

IMAGES IN INTERVENTION

# Formation of Infectious Coronary Artery Aneurysms After Percutaneous Coronary Intervention in a Patient With Acute Myocardial Infarction Due to Septic Embolism

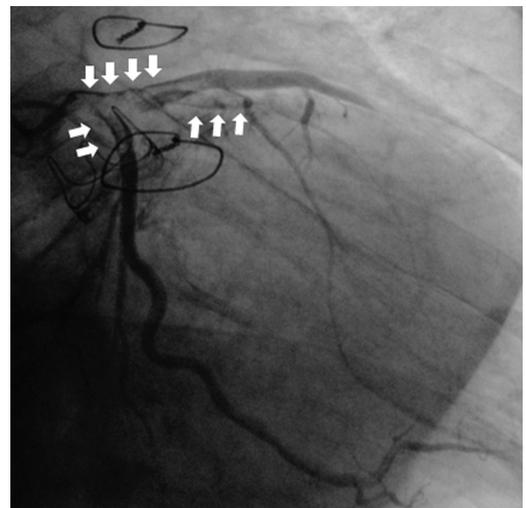


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A 68-year-old man, who underwent aortic valve replacement (biological valve, Carpentier-Edwards PERIMOUNT Magna Aortic Bioprosthesis 21 mm, Edwards Lifesciences, Irvine, California) for aortic valve regurgitation without coronary artery disease 5 months previous, was admitted to our institution due to prolonged fever. Fifteen hours after admission, he suddenly experienced severe chest pain with ST-segment elevation in the lateral and aV<sub>R</sub> leads. Emergency coronary angiography (CAG) showed a contrast medium filling defect for the left main trunk (LMT), the proximal left anterior descending coronary artery (LAD), the ostial left circumflex coronary artery (LCX), and the ramus intermedius artery (RA) (**Figure 1**, **Online Video 1**). Due to insufficient intracoronary aspiration, a stent was implanted at the LMT and proximal LAD. After using the kissing balloon technique for the LAD and LCX, acceptable coronary flow for the LAD and LCX was obtained, although the RA was occluded (**Figures 2A and 2B**, **Online Videos 2 and 3**). On the basis of the Duke criteria (i.e., more than 2 positive blood cultures [*Staphylococcus epidermidis*], predisposing heart condition, fever, and major arterial embolism), he was diagnosed with prosthetic valve endocarditis and subsequent myocardial infarction due to coronary artery septic embolism. The infection was controlled

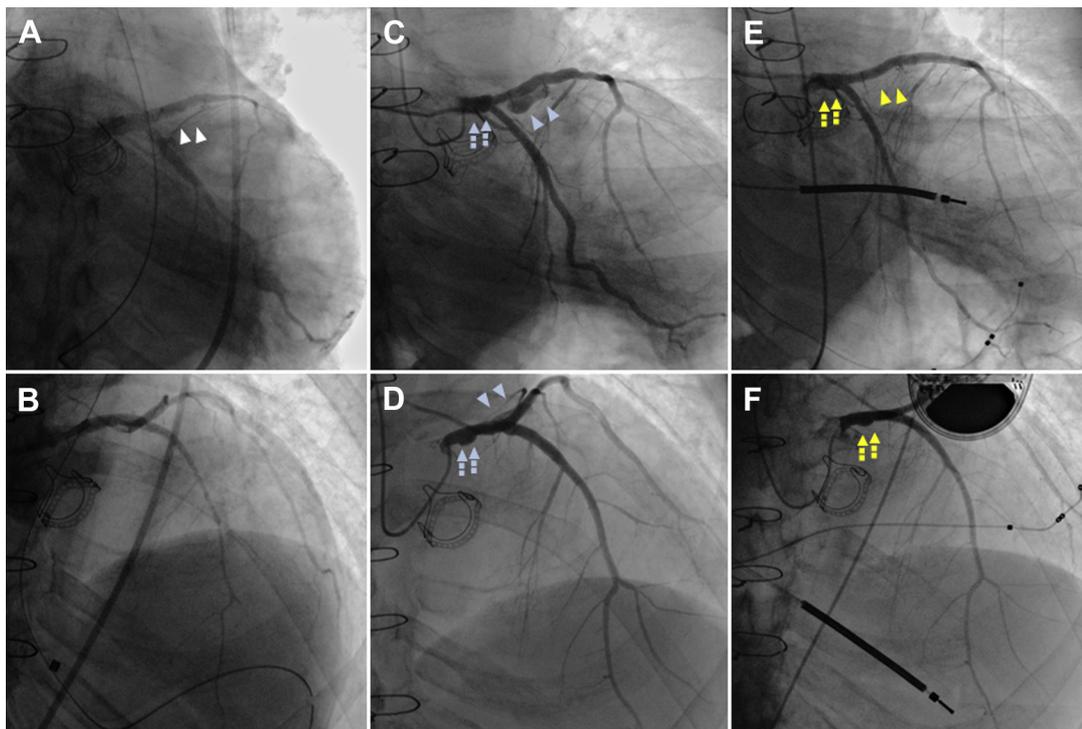
by intravenous vancomycin administration for more than 2 months. CAG performed 1 year later showed a

**FIGURE 1** Initial Coronary Angiography



Initial coronary angiography showing the contrast medium filling defect (**white arrows**) for the left main trunk, the proximal left anterior descending artery, the ramus intermedius artery, and the ostial left circumflex artery (**Online Video 1**).

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**FIGURE 2** Serial Coronary Artery Images Over 6 Years

(**A and B**) Post-stenting coronary angiography (CAG) showing acceptable coronary flow for the left anterior descending coronary artery (LAD) and left circumflex coronary artery (LCX), and occluded ramus intermedius artery (RA) (**white arrowheads**) (Online Videos 2 and 3). (**C and D**) CAG performed 1 year after the intervention showing the giant coronary artery aneurysm with flow disturbance in the RA (**blue arrowheads**) and small aneurysm in the left main trunk (LMT) (**blue dashed arrows**) (Online Videos 4 and 5). (**E and F**) Repeated CAG performed 6 years after the intervention showing the disappearance of giant coronary aneurysm in association with the RA occlusion (**yellow arrowheads**) and the small aneurysm in the LMT, which had not worsened (**yellow dashed arrows**) (Online Videos 6 and 7).

giant aneurysm with coronary flow disturbance in the RA and a small aneurysm in the LMT (**Figures 2C and 2D**, Online Videos 4 and 5). Repeated CAG performed after 5 years of careful clinical follow-up showed that the giant coronary artery disappeared in association with the RA occlusion, and the small aneurysm in the LMT remained unchanged (**Figures 2E and 2F**, Online Videos 6 and 7).

Although some reports have previously described coronary embolization due to infectious endocarditis (1-4), none showed aneurysm formation in the culprit

coronary artery during follow-up. The possible mechanism responsible for the aneurysm formation was infectious embolism. In the current case, long-term angiographic follow-up demonstrated that the infectious aneurysms did not deteriorate.

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**KEY WORDS** infectious coronary artery aneurysm, infectious endocarditis, long-term follow-up, septic embolism

**APPENDIX** For supplemental videos and their legends, please see the online version of this article.