Acute Chest Cases

Travis S Henry, MD
Assistant Professor of Clinical Radiology
Cardiac and Pulmonary Imaging Section
University of California, San Francisco

This is a “rapid fire” case presentation

Most of this I didn’t learn until after residency

This is to help you avoid traps that myself and others have fallen into

(full handout available on my website: THrads.com)
Case 1 – 70-year-old man with flank pain

"Eccentric reniform calcification of the aorta"

Syncope 3 days later...
Aortic dissection may present with distal malperfusion


46-year-old man with back pain, nausea, and vomiting
Returns 2 weeks later with “FEAR OF FOOD”

Symptoms resolved instantly after stent placement.
Case 2 – Recent Atrial Fibrillation Ablation
ATRIOESOPHAGEAL FISTULA (AEF)

- Occurs in <1% of cases of pulmonary vein isolation
- Surgical emergency
- 67-100% mortality

PRESENTATION:

- Fever and neurologic events (most common)
- Septic shock
- Death
- Often confused for endocarditis
- Usually 2-4 weeks after procedure

34-year-old man with fever and altered mental status;
Atrial ablation 3 weeks prior
TEE, EGD are contraindicated if AEF is suspected

Findings may be subtle... (or indirect)
Case 3 – Left anterior chest pain
Epipericardial fat necrosis
(epiploic appendicitis of the chest)

- Focal pain, afebrile
- Conservative treatment
- 2% incidence on CT for chest pain

54-year-old man

76-year-old woman

6-months later
Case 4
Case 4

Bronchobiliary Fistula
Make sure *contiguous* abnormalities along the diaphragm are not *continuous*.


**CHEST CT:** Right lower lobe necrotizing pneumonia. See abdomen and pelvis CT for findings below diaphragm.

**ABDOMEN/PELVIS CT:** Right upper quadrant abscess. See chest CT for findings above the diaphragm.
67-year-old woman with cholangiocarcinoma
4 years post sleeve gastrectomy with recurrent leak; now with burning cough

Gastrobronchial fistula
Always be able to explain the distribution of contrast
Asystole

Another Asystole
Pulmonary embolism may present with paradoxical emboli

Patent Foramen Ovale/Paradoxical Embolus

- Elevated RH pressures → paradoxical embolus

- PFO in acute PE:
  - 10x risk of death
  - 5x risk of systemic embolism
Patent Foramen Ovale/Paradoxical Embolus

- Elevated RH pressures $\rightarrow$ paradoxical embolus

- PFO in acute PE:
  - 10x risk of death
  - 5x risk of systemic embolism
Case 7 – Gunshot Wound to Right Upper Back – Where is the Bullet?
The "magic bullet" theory is real

Bullet embolization

- Low kinetic energy
- Variable presentation
  - Venous → central
  - Arterial → peripheral

Another Gunshot Wound...

Gunshot Wound to Abdomen
Where’s the bullet?

Median Sternotomy Performed for Bullet-ectomy
Case 8 – Persistent Fever, Recent Sternotomy
Sternal Dehiscence usually occurs 2-4 weeks after surgery.
Wire displacement on CXR usually precedes clinical diagnosis of mediastinitis


The lungs are the last thing you should look at on an ICU radiograph
Fever, chest pain; sternotomy 3 weeks prior

Dehiscence usually occurs 2-4 weeks after surgery
Case 9 – Fever and Sepsis

CXR at presentation, CT 1 day later – Courtesy David Godwin MD, University of Washington

Patient died several hours later → Strep pyogenes mediastinitis

CXR at presentation, CT 1 day later
Be sensitive to subtle inflammation in the mediastinal fat
Acute Mediastinitis

- Post-operative
- Post-traumatic
- Acute descending necrotizing mediastinitis (ADNM)

ADNM:

- Mortality 30-50%
- Mediastinal fat inflammation (sensitive)
- Gas + loculated fluid (specific)
- Lymphadenopathy
- Effusions

ADNM:

- Mortality 30-50%
- Mediastinal fat inflammation (sensitive)
- Gas + loculated fluid (specific)
- Lymphadenopathy
- Effusions


5 days later
Look for the source of infection

- Neck
- Vertebrae
- Abdomen
- Post-operative
- Post-traumatic

Discitis/Osteomyelitis → Mediastinitis
Case 10 - 50-yo woman, transient ischemic attack
Mobile Aortic Arch Thrombus

• Rare source of thromboemboli
  – Extremities
  – Cerebral
  – Visceral

• Usually arises from aortic arch

Mobile aortic arch thrombus

Controversial management
  – Surgery?
  – Thrombolysis?
  – Stent placement?
  – Anticoagulation and watch?

Differential:
  ulcerated plaque
  aortic sarcoma

Left AMA, returned with ischemic bowel
Thank You!

Questions?
travis.s.henry@gmail.com • TThrads.com

References