Mycotic Aneurysm of the Right Coronary Artery Presenting as Infected Pericardial Effusion

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We report a case of a 67-year-old man with a known history of multivessel coronary artery disease who presented with shortness of breath.

His previous angiogram, performed 5 years earlier, showed disease in the left anterior descending artery, trifurcation marginal artery, and a chronically occluded right coronary artery. He declined surgery at that time.

On presentation, he complained mostly of shortness of breath worsening over the last week, associated with nausea and vomiting. He also reported subjective fever and chills but denied weight loss or night sweats.

His initial evaluation, including an ECG and cardiac enzymes, did not show evidence of acute coronary syndrome, but a computed tomography of the chest showed a significant pericardial effusion (Figure 1). His white blood cell count was elevated at 15000 with 78% neutrophils. His erythrocyte sedimentation rate was also elevated at 77.

A pericardiocentesis was performed promptly and drained 370 mL of purulent fluid. His symptoms improved after the drainage, and he was maintained on antibiotics. Cultures grew methicillin-resistant Staphylococcus aureus. Blood cultures, however, were negative.

He underwent a new cardiac catheterization that showed diffuse 80% stenosis in the middle left anterior descending artery and high-grade stenosis in the ostial portion of the trifurcation marginal artery. The circumflex artery was small and was providing retrograde perfusion to a chronically occluded right coronary artery.

A transthoracic echocardiogram showed normal left ventricular function, normal valve structure and function, and a small residual pericardial effusion.

He was taken to the operating room for coronary artery bypass grafting. Transesophageal echocardiography showed a pocket-like structure in proximity to his right atrium (Movie I in the online-only Data Supplement). After the sternum was opened, the pericardium was noted to be extremely inflamed, thickened, and adherent to the heart. The pericardium was dissected off of the surface of the heart. A pocket of pus was noted around the right atrioventricular groove, which corresponded to the structure seen on the transesophageal echocardiogram. Opening this pocket revealed a severely calcified rod lying freely in the pocket. This was the chronically occluded right coronary artery (Figure 2).

We proceeded with the procedure, bypassing the left anterior descending artery with the left internal mammary artery and the trifurcation marginal with a reversed saphenous vein graft. The mediastinum was washed out thoroughly, and the pericardium was resected anteriorly to prevent future constriction.

The patient’s postoperative course was relatively uneventful. He was maintained on appropriate antibiotics and was discharged home.

Discussion

Mycotic aneurysms of the coronary arteries are rare and are usually associated with endocarditis or septicemia, particularly in immune-compromised patients. A few newer case reports described mycotic pseudoaneurysms associated with stent placement and instrumentation.

Mycotic aneurysm presents mostly with systemic symptoms but also can be the cause of acute myocardial infarction. This case is unusual in that the presentation involved purulent pericardial effusion. To the best of our knowledge, a similar presentation was described in 1 case report involving a patient who underwent stent placement 8 weeks before presentation with purulent pericardial effusion. Our patient had no instrumentation to his coronary artery except for a diagnostic angiogram performed 5 years previously.

Another interesting finding in this case is that the involved coronary was totally occluded and was perfused only by retrograde flow from left collateral. Therefore, estimating the exact timing of the arterial wall infection and rupture was even harder.

The diagnosis of this aneurysm was made at the time of the operation. It was missed on preoperative computed tomography and transthoracic echocardiogram, possibly because of the thick pericardial effusion.

In conclusion, mycotic aneurysms of the coronary arteries are rare but serious conditions. They occur mostly after stent placement or in septic and immune-compromised patients. However, they also can occur spontaneously, as in the case described here. A high index of suspicion should be maintained when evaluating patients with purulent pericarditis.
Disclosures

None.

References


Figure 1. Computed tomography scan of the chest showing large pericardial effusion with rim enhancement, suggestive of purulent pericarditis.

Figure 2. Intraoperative image showing the opened pseudoaneurysm and the rod-like calcified right coronary artery.
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