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Visual Case Discussion

Tearing chest pain in adult male

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ARTICLE INFO

Coronary artery bypass
Saphenous vein graft
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A 58-year-old gentleman with hepatitis C virus, hyperlipidemia, and a remote history of coronary artery bypass graft (CABG) 14 years prior presented to the emergency department with acute onset of severe, substernal, tearing chest pain radiating to his back and upper arms. This was associated with an episode of syncope prior to hospital arrival. The patient arrived with a blood pressure of 81/52 mmHg and a heart rate of 64 beats per minute. The initial 12-lead electrocardiogram was non-diagnostic. Portable chest x-ray (Fig. 1) showed an enlarged cardiac silhouette, particularly the right heart border. Subsequent cross-sectional imaging (Figs. 2 and 3) demonstrated extraluminal contrast originating

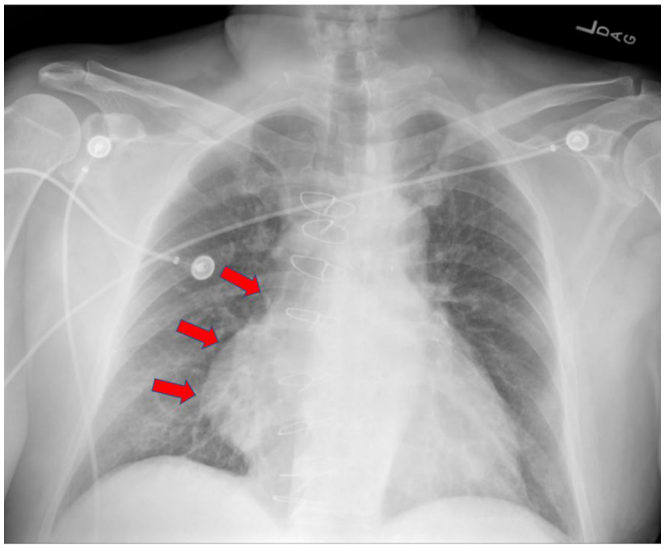

Fig. 1. Interval enlargement of the cardiac silhouette, particularly the right heart border (red arrows). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

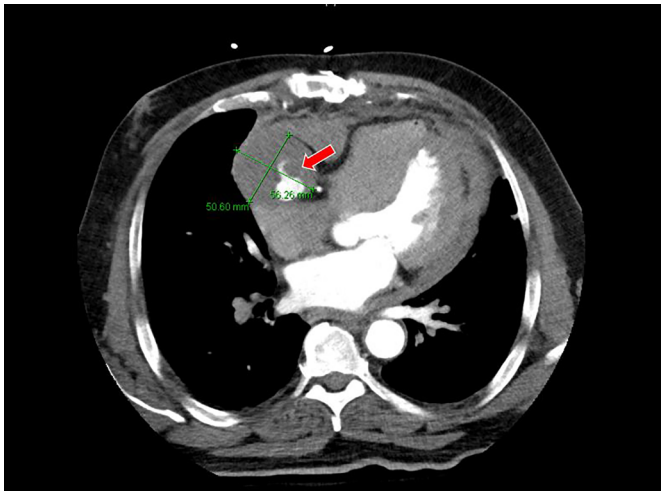

Fig. 2. Extraluminal contrast (red arrow) near the AV groove which arises from the RCA to PDA bypass graft, concerning for rupture. Contained by a pseudoaneurysm (green bars) measuring approximately 5.2 × 5.6 cm. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

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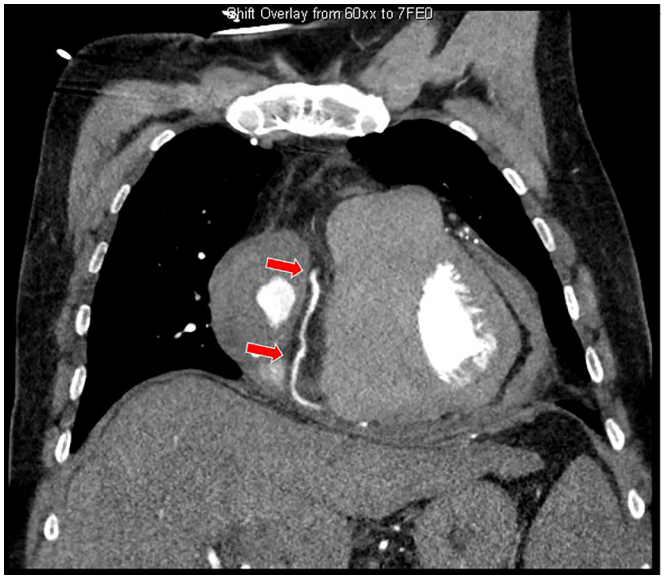

Fig. 3. Hemopericardium with mass effect on the RV and bowing of the interventricular septum (red arrows), suggesting cardiac tamponade physiology. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

from the right coronary to posterior descending artery bypass graft. Associated hemopericardium with mass effect on the RV was noted. His blood pressure improved with intravenous fluids. Cardiothoracic Surgery was consulted, and the patient was taken emergently to the operating room for revision of the previous CABG. The surgery was successful, and he survived to hospital discharge without significant disability. Though rare, saphenous vein graft aneurysms are typically late and potentially lethal complications of CABG.[1] Traditionally, the management of this condition is emergent operative intervention.[2]

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.visj.2019.100590.

References

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2. Sareyyupoglu B, Schaff HV, Ucar I, Sundt TM, Dearani JA, Park SJ. Surgical treatment of saphenous vein graft aneurysms after coronary artery revascularization. *Ann Thorac Surg.* 2009;88(6):1801–1805. https://doi.org/10.1016/j.athoracsur.2009.07.048.

Questions

1. A patient presents to the ED with BP: 86/42, HR: 122, obvious jugular venous distension and muffled heart sounds. Which of the following are you most likely to encounter on the patient's 12-lead ECG?
   a. Ventricular Tachycardia
   b. Atrial Fibrillation
   c. Electrical Alternans
   d. Complete Heart Block
   e. Diffuse T-wave Inversions

2. Saphenous vein graft to which of the following coronary arteries is most likely to have aneurysmal complications?
   a. Right Coronary Artery
   b. Left Anterior Descending Artery
   c. Left Circumflex Artery
   d. Posterior Descending Artery

Answers

1. Electrical Alternans. Explanation: Beck's triad is suggestive of cardiac tamponade. Fluid or blood has accumulated in the pericardial sac causing shifting of the ventricular electrical axis. Electrical alternans is beat-to-beat variation in the amplitude of QRS complexes in patients with cardiac tamponade.

2. Left Anterior Descending Artery. Explanation: SVG aneurysms typically occur in the body of the vein graft often resulting from atherosclerotic disease which compromises vessel wall integrity. In particular, valve insertion points along the vein graft are more prone to aneurysm. Reference: Jorgensen, J. (2014). Saphenous Vein Graft Aneurysms: Background, Pathophysiology, Epidemiology. [online] Emedicine.medscape.com. Available at: https://emedicine.medscape.com/article/161328-overview [Accessed 19 Dec. 2018].