

CARDIOVASCULAR IMAGES

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Bacterial Pericarditis with a Distal RCA Pseudoaneurysm

Brian Ghoshhajra, MD, MBA, Michael Preece, MD, Andrew Blum, MD, Ricardo Benenstein, MD, Joseph Garasic, MD, Wilfred Mamuya MD PhD, Suhny Abbara, MD

Clinical History

A 19 year-old woman with newly diagnosed acute myelogenous leukemia (AML) presented to an outside hospital with a symptomatic pericardial effusion. A pericardial drainage catheter was placed with culture growth revealing Group C beta hemolytic streptococcus. The catheter was uneventfully removed. Six weeks later, a follow-up routine chest CT and subsequent coronary CT angiograms demonstrated an enlarging distal right coronary artery (RCA) pseudoaneurysm with a hemorrhagic pericardial effusion. Because of the patient's life-threatening malignancy and tenuous status, exclusion of the aneurysm sac was accomplished using a covered coronary stent with sacrifice of the posterior descending artery (PDA). The size of the pseudoaneurysm was noted to decrease on subsequent follow-up examinations.

Findings

A large pseudoaneurysm is seen measuring 2.6 cm in maximal diameter arising from the distal RCA immediately proximal to the bifurcation of the PDA. The actual size of the pseudoaneurysm is likely underestimated by the luminal size due to the presence of mural thrombus. The width of the aneurysm is wider than the neck consistent with a pseudoaneurysm. Additionally, there is an associated moderate hemopericardium, and peripherally-enhancing pericardial collection along the lateral border of the heart. Repeat dual source CT images post stent placement showed no contrast opacification of the PDA. Residual high-density angiography contrast remains within the excluded pseudoaneurysmal sac.

Discussion

Coronary pseudoaneurysms are potentially fatal, resulting from loss of vessel wall integrity with damage to the adventitia and perivascular tissue. The majority result from arterial dissection or rupture, infection, trauma or catheter intervention. Our patient had both a pericardial infection, as well as a catheter intervention.

While coronary angiography has traditionally been considered the gold standard for evaluation of coronary artery aneurysms, coronary CT angiogram (CTA) has emerged as a reasonable alternative. The benefits of CTA include that it is a noninvasive technique, offers greater anatomic and extra-luminal detail, and the potential for decreased radiation exposure to the patient and health care provider.

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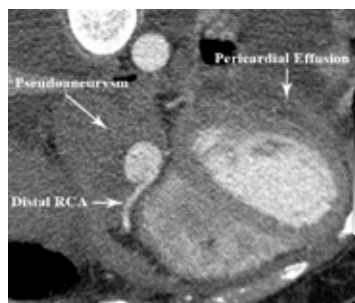


Figure 1



Figure 2

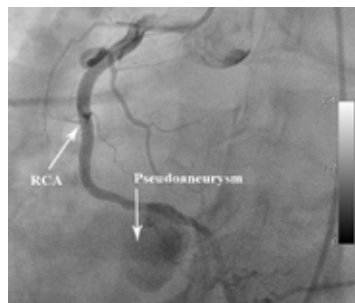


Figure 3



Figure 4

- Figure 1.** Axial gated CT angiography demonstrates an eccentric 2.6 cm contrast collection in continuity with the distal RCA. The pericardial collection does not completely enhance, and the pseudoaneurysm is larger than the arterial enhancing area.
- Figure 2.** Double-oblique coronal multiplanar reformation (MPR) demonstrates a 2.6 cm eccentric collection (arrow) along the distal RCA, obscuring the origin of the PDA.
- Figure 3.** Coronary angiography of the RCA demonstrates partial filling of the distal RCA pseudoaneurysm.
- Figure 4.** Double-oblique coronal MPR of the RCA, obtained 1 day after covered stent placement, demonstrates residual dense catheter angiography contrast in the excluded pseudoaneurysm. Subsequent follow-ups confirmed further decrease in size of the pseudoaneurysm. Because of the patient's young age, follow-up exams were performed using a very low dose protocol (reduced kVp and prospective ECG gating) in order to minimize radiation risk.

Editors:

Suhny Abbara, MD
MGH Department of Radiology

Wilfred Mamuya, MD, PhD
MGH Division of Cardiology