Pericardial Abnormalities
Question: What is the most likely diagnosis in this patient presenting with chest pain five days post pacemaker insertion?

A. Pericardial constriction
B. Pacemaker wire dislodgement
C. Pacemaker wire perforation
D. Myocardial infarction
E. None of the above
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C. **Pacemaker wire perforation**
D. Myocardial infarction
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Answer: What is the most likely diagnosis in this patient presenting with chest pain five days post pacemaker insertion?

- The tip of the pacemaker wire is not clearly visualized because of streaking artifact from the metal (arrows).
- A new small pericardial effusion suggests a small perforation.
- Although metal induces streaking artifacts locally, most studies still provide adequate information to establish a diagnosis.
- CT may be performed in patients with metallic implants such as sternal wires, surgical clips, stents, and pacemaker hardware.

Pericardial effusion in acute aortic dissection

- The oblique sagittal image demonstrates a small pericardial effusion (arrows) in a patient with acute aortic dissection.

- The attenuation values are consistent with blood.

- The patient underwent aortic root replacement and had confirmed rupture into the pericardial space.
Large Pericardial Effusion

- Cross-sectional view of the left ventricle (LV) and right ventricle (RV) obtained in a patient with pleuritic chest pain and an enlarged cardiac silhouette.

- There is a large pericardial effusion (arrow), with low attenuation in the pericardial space (10 HU).

- The normal size of the right ventricle and normal concavity of the interventricular septum suggest that there is no hemo-dynamic compromise.
**Question**: Which of the following is a significant finding in this image from a patient who has dyspnea and tachycardia three days post CABG surgery.

A. Small pericardial effusion.

B. Cardiac tamponade

C. Pleural effusions with left sided pneumonia

D. Pneumomediastinum

E. None of the above are present
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Post-bypass Pneumopericardium

- There is a large pericardial effusion and bilateral pleural effusions with dependent atelectasis.

- The RV is not compressed and the LA is not well seen.
Post-bypass Pneumopericardium

There is air in the pericardial space (pneumo-pericardium) as indicated by the low attenuation region (-414 HU) (arrow).

Pneumo-pericardium is common shortly after sternotomy. It also could be seen in empyema and mediastinitis caused by gas-producing organisms.
Pericarditis after aortic valve replacement

Patient with previous history of aortic valve replacement and recurrent pericarditis (arrows), now presenting with fatigue and peripheral edema (arrows).

The absence of calcification suggests that the process is relatively recent. This observation may be relevant, because recent studies suggest that in many cases constrictive pericarditis may resolve with anti-inflammatory therapy.
Pericardial calcifications

Pericardial calcifications (arrow) are observed in a patient with coronary artery disease and previous coronary artery bypass graft, evaluated before repeated open-heart surgery.

Pericardial calcification is localized to the basal posterior and inferior left ventricular segments. The RV cavity has normal size and shape, and there is normal concavity to the interventricular septum toward the left ventricle.

The patient had no signs or symptoms of pericardial constriction.
Images obtained from a patient presenting with fatigue, edema, and dyspnea. A Doppler echocardiographic study demonstrated findings consistent with pericardial constriction.

The images demonstrate a dense and thickened pericardium. The values of 48 and 85 HU are not consistent with free fluid. There are no areas of calcification. The patient underwent pericardiectomy with complete resolution of symptoms.
**Question:** Extensive pericardial calcifications

3-D image from a patient with fatigue, ascites, and edema.

**Question:** What percentage of patients with constrictive pericarditis have pericardial calcifications?

A. 100%
B. > 75%
C. 50 – 75%
D. 25 – 50%
E. Less than 25%
**Answer**: Extensive pericardial calcifications

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Extensive pericardial calcifications

3-D image from a patient with fatigue, ascites, and edema.

Pericardial calcifications are present in 50% to 75% of the patients with constrictive pericarditis.

The presence of calcifications, however, does not necessarily imply that there is constrictive physiology.
Evidence of a septal bounce (*arrows*) observed in two different diastolic frames obtained in the previous case.
An exaggerated septal bounce indicates transient shifts in left and right ventricular volumes related to differences in onset of left and right ventricular filling. The volume shifts are imposed by the constrained intrapericardial space, therefore supporting the presence of constrictive physiology.
Small pericardial effusion over the RV
Pericardial Effusion
Pericardial Effusion
Pericardial calcification
Pericardial Lipoma
PDA