

Massive Coronary Aneurysm After Multiple Percutaneous Interventions

An Iatrogenic or Unpreventable Disaster?

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A 38-year-old man presented at the emergency department with severe chest pain. He had no history of recent trauma or fever but had undergone percutaneous coronary intervention (PCI) several times for 3-vessel disease. Repeat in-stent restenosis (ISR) was detected during his last angioplasty 1 year

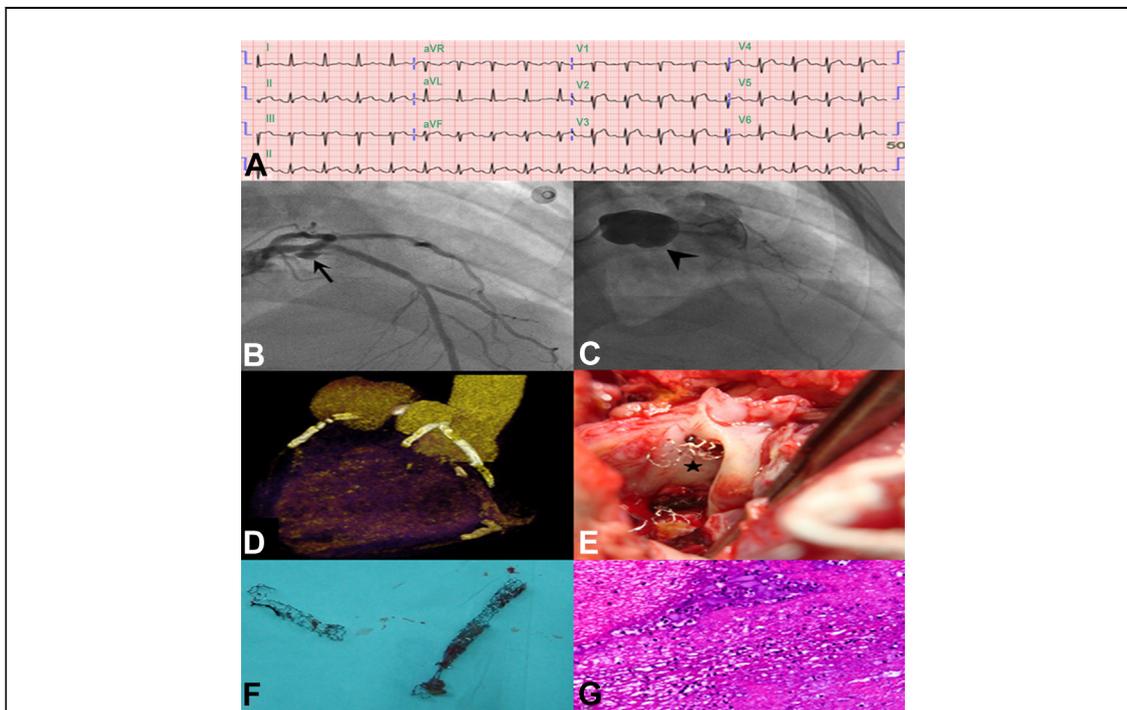


Figure 1. Serial Image and Pathological Presentation of the Massive Coronary Aneurysm

(A) The electrocardiogram performed when the patient arrived at the emergency department because of chest pain showed diffuse ST-segment elevation. (B) Initial left coronary angiography demonstrated 1 fusiform-like aneurysm. The coronary angiography (right anterior oblique 10°, cranial 40°) indicated 1 aneurysm (**arrow**) extending from the left main (LM) coronary artery to the left anterior descending (LAD) coronary artery ([Online Video 1](#)). (C) The subsequent coronary angiography showed 2 rapidly growing mycotic aneurysms (**arrowhead**) involving the LM artery to the middle of the LAD artery, with 1 aneurysm draining into the other ([Online Video 2](#)). (D) Computed tomographic reconstruction of the heart indicated massive aneurysms, up to 29 × 56 mm in size, surrounding previously implanted coronary stents. (E and F) The bypass coronary surgery showed destroyed stents (**star**) floating inside the massive aneurysms. (G) The histology of the coronary tissue displayed inflammatory cell infiltration and many Gram-positive cocci (hematoxylin and eosin stain; original magnification, 100×), compatible with mycotic aneurysm.

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ago. Electrocardiography revealed diffuse ST-segment elevation ([Fig. 1A](#)), and coronary angiography, which was performed because of his high-risk status, demonstrated an aneurysm extending from the left main (LM) coronary artery to the left anterior

descending (LAD) coronary artery (Fig. 1B and Online Video 1). However, he refused surgical intervention until 1 month later, when he underwent treatment because of refractory chest pain and bacteremia caused by *Staphylococcus aureus*. Surprisingly, pre-operative coronary angiography and chest computed tomography revealed 2 rapidly growing mycotic aneurysms involving the LM coronary artery and the mid-LAD coronary artery. The aneurysms measured up to 29×56 mm, and 1 of them drained into the other (Figs. 1C and 1D, and Online Video 2). The operation revealed destroyed stents floating inside the massive aneurysms (Figs. 1E and 1F). Bypass surgery was performed successfully; however, the patient eventually died of multiorgan failure. An aggressive bacterial infection was detected in the pathological specimens (Fig. 1G).

Mycotic coronary aneurysms after PCI are rare (0.3% to 0.6%) and present between 3 days and 4 years after the procedure, mostly as fever (1). Catheter-based infection during repeated angioplasty is a major risk factor for stent infection (1,2). In addition, the high pressure used to treat ISR may exacerbate vessel-wall inflammation (3). Early surgical management is warranted because of the high mortality of mycotic coronary aneurysms (2). Though the incidence of giant coronary artery aneurysm without

rupturing is low, this case indicated that coronary interventions can sometimes lead to disastrous iatrogenic sepsis.

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APPENDIX

For accompanying videos, please see the online version of this paper.