Gemella Endocarditis

Presenting as an ST-Segment-Elevation Myocardial Infarction

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Acute myocardial infarction from septic embolization is a rare initial presentation of endocarditis. We report the case of a 67-year-old man who presented with acute chest pain, in whom emergency cardiac catheterization revealed findings that suggested coronary embolism. The patient was found to have *Gemella* endocarditis, with its initial presentation an embolic acute ST-segment-elevation myocardial infarction. We suggest that endocarditis be considered among the potential causes of acute myocardial infarction. (*Tex Heart Inst J* 2016;43(3):258-60)

Sepsis embolization causing an ST-segment-elevation myocardial infarction (STEMI) is a rare initial presentation of infective endocarditis (IE). We present a case of coronary embolization in a patient with undiagnosed IE. We review therapeutic options in this situation and highlight the importance of including endocarditis as a potential cause of acute myocardial infarction (MI).

Case Report

In October 2014, a 67-year-old man whose medical history included hypertension, hyperlipidemia, and diabetes mellitus presented at our emergency department with the chief report of sharp, nonradiating, substernal chest pain in association with nausea and diaphoresis.

The patient's vital signs upon admission were a temperature of 37 °C, a heart rate of 110 beats/min, a blood pressure of 194/107 mmHg, and an oxygen saturation of 100% on room air. An electrocardiogram showed a right bundle branch block with anterolateral ST-segment elevations and reciprocal inferior ST-segment depressions. Laboratory results were notable for a white blood cell count of $13.3 \times 10^9/L$, a creatinine level of 1.44 mg/dL, and a troponin level of 0.26 ng/mL. The patient was treated with aspirin, clopidogrel, and heparin. Emergency cardiac catheterization revealed a culprit 95% lesion at the bifurcation of the left anterior descending coronary artery (LAD) and first diagonal artery (Fig. 1). The catheterization was complicated by distal emboli to both vessels. The absence of substantial atherosclerotic plaque on angiography raised the possibility of coronary embolism.

The next day, a transthoracic echocardiogram revealed a left ventricular ejection fraction of 0.30 to 0.35 and a 6×3.7 -mm mobile, echodense structure attached to the mitral valve, consistent with vegetation (Fig. 2). The patient's hospital course was significant for persistent fevers, the initiation of antibiotic therapy, and blood cultures positive for *Gemella*. He was also given milrinone and diuretic agents as post-MI and heart-failure therapy. Before his discharge from the hospital after 21 days, a transesophageal echocardiogram showed a 3.3×2.2 -mm vegetation on scallop A2 of the mitral valve with associated leaflet perforation and mild mitral regurgitation (Fig. 3). It was decided to treat the condition medically for 6 weeks. However, the patient returned to the hospital 15 days later and died within 2 days of severe heart failure and septic shock secondary to a central-line infection.

Discussion

This report describes what we think is the first instance of *Gemella* endocarditis initially presenting as acute anterior STEMI from coronary artery embolization.

Septic coronary embolism was first established through autopsy studies in patients with IE.^{1,2} It was subsequently documented in case reports of acute MI in patients

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Fig. 1 Coronary angiogram (right anterior oblique cranial view) shows obstruction of the left anterior descending coronary artery (arrow) and first diagonal artery (arrowhead).

Fig. 2 Transthoracic echocardiogram (2-chamber view) shows vegetation attached to the mitral valve (arrow).

Fig. 3 Transesophageal echocardiogram in color-flow Doppler mode shows perforation of the anterior leaflet of the mitral valve (arrow).

with established IE. Coronary embolism complicates diagnosed IE in approximately 7% of cases.³ Less frequently, coronary embolism has been reported as the initial finding at presentation of undiagnosed IE.⁴⁻⁶ It most often occurs with *Streptococcus* species and usually involves the LAD.⁷

Acute MI from suspected septic embolism raises certain management concerns. The concerns with percutaneous coronary intervention (PCI) include stent infection from bacteremia, the generation of mycotic aneurysms at the dilation site, and difficulty performing angioplasty in a nonatherosclerotic artery.⁶ Stent placement in the presence of bacteremia is typically avoided.⁸ Mycotic aneurysms can form consequent to compression of the septic embolism into the vessel wall.⁶ Angioplasty for an embolic occlusion is rendered difficult by compliant, nonatherosclerotic vessel walls that are prone to elastic recoil.⁸ However, PCI, including stent placement⁸ and angioplasty alone,⁹ has been successful. In addition, aspiration thrombectomy both with and without subsequent angioplasty has been successful in cases of embolic acute MI from endocarditis.^{10,11} There is consensus that thrombolytic agents are contraindicated in the presence of endocarditis because of the higher likelihood of cerebral mycotic aneurysm and the substantial risk of intracerebral hemorrhage.¹² If anticoagulation is indicated, it should be continued unless there are clinical signs of cerebral embolism.¹³ Our patient's case illustrates the importance of keeping IE in the differential diagnosis during the management of an acute MI and making a timely diagnosis after emergency reperfusion therapy.

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