A rare complication of infective endocarditis
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A 65-year-old man with a permanent pacemaker placed for atrioventricular block presented to the emergency department with 4 days of fever, gastrointestinal complaints, and back pain. On presentation, he was febrile, tachycardic, and hypotensive, with a significant leukocytosis. Urine and blood cultures grew methicillin-sensitive staphylococcus aureus in 6/6 bottles. The patient was initiated on appropriate antibiotic coverage, including nafcillin, resulting in sterilization of blood cultures. Transesophageal echocardiography revealed a vegetation on the pacing wire, likely involving the tricuspid valve, necessitating removal of the pacing lead (online-only Data Supplement Movies I and II). Four weeks into his antibiotic course, continued fevers along with a new holosystolic murmur at the apex of his heart prompted repeat echocardiography, which revealed a persistent mobile echodensity on the tricuspid valve and a new mobile echodensity on the mitral valve, as well, associated with severe mitral regurgitation (online-only Data Supplement Movie III). The patient was considered for valve replacement surgery, and preoperative coronary angiography was performed. Figure 1A shows multiple mycotic aneurysms (arrows) in coronary vessels that were not present 4 months earlier (Figure 1B). Based on the involvement of multiple epicardial vessels, and in light of the patient’s clinical status (which included difficult-to-control gastrointestinal bleeding and renal insufficiency), a decision was made to treat the patient conservatively with antibiotics. The patient defervesced, remained hemodynamically stable, and finished a 12-week course of nafcillin.

Despite aggressive medical management of his valvular disease, he presented to the clinic 6 months later with shortness of breath, cyanosis, ascites, and lower-extremity edema. Repeat transesophageal echocardiography revealed severe mitral regurgitation (online-only Data Supplement Movie IV) and moderate tricuspid regurgitation. He was admitted for medical optimization of his congestive heart failure before cardiac surgery. Regadenoson positron emission tomography myocardial perfusion imaging revealed a large area of ischemia in the left anterior descending and circumflex artery distributions (Figure 2). Repeat cardiac catheterization revealed enlargement and septation of the aneurysms (Figure 3). He underwent mitral valve repair with chordoplasty to A1 and A2 and coronary artery bypass grafting with left internal mammary artery to the left anterior descending artery, saphenous vein graft to the obtuse marginal artery, and saphenous vein graft to the posterior descending artery and left posterior left ventricular branch. His postoperative course was uncomplicated, his breathing improved, and repeat transthoracic echocardiography showed only mild mitral regurgitation (online-only Data Supplement...
Movie V). He has had no evidence of congestive heart failure and has been recovering well at home.

Mycotic aneurysms secondary to infective endocarditis most commonly arise in the intracranial arteries.1 Coronary artery aneurysms are an uncommon disease, most often attributed to trauma, atherosclerosis, vasculitis, and congenital causes. Mycotic coronary artery aneurysms may cause symptoms in a small proportion of patients with infective endocarditis, although an increasing number of subclinical cases are being recognized during cardiac catheterization. These aneurysms are related to infective endocarditis and are thought to be caused by local or microembolic spread of infection to the vasa vasorum,2 or immune complex mediated injury.3 If left untreated, mycotic coronary artery aneurysms are at risk for rupture, thrombosis, and further embolization.

Although data are lacking, previous reports suggest that small mycotic aneurysms may resolve with appropriate antibiotic therapy.4 Larger aneurysms should be surgically removed from the circulation either by an interposition graft or distal bypass. However, if the infection is active, bypass may be preferred to prevent graft infection.3 To our knowledge, this is the first reported case of multiple mycotic coronary artery aneurysms secondary to infective endocarditis involving multiple epicardial vessels.

Disclosures
None.

References

![Figure 2](image1.png)

**Figure 2.** Regadenoson positron emission tomography myocardial perfusion imaging showing a large area of ischemia in the left anterior descending artery and left circumflex artery distributions.

![Figure 3](image2.png)

**Figure 3.** Repeat coronary angiography showing persistence and enlargement of multiple mycotic aneurysms.
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Circulation. 2012;125:1316-1317
doi: 10.1161/CIRCULATIONAHA.110.982702

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