

Rare Cause of Acute Myocardial Infarction



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A 32-year-old White woman with a history of intravenous drug use was admitted because of altered mental status. She was afebrile and normotensive, but tachycardic and tachypneic. The initial laboratory results were remarkable for a white blood cell count of 16,200/ μ L, a hemoglobin level of 3.2 g/dL, a lactic acid level of 14 mmol/L, and an elevated troponin level of 11 ng/mL. Her electrocardiogram revealed ST-segment elevation in the anterolateral leads (Figure 1A), but no immediate intervention was performed because of her profound anemia. A transthoracic echocardiogram exhibited moderate aortic valve regurgitation and an (11 \times 9)-mm vegetation on the aortic valve leaflet (Figure 1B). Blood cultures grew methicillin-sensitive *Staphylococcus aureus*.

She underwent cardiac catheterization, which revealed normal coronaries except an abrupt occlusion of the distal left anterior descending artery and the fourth diagonal branch, findings consistent with an embolic phenomenon (Figure 1C). Given the patient's history of noncompliance, no therapeutic intervention was performed during cardiac catheterization. The patient subsequently underwent an aortic valve replacement with a xenograft. Histopathology of the native aortic valve revealed acute necrotizing endocarditis (Figure 2A), and Gram stain revealed numerous Gram-positive cocci in clusters (Figure 2B). Culture grew *S aureus*.

Staphylococcus aureus infective endocarditis, which often involves the mitral valve more than the aortic, is the most common

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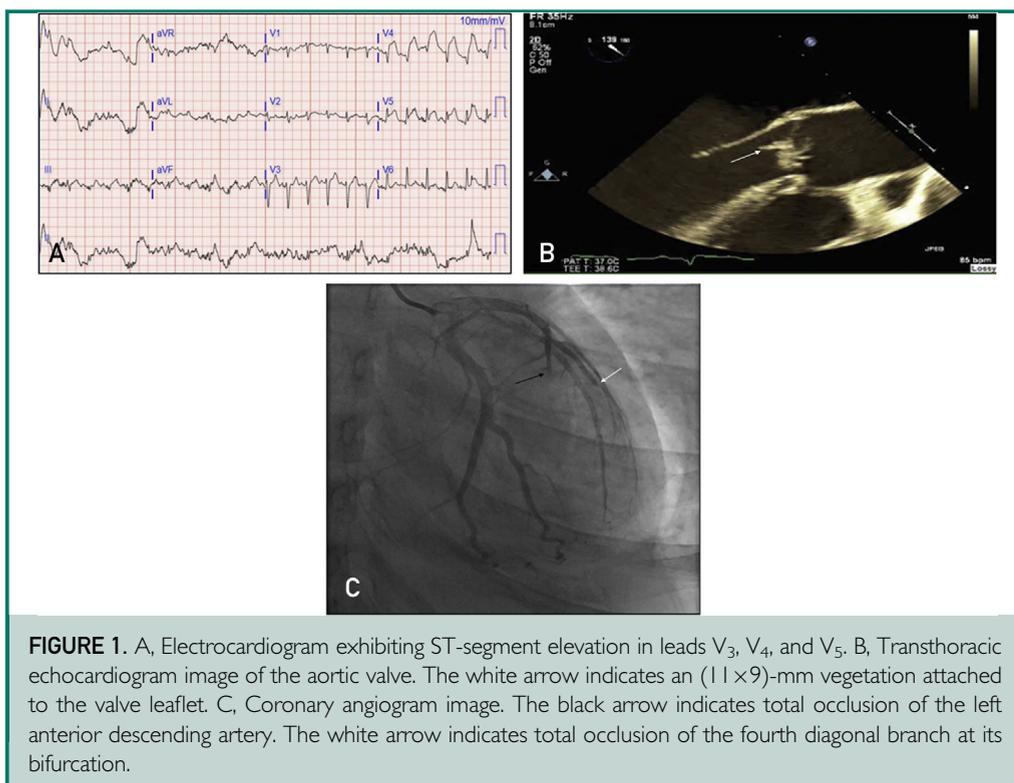


FIGURE 1. A, Electrocardiogram exhibiting ST-segment elevation in leads V₃, V₄, and V₅. B, Transthoracic echocardiogram image of the aortic valve. The white arrow indicates an (11 \times 9)-mm vegetation attached to the valve leaflet. C, Coronary angiogram image. The black arrow indicates total occlusion of the left anterior descending artery. The white arrow indicates total occlusion of the fourth diagonal branch at its bifurcation.

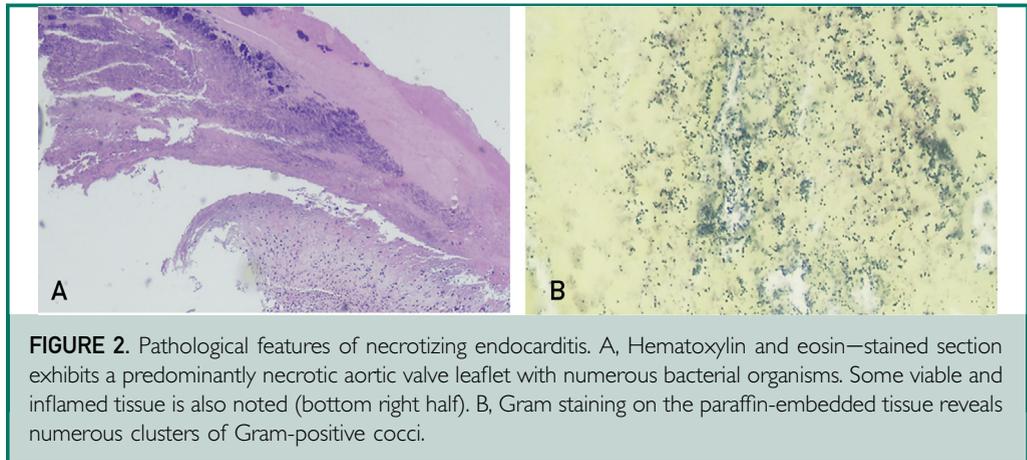


FIGURE 2. Pathological features of necrotizing endocarditis. A, Hematoxylin and eosin–stained section exhibits a predominantly necrotic aortic valve leaflet with numerous bacterial organisms. Some viable and inflamed tissue is also noted (bottom right half). B, Gram staining on the paraffin-embedded tissue reveals numerous clusters of Gram-positive cocci.

cause of infective endocarditis in injection drug users.¹ Coronary embolization resulting from infective endocarditis is a rare cause of ST-segment elevation myocardial infarction. Viable treatment options of acute coronary syndrome in the presence of septic embolism include aspiration thrombectomy, angioplasty with stenting, and bypass surgery.²

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