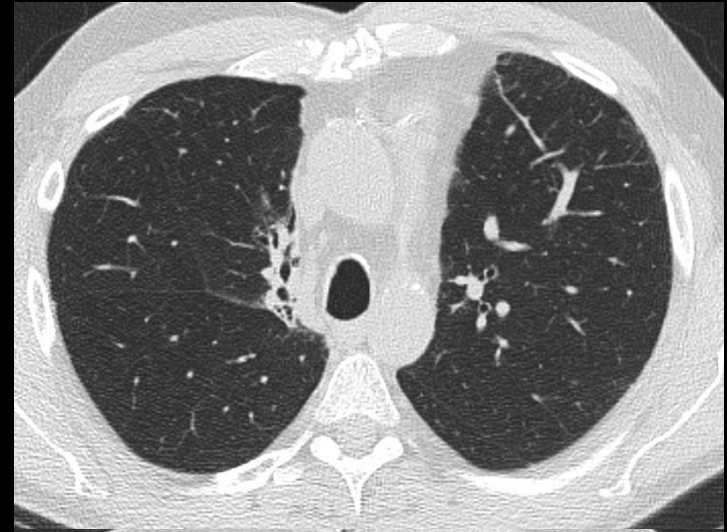
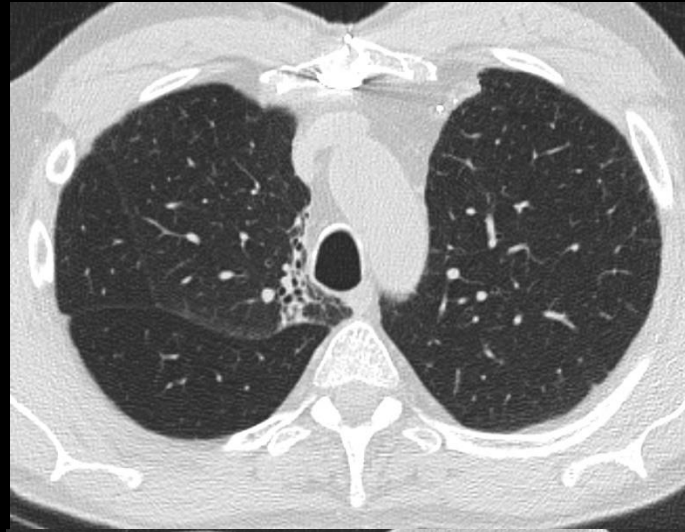


70-year-man with weight loss and increasing swelling
over neck and upper extremities





Post Radiation Fibrosis

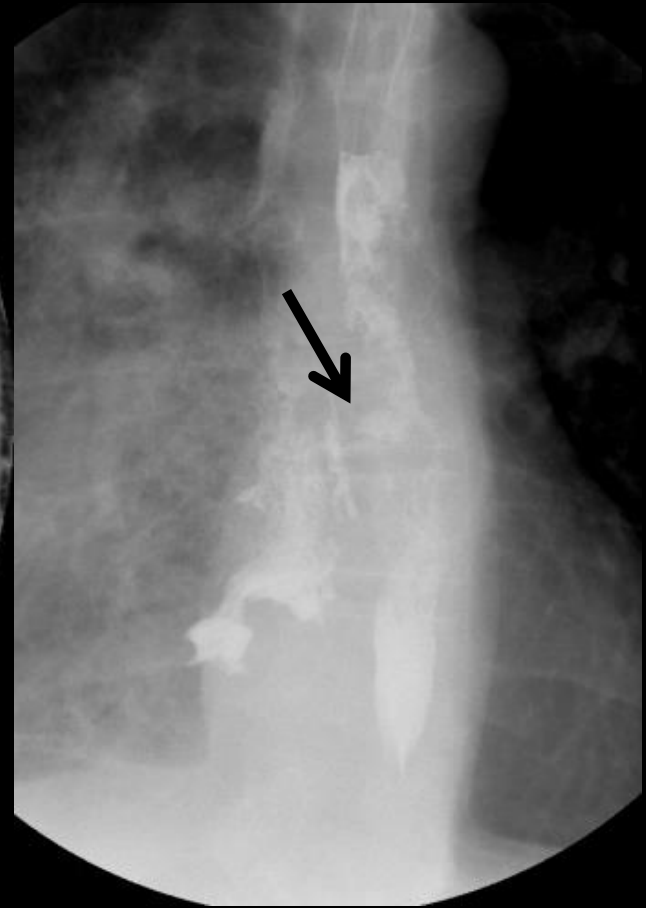


61-year man with stage 1 lung cancer

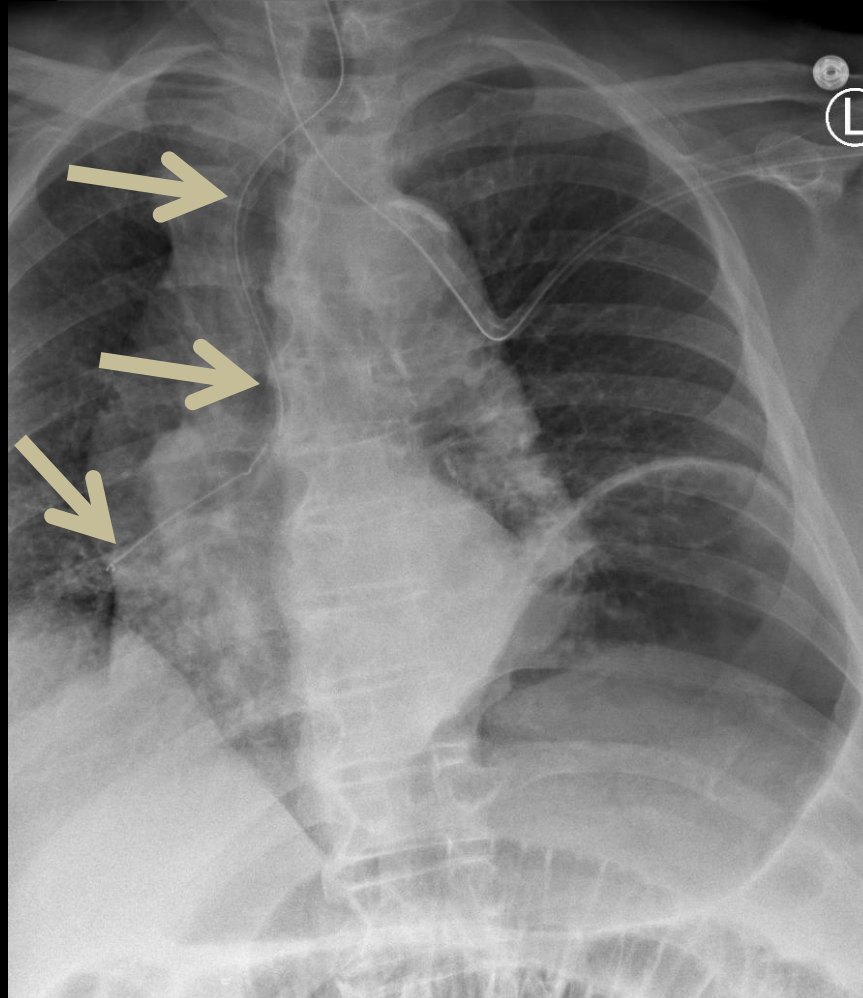


3 months s/p SBRT

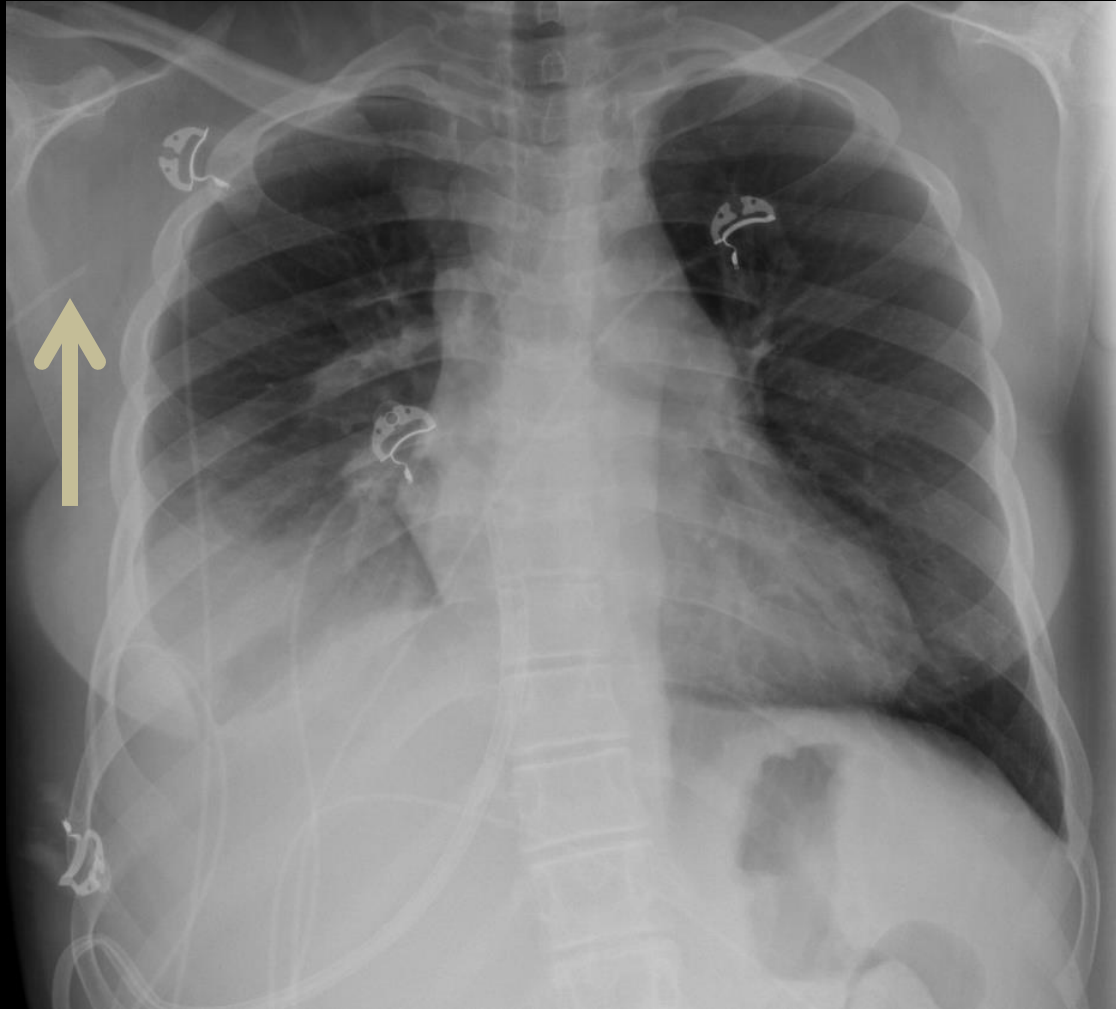
Esophageal Cancer- Perforation



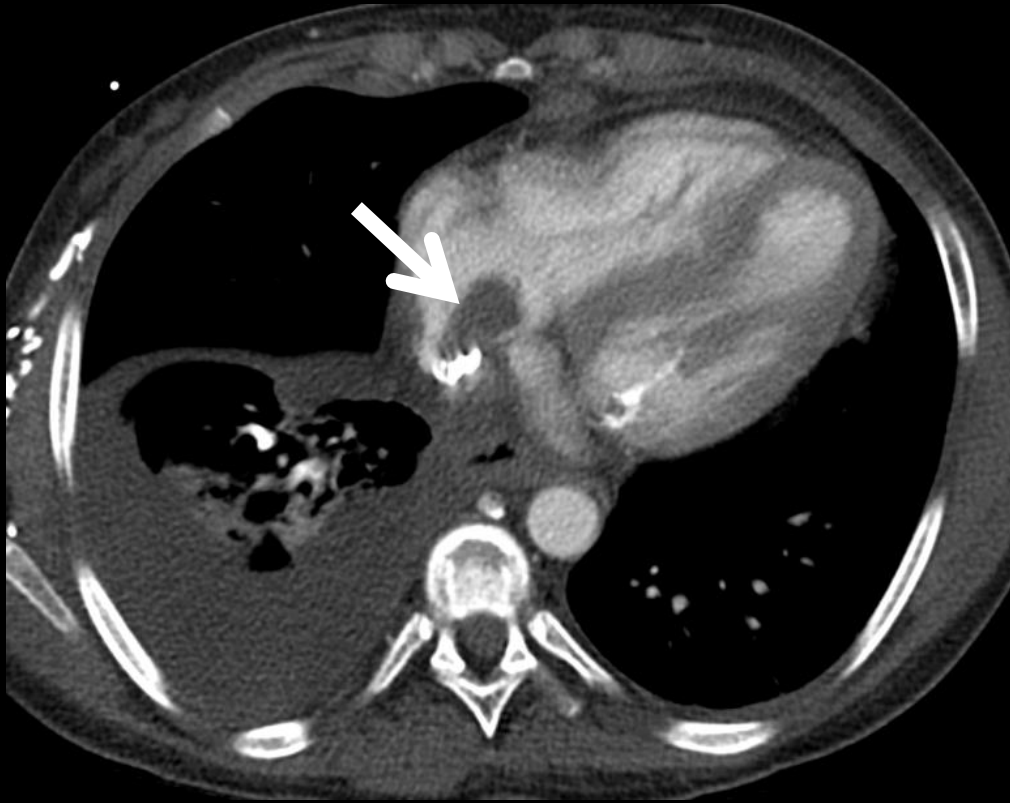
Iatrogenic- Lines/Ports Malposition



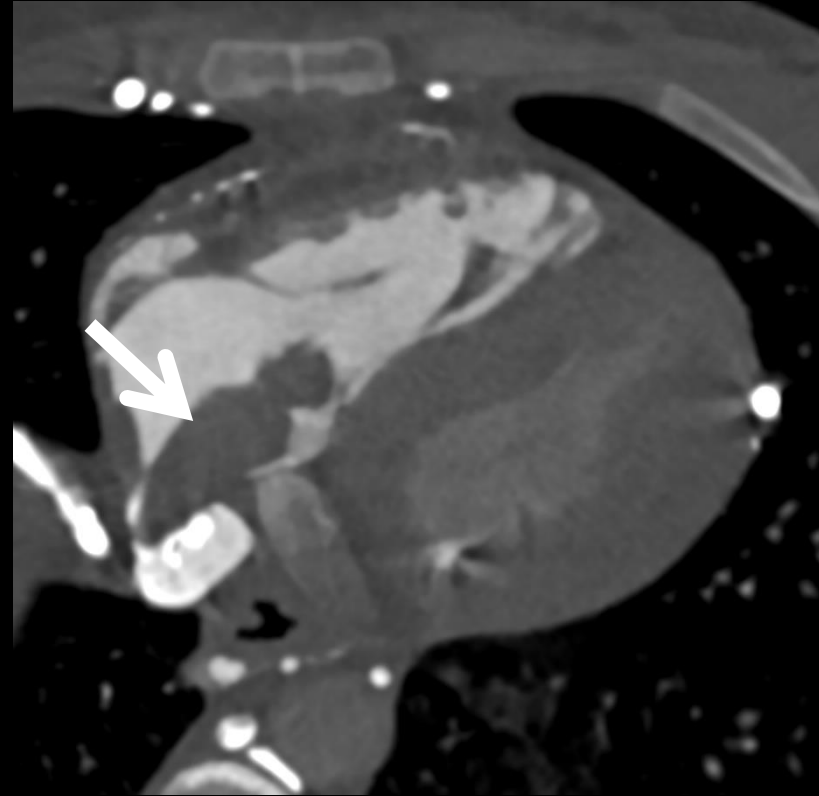
Iatrogenic- Lines/Ports malposition



Iatrogenic- Lines/Ports Thrombosis

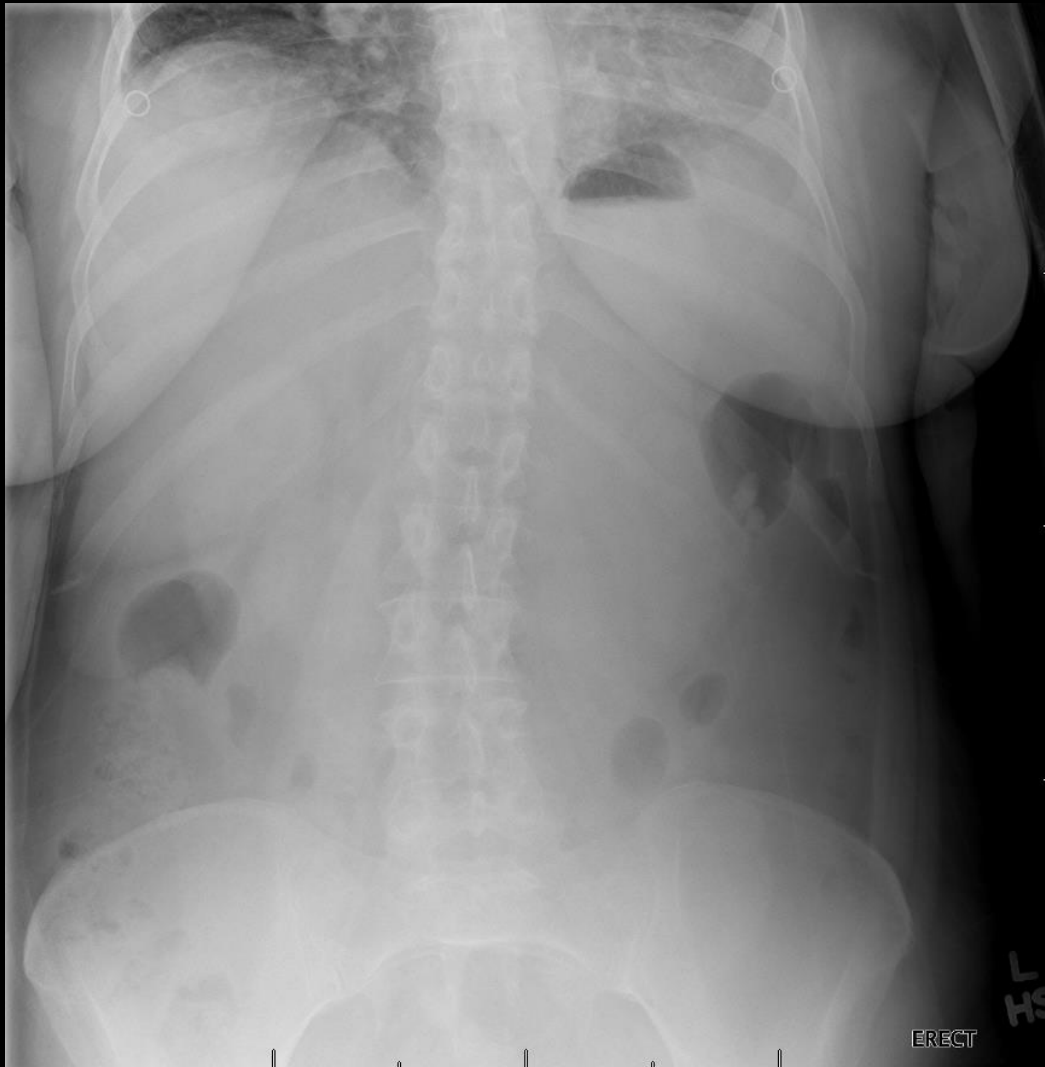


Case 1

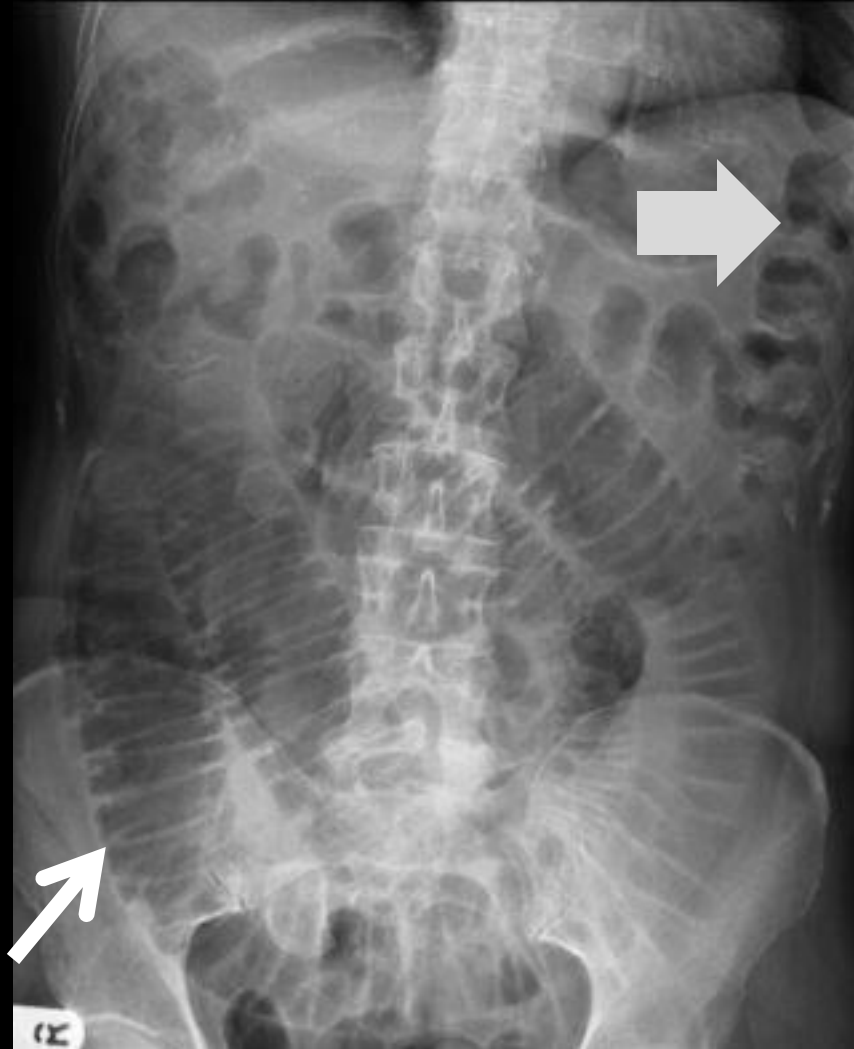


Case 2

Abdomen AP radiograph

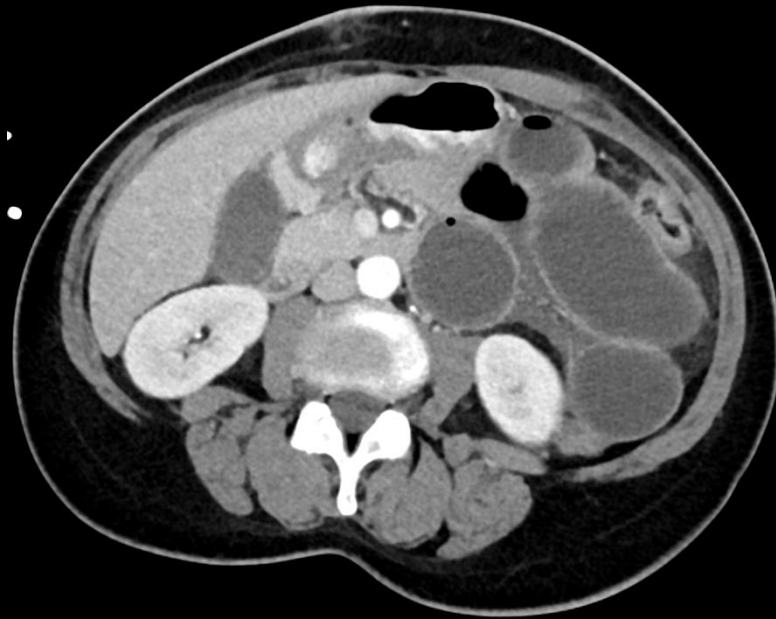
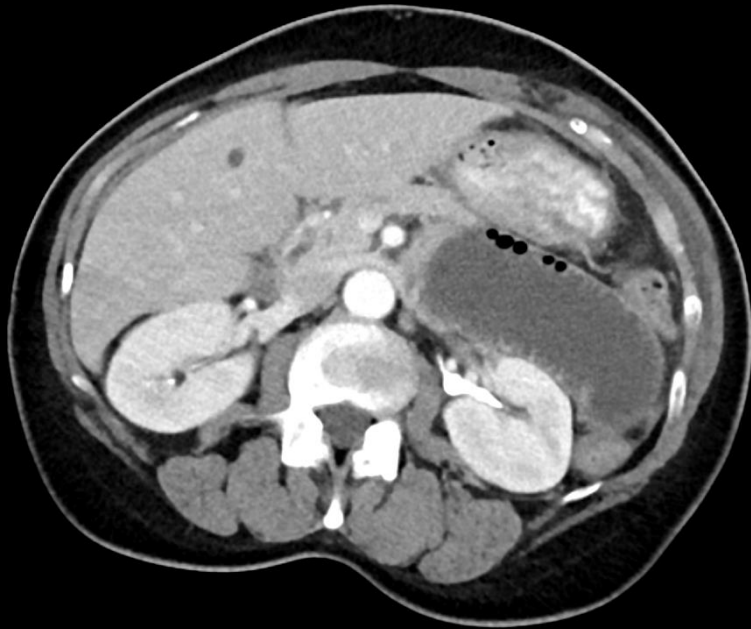


Intestinal obstruction

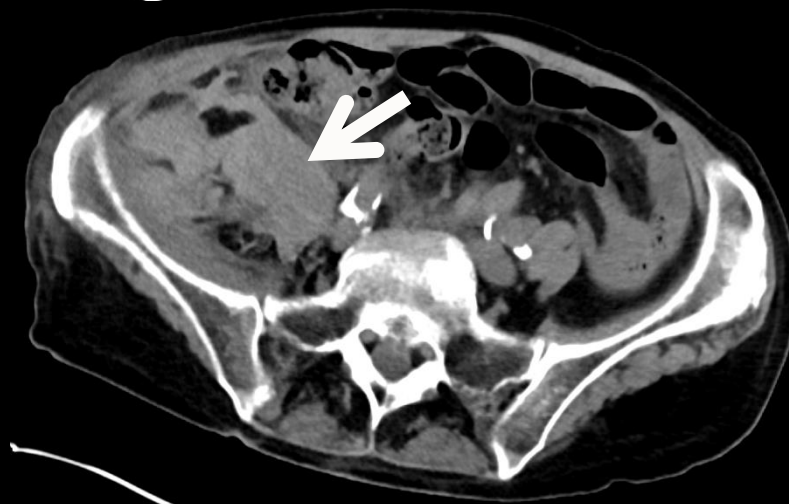
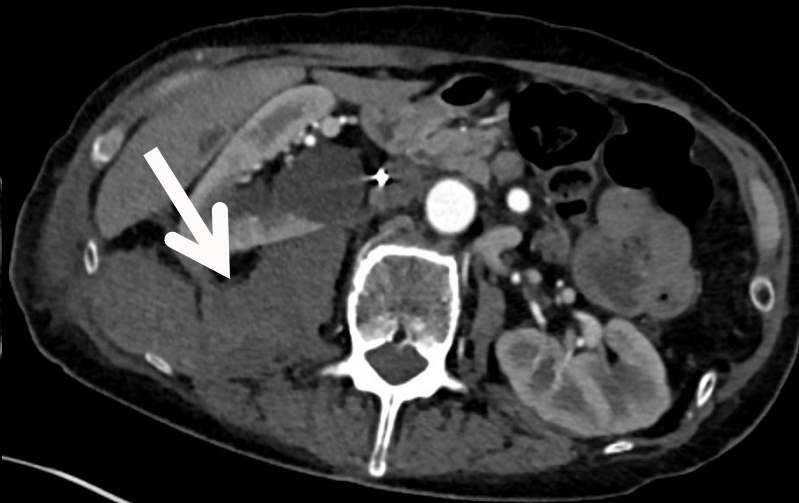




Distal small bowel obstruction



Hemorrhage



Non-contrast

Contrast



Ultrasound

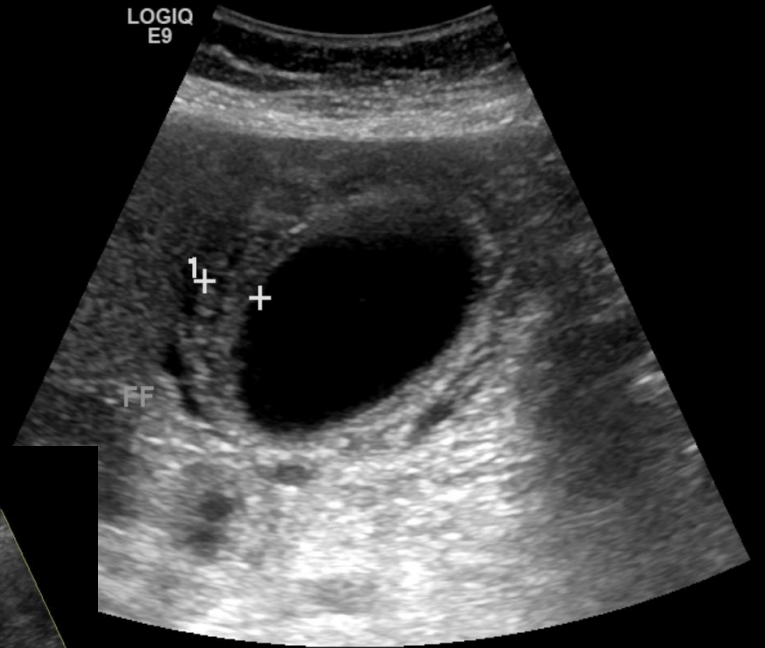
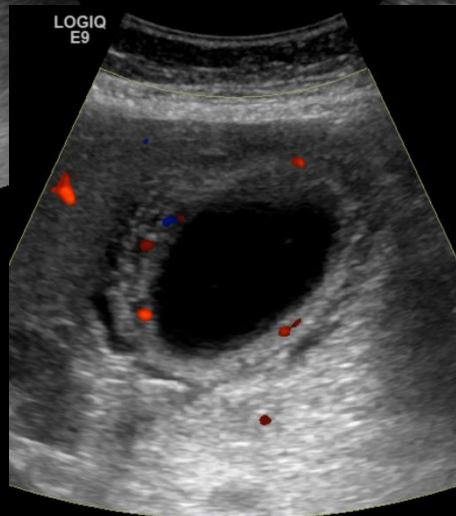
GB LLD

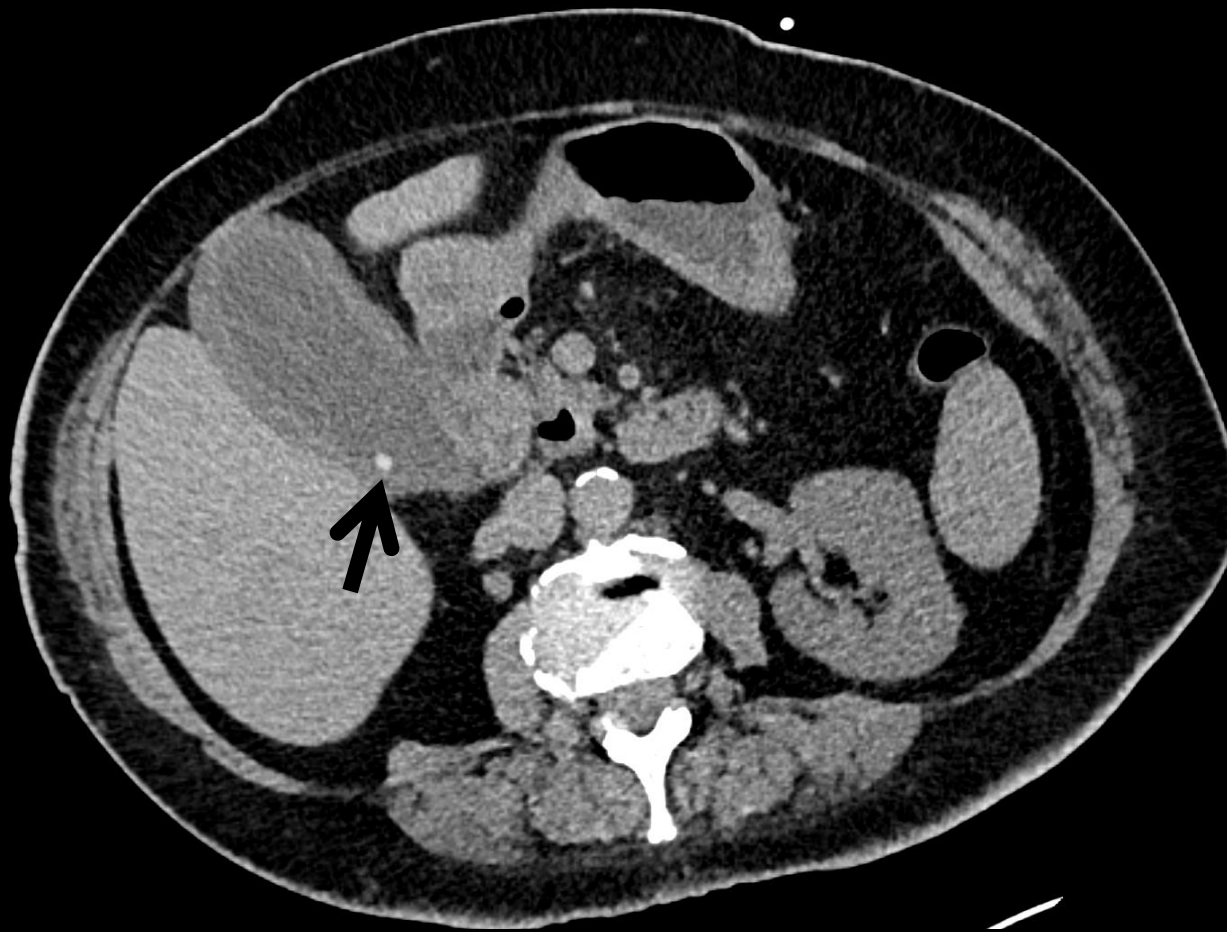
LOGIQ
E9

GB LLD

LOGIQ
E9

LOGIQ
E9

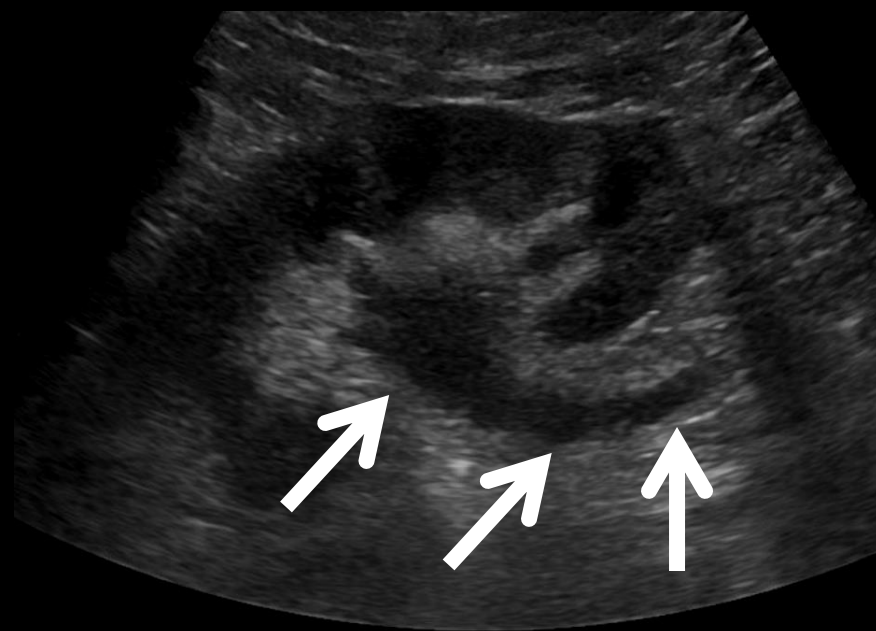




Urinary tract obstruction

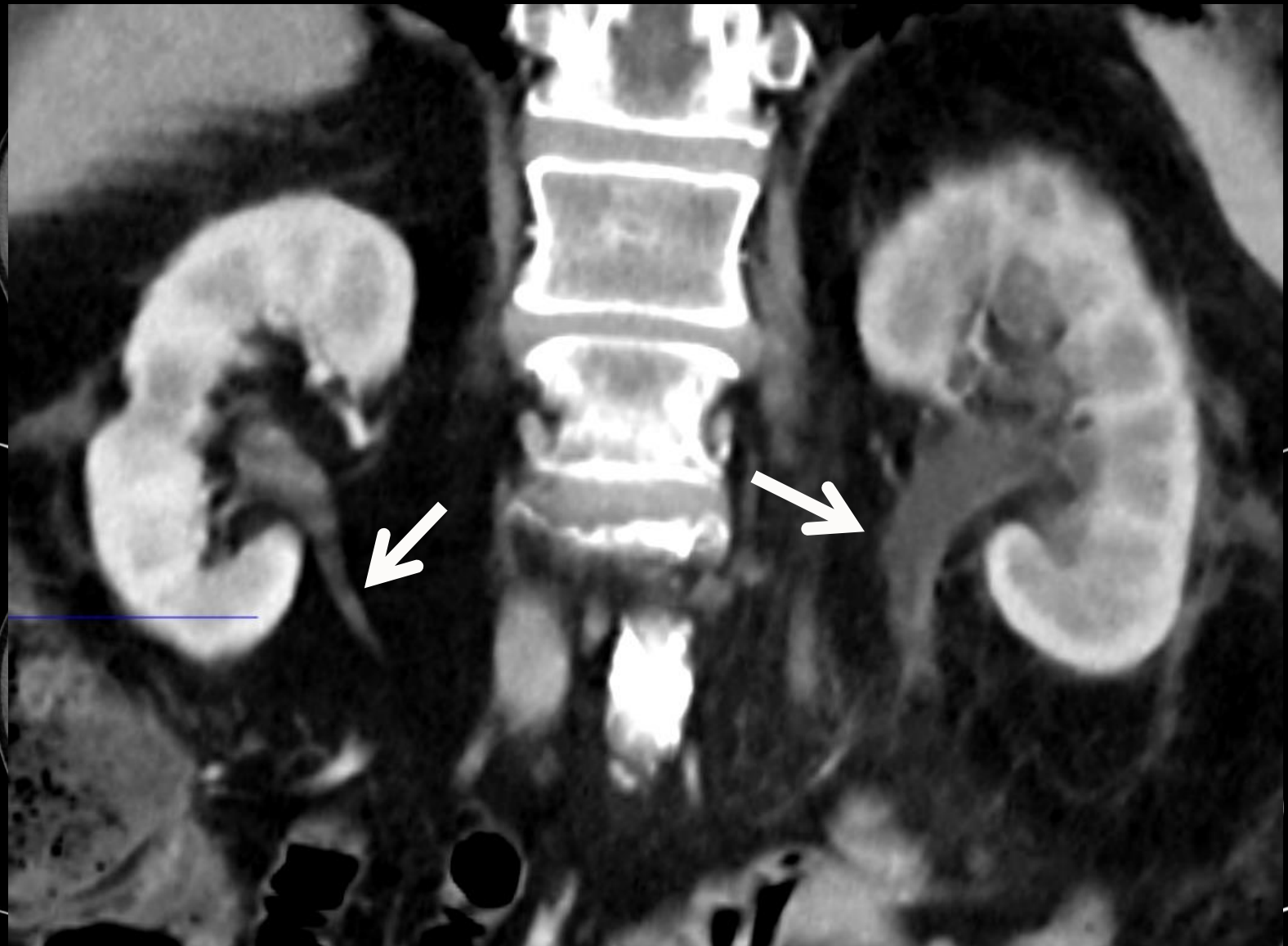


LONG RT KID

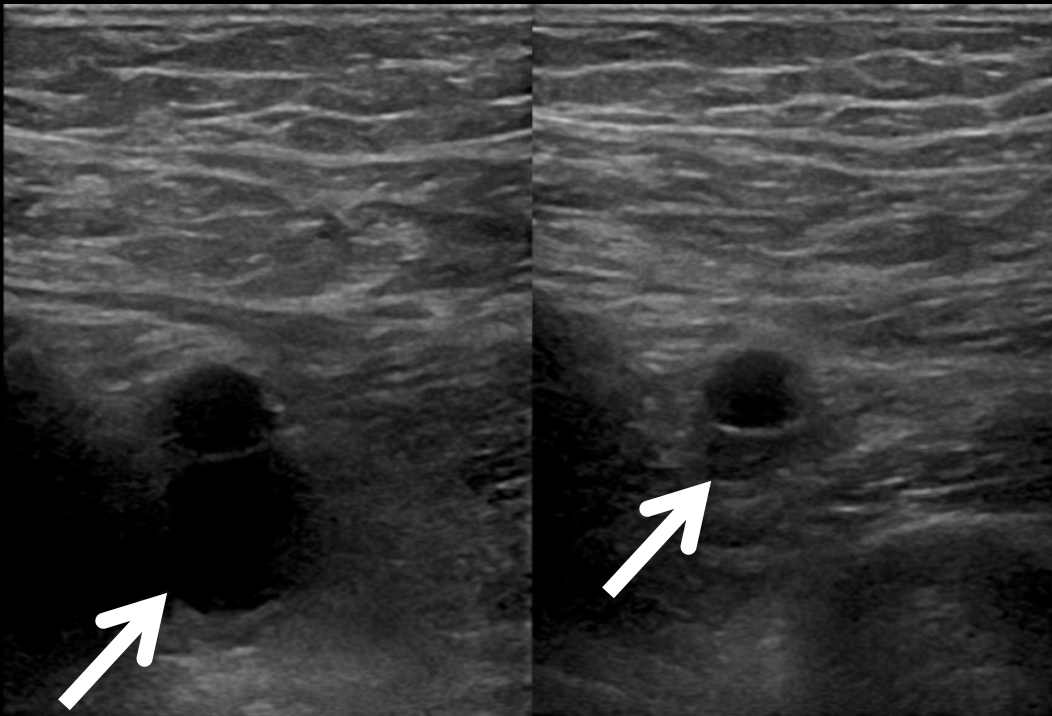


LONG LT KID

Urinary tract obstruction

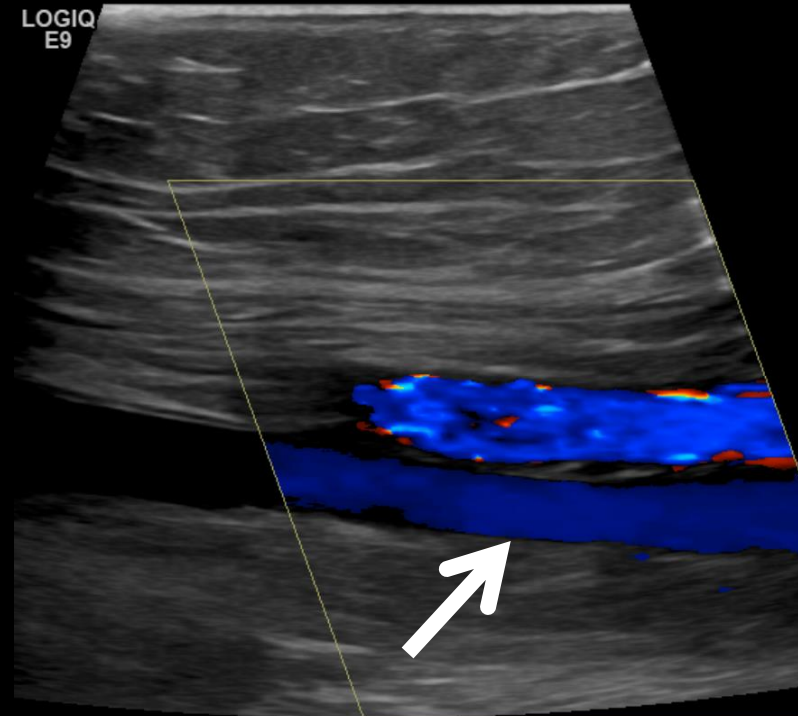


Lower Extremity Doppler



LT FV HIGH

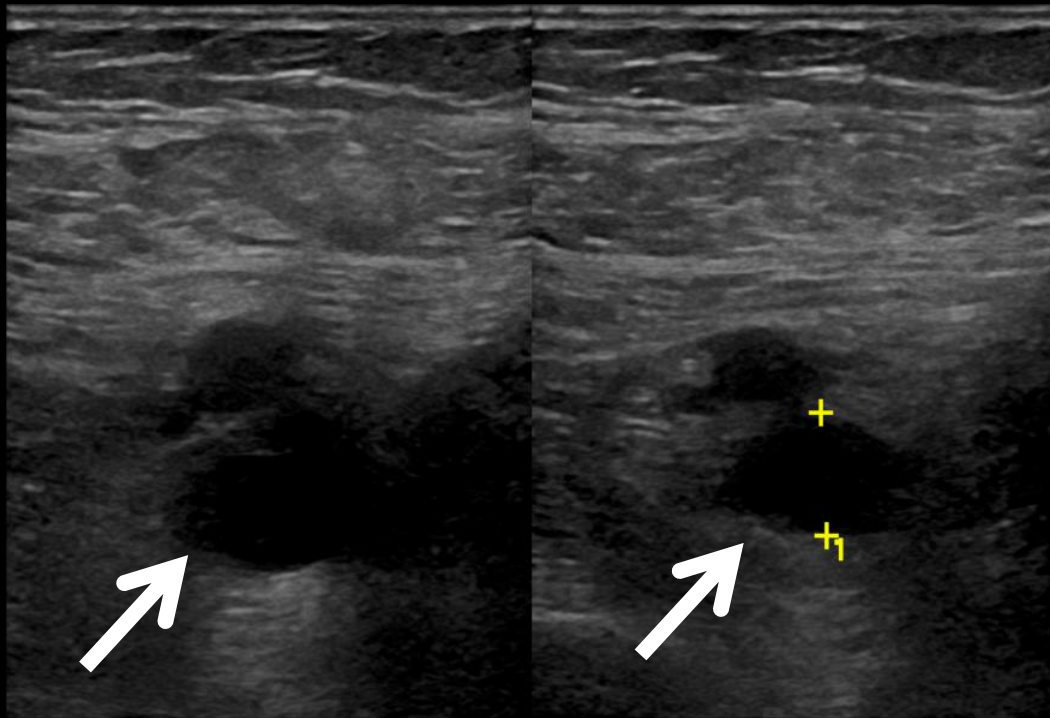
W/COMP



LT FV HIGH

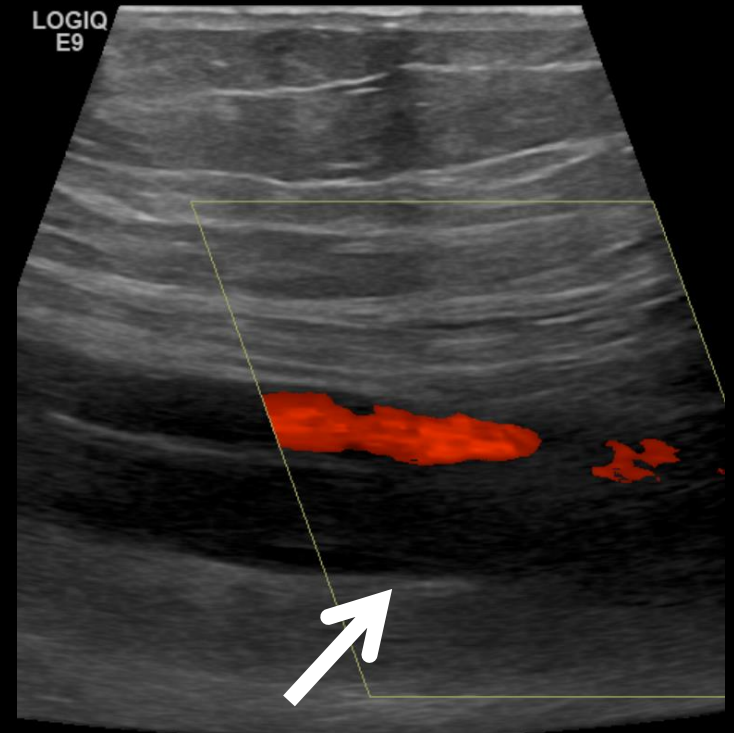
Normal Left femoral vein

Lower Extremity Doppler



RT FV HIGH

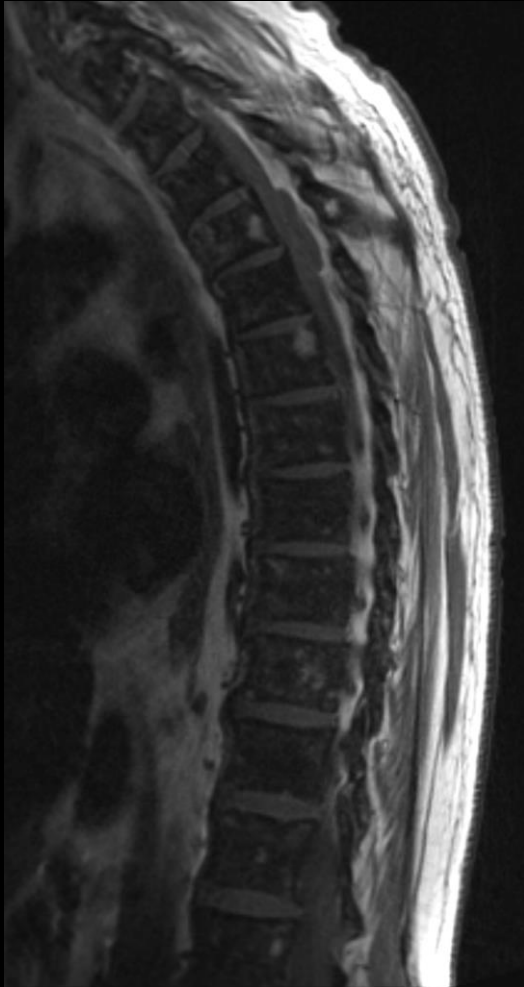
W/COMP



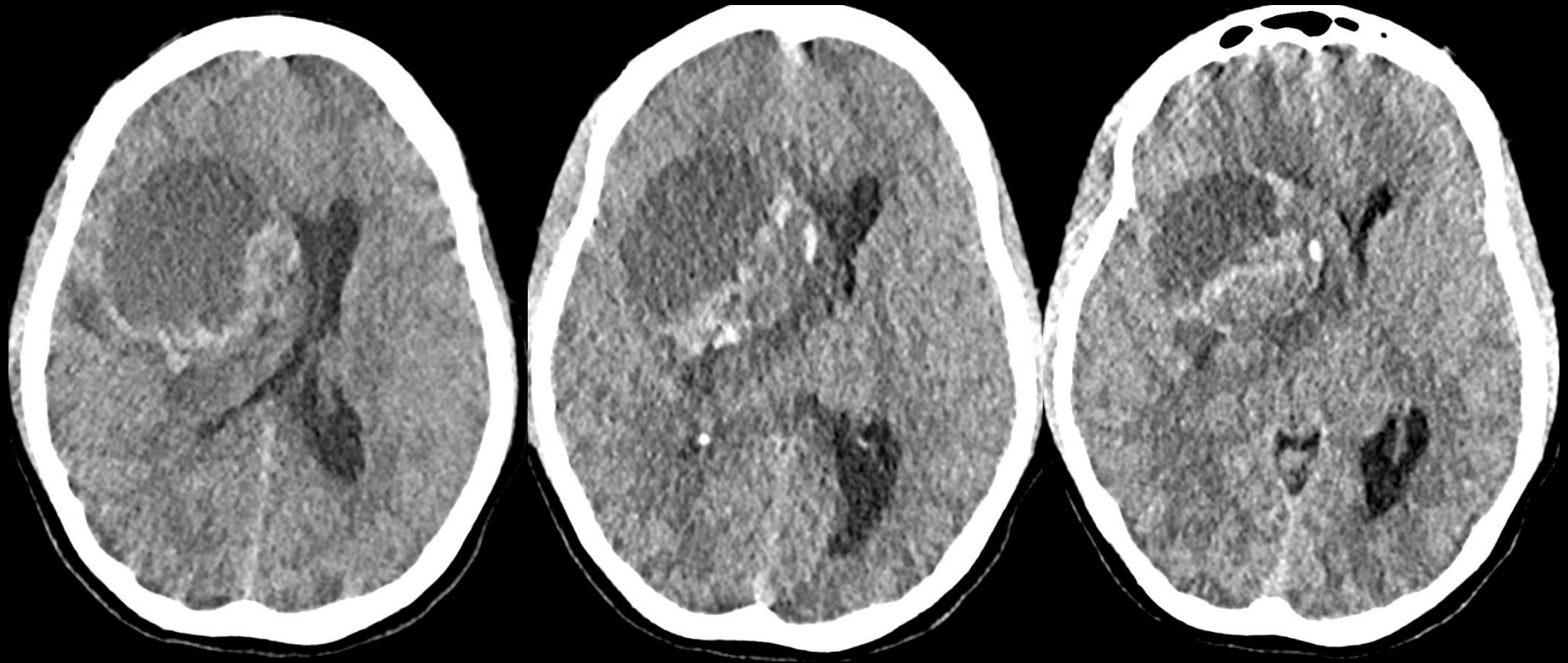
RT FV HIGH

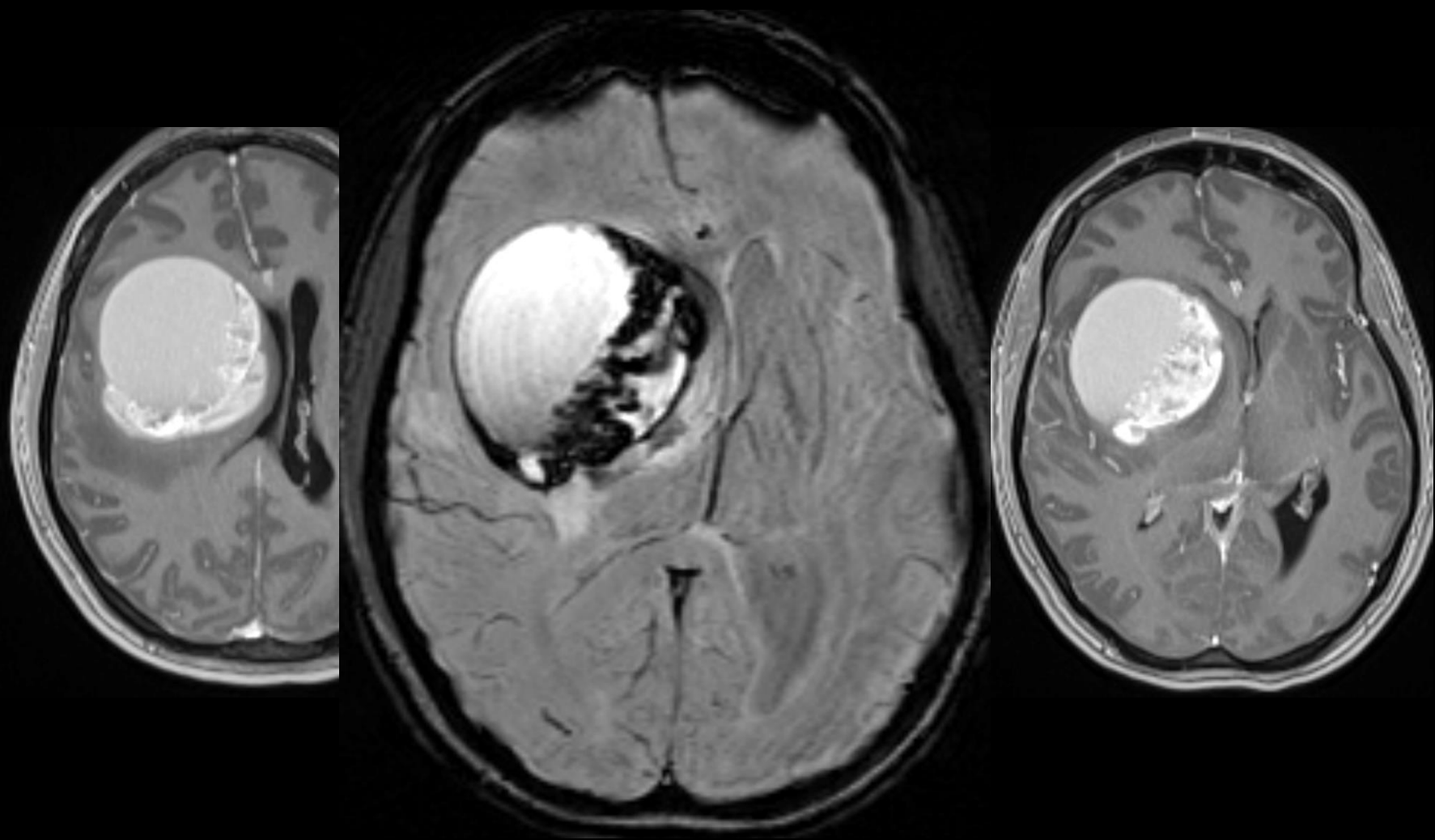
Acute DVT Right femoral vein

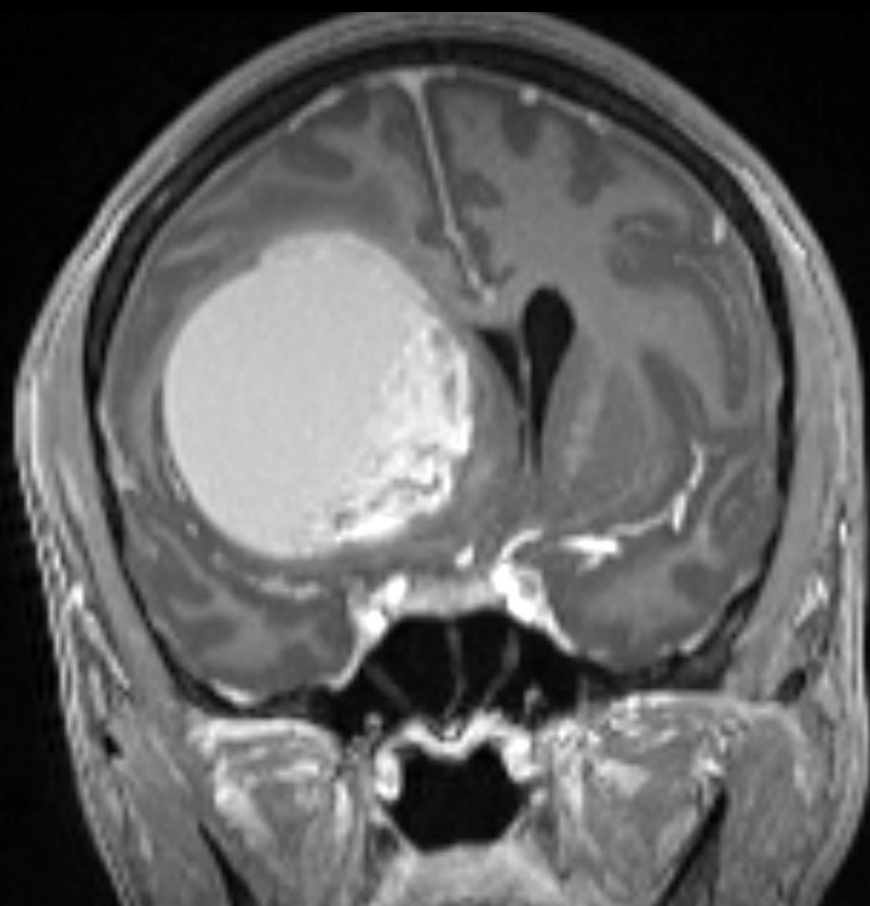
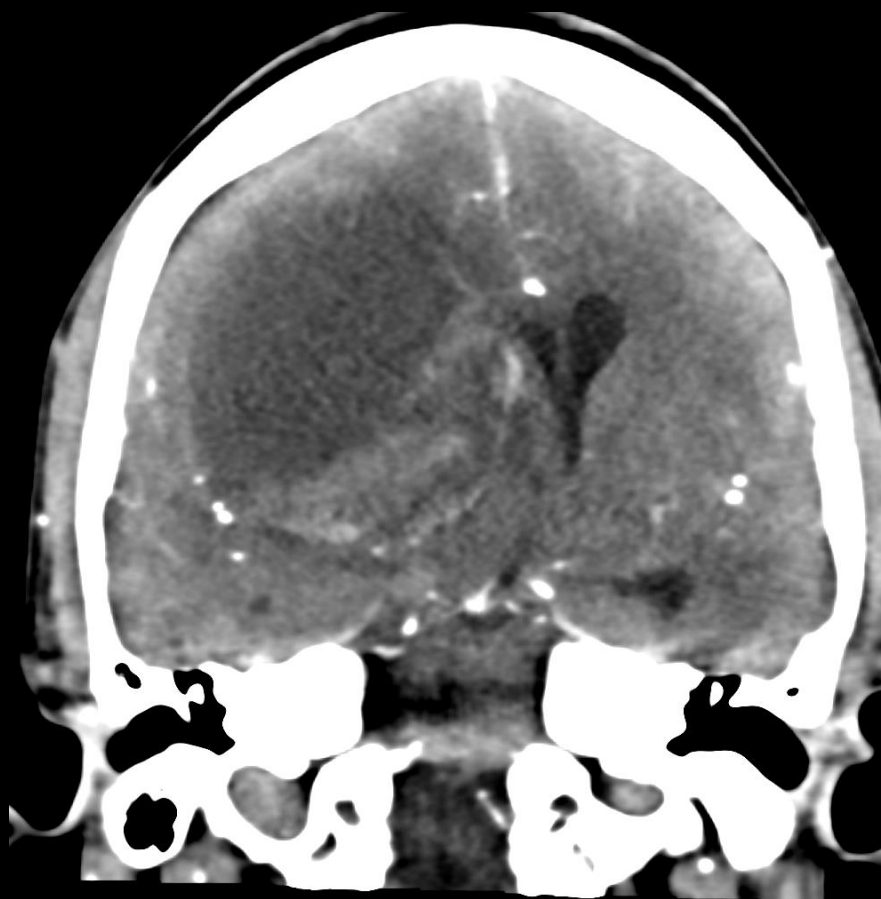
Spinal cord compression



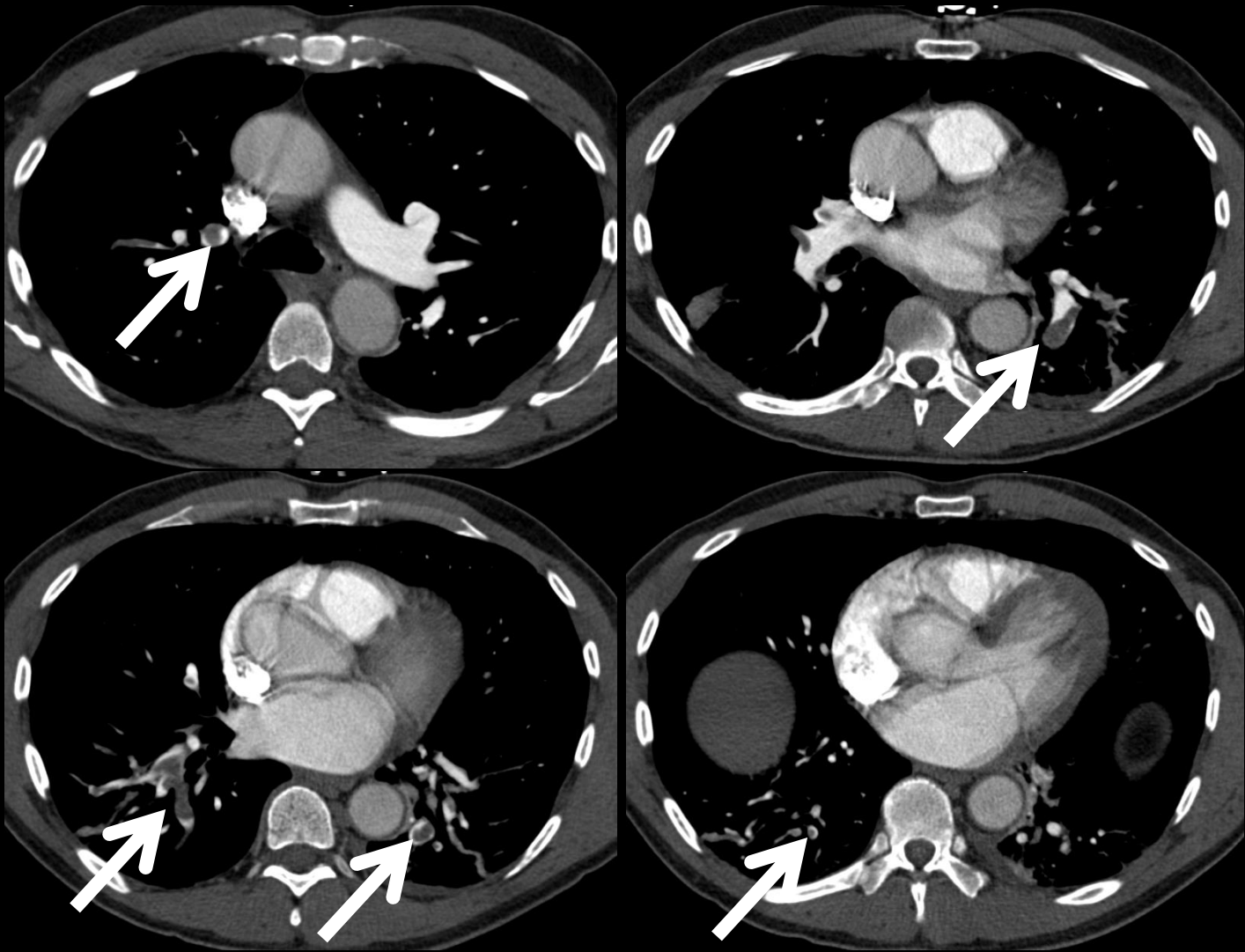
Cerebral herniation



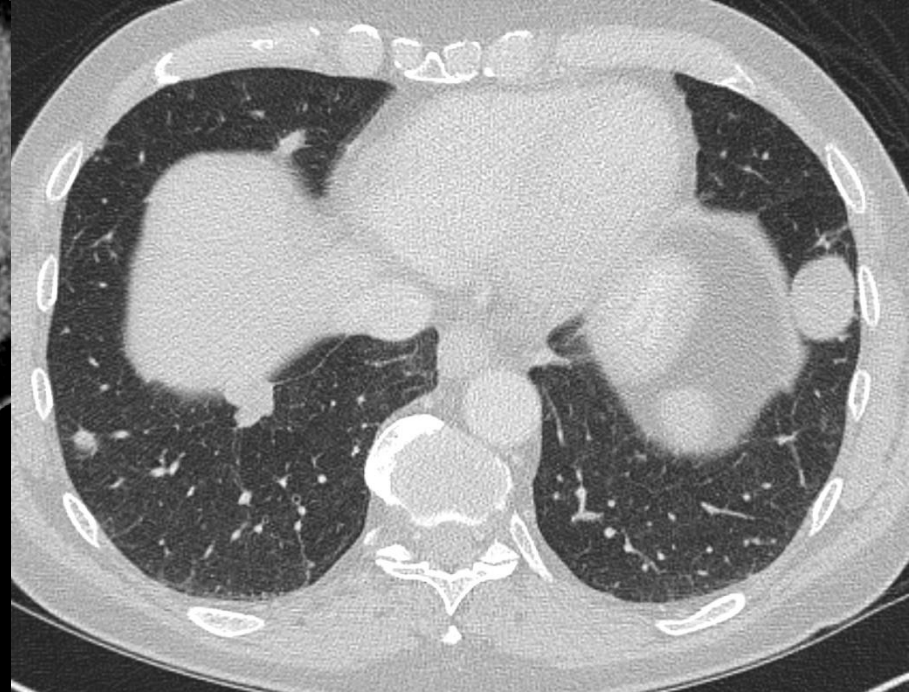
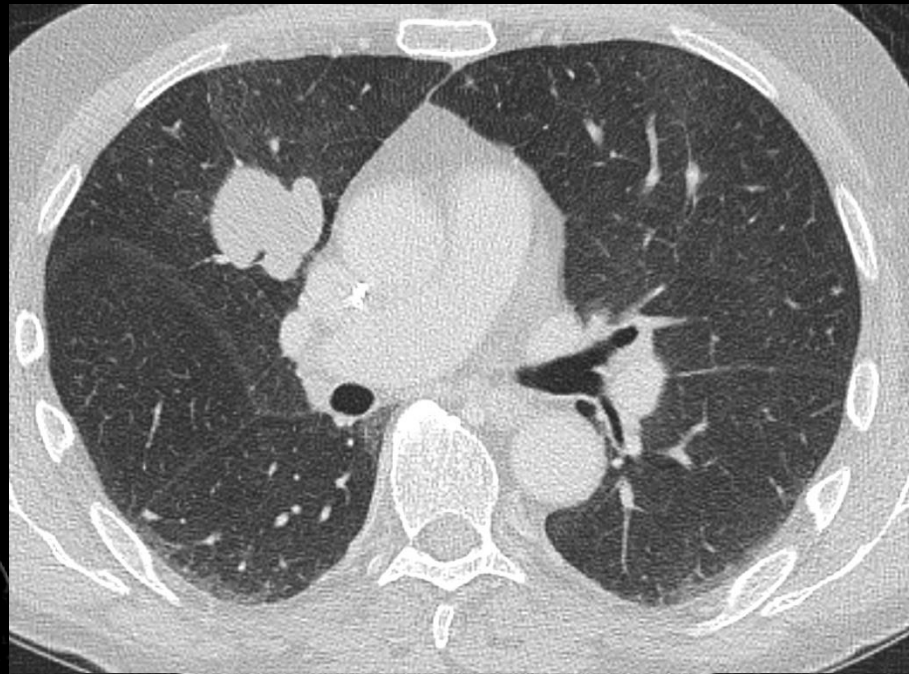
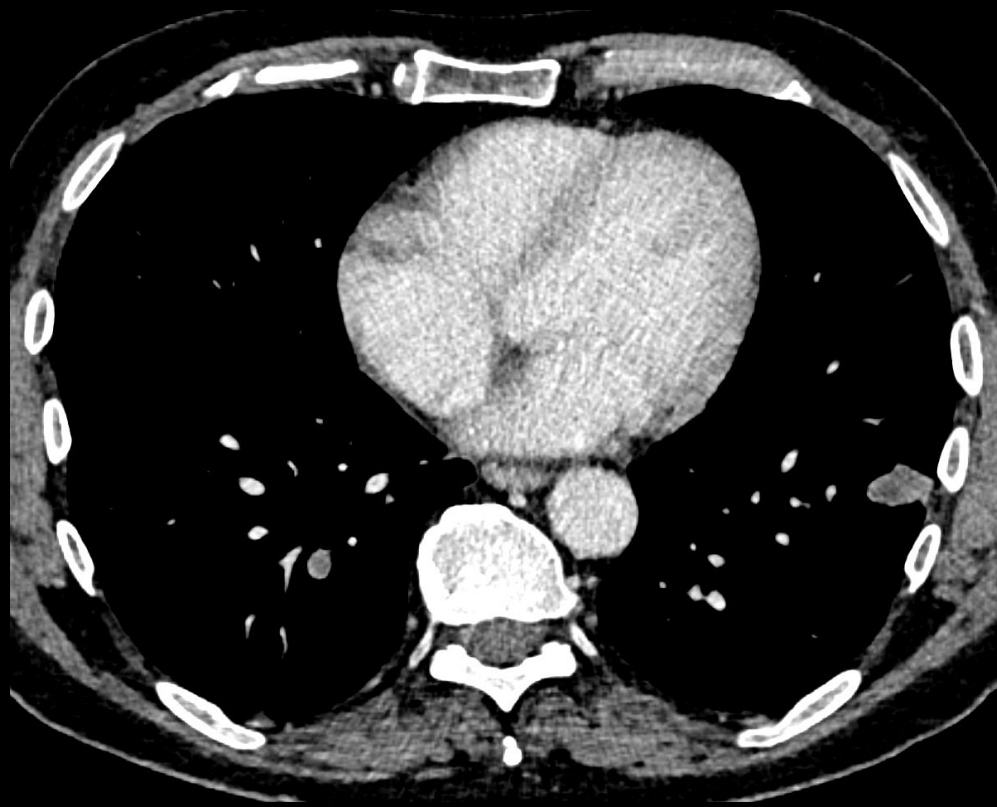




64-year-man with h/o left nephrectomy for renal cell carcinoma







Summary

Radiology imaging studies form a pivotal role in diagnosis, staging, monitoring treatment, detect anatomic complications



Thank you

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