

# AMSER Case of the Month

## June 2024

78 y.o male with recent history of transcatheter aortic valve replacement for aortic stenosis presenting with post-operative chest pain

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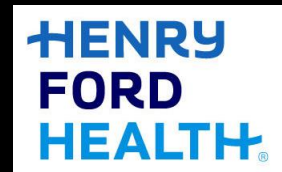
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# Patient Presentation

- **HPI:** 78 y/o M patient presents with chest pain in the days following transcatheter aortic valve replacement for severe aortic valve stenosis with diastolic heart failure.
- **PMHx:** MI x3, two coronary stents, CABG x4, aortic stenosis status post TAVR, HTN, DLD, right bundle branch block
- **Physical Exam:** 1/6 systolic ejection murmur at the right upper sternal border radiating throughout the precordium, trace 1+ lower extremity edema. Otherwise, normal.
- **Vitals:**
  - HR 89
  - **BP 162/72**
- **Labs:**
  - ECG: Normal sinus rhythm with first-degree AV block, possible left atrial enlargement, left axis deviation right bundle-branch block, septal infarct age undetermined ST changes in the anterolateral and inferior leads

What Imaging Should We Order?

# Select the applicable ACR Appropriateness Criteria

**Variants**

1. Acute chest pain; suspected acute aortic syndrome.

**Documents**

- Narrative
- Evidence Table
- Lit Search
- Appendix

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Chest pain, acute aortic syndrome suspected	3194179	● US echocardiography transesophageal	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● Radiography chest	<0.1 mSv ☼	<0.03 mSv [ped] ☼	Usually appropriate
		● MRA chest abdomen pelvis without and with IV contrast	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● MRA chest without and with IV contrast	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● CT chest with IV contrast	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually appropriate
		● CT chest without and with IV contrast	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually appropriate
		● CTA chest with IV contrast	1-10 mSv ☼☼☼	3-10 mSv [ped] ☼☼☼☼	Usually appropriate
● CTA chest abdomen pelvis with IV contrast	30-100 mSv ☼☼☼☼☼		Usually appropriate		

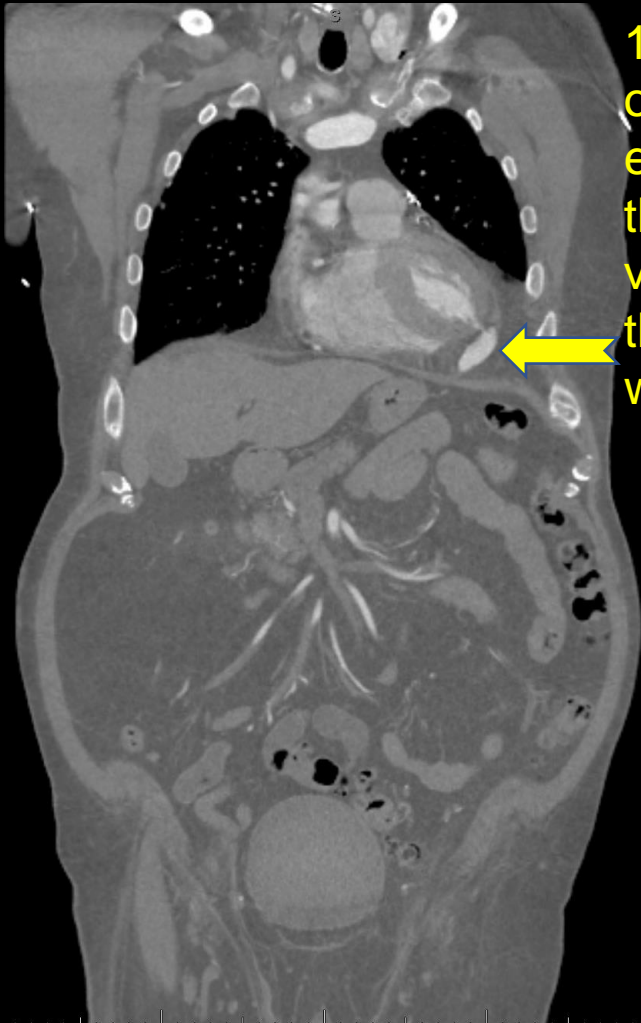
This imaging modality was ordered by the patient's physician



# Findings (unlabeled)



# Findings (labeled)

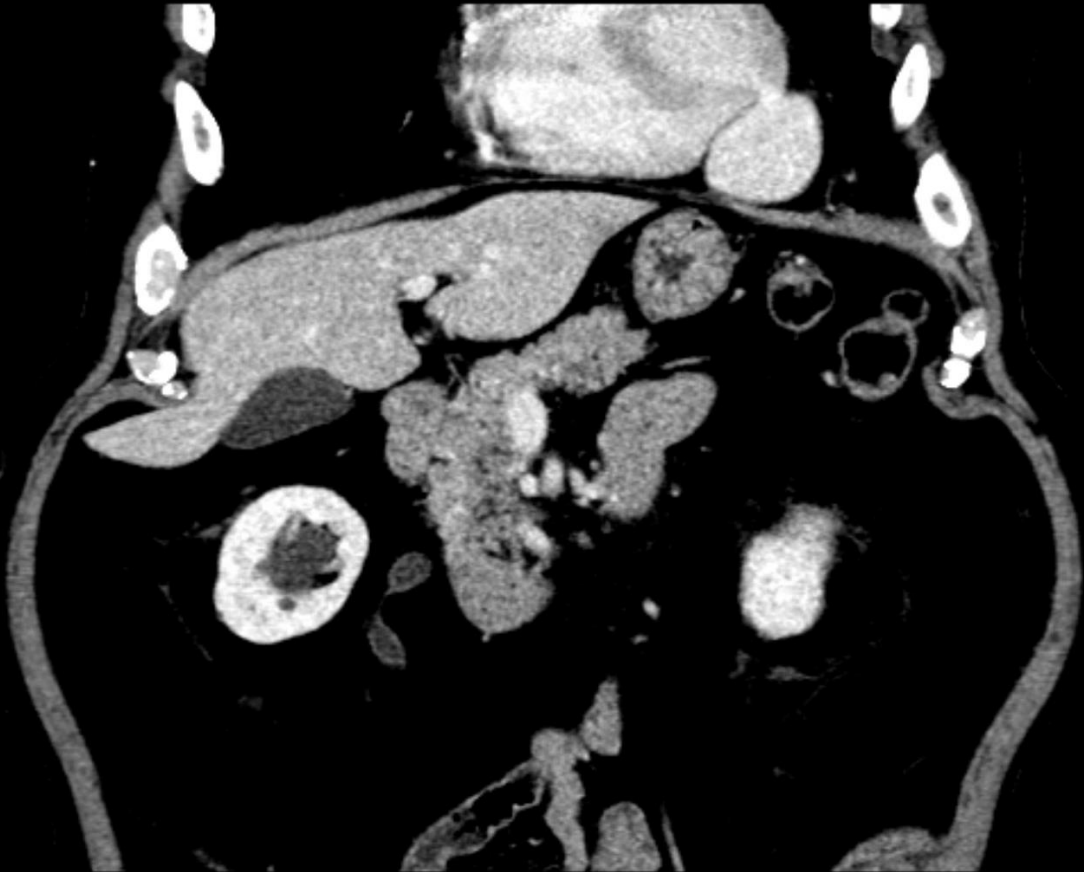


1.8 x 2.8 cm  
outpouching  
extending from  
the left  
ventricular apex  
that enhances  
with IV contrast



Unfortunately, the findings were missed and patient presented three years later for hematuria in the outpatient setting

# Findings (unlabeled) CT Urogram



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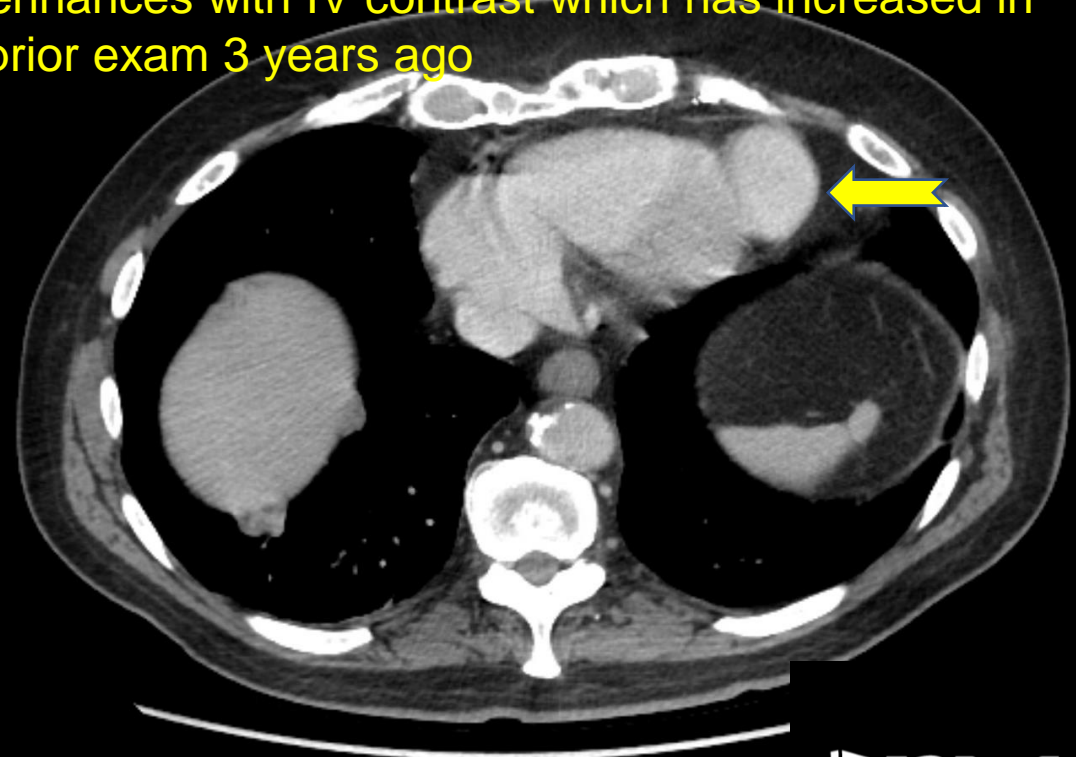




# Findings (labeled)



4.2 x 4.4 cm outpouching extending from the left ventricular apex that enhances with IV contrast which has increased in size from prior exam 3 years ago



Final Dx:

Left Ventricular Pseudoaneurysm

# Left Ventricular Pseudoaneurysm

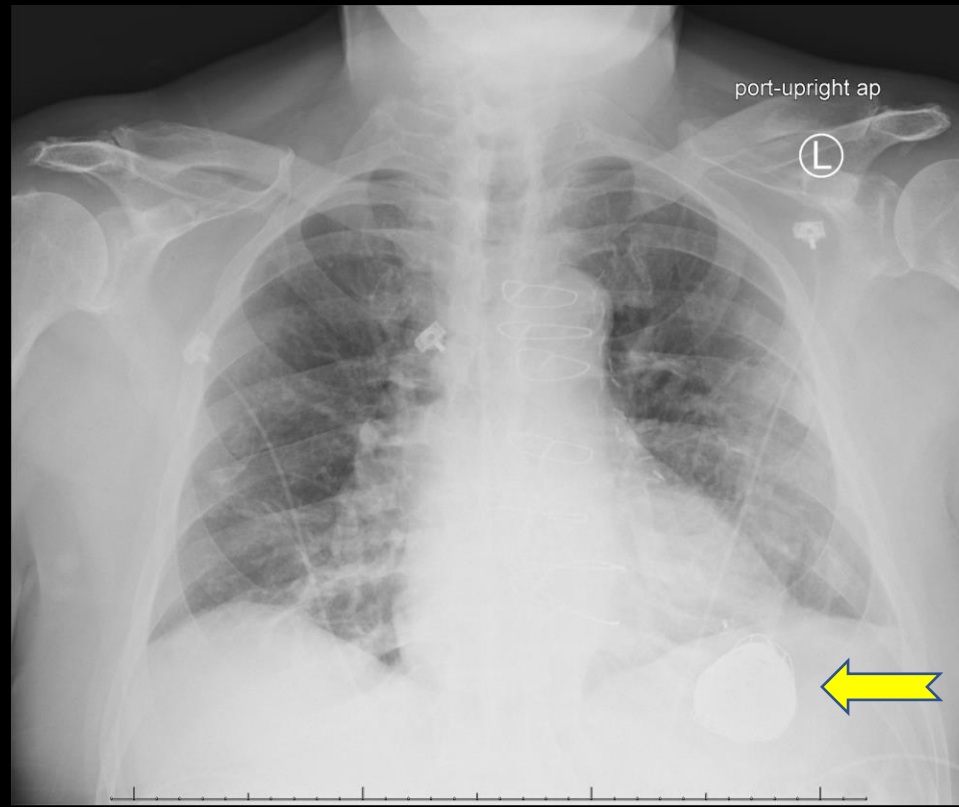
- **Etiology:** Outpouching formed when cardiac rupture is contained by adherent pericardium or scar tissue, completely lacking myocardial tissue. Often occurs secondary to MI, cardiac surgery, or trauma.
- **Clinical Presentation:** May present with CHF, chest pain, dyspnea, or arrhythmia. Usually rapidly fatal.
- **Differential Diagnosis:** True left ventricular aneurysm, left ventricular diverticulum

# Left Ventricular Pseudoaneurysm

- **Diagnosis:** Findings on CXR, ultrasound, CT, and MRI.
- **Treatment:** Definitive surgical intervention
- **Prognosis:** ~25% of patients at at risk of fatal rupture, 30-45% eventually rupture.

# Outcome

- The outcome of this case was surgical correction via coil embolization and placement of Amplatz occluder device at LV pseudoaneurysm neck. Patient is doing well clinically.



Penumbra coils placed



# References:

- <https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria>
- Inayat F, Ghani AR, Riaz I, et al. Left Ventricular Pseudoaneurysm: An Overview of Diagnosis and Management. Journal of Investigative Medicine High Impact Case Reports. 2018;6. doi:10.1177/2324709618792025
- Weerakkody Y, Ranchod A, Fortin F, et al. Left ventricular pseudoaneurysm. Reference article, Radiopaedia.org (Accessed on 11 Feb 2024) <https://doi.org/10.53347/rID-11038>