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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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

<table>
<thead>
<tr>
<th>Scenario ID</th>
<th>Procedure</th>
<th>Adult RRL</th>
<th>Peds RRL</th>
<th>Appropriateness Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>3104179</td>
<td>US echocardiography transesophageal</td>
<td>0 mSv</td>
<td>0 mSv (ped)</td>
<td>Usually appropriate</td>
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<tr>
<td></td>
<td>Radiography chest</td>
<td>&lt;0.1 mSv</td>
<td>&lt;0.05 mSv (ped)</td>
<td>Usually appropriate</td>
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<tr>
<td></td>
<td>MRA chest abdomen pelvis without and with IV contrast</td>
<td>0 mSv</td>
<td>0 mSv (ped)</td>
<td>Usually appropriate</td>
</tr>
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<td></td>
<td>MRA chest without and with IV contrast</td>
<td>0 mSv</td>
<td>0 mSv (ped)</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td></td>
<td>CT chest with IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv (ped)</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td></td>
<td>CT chest without and with IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv (ped)</td>
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<td>CTA chest with IV contrast</td>
<td>1-10 mSv</td>
<td>3-10 mSv (ped)</td>
<td>Usually appropriate</td>
</tr>
<tr>
<td></td>
<td>CTA chest abdomen pelvis with IV contrast</td>
<td>30-100 mSv</td>
<td></td>
<td>Usually appropriate</td>
</tr>
</tbody>
</table>

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
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 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.**
References:

• https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria
