Coronary Artery Rupture Caused by Stent Infection  
A Rare Complication

A 62-year-old man with a history of hypertension was admitted with unstable angina. Three years earlier, he had presented with a non–ST-segment–elevation myocardial infarction and had undergone percutaneous coronary intervention with a paclitaxel-eluting stent (3.0×20 mm; Taxus, Boston Scientific, Boston, MA) to the proximal left anterior descending coronary artery (Figure 1A). His initial ECG was normal, and his biomarkers were not elevated. Eight hours into his admission, he became pyrexial and developed chest pain associated with transient anterior ST-segment elevation. Emergency coronary angiography demonstrated aneurysmal dilatation at the proximal edge of the previous stent (Figure 1B). Because he had normal flow (Thrombolysis in Myocardial Infarction grade 3), his pain had settled spontaneously, and there was no evidence of a left ventricular regional wall motion abnormality (Movie I in the online-only Data Supplement) on transthoracic echocardiography, the supervising cardiologist elected to treat him medically in the first instance, pending administration of antibiotics and discussion about coronary artery bypass graft surgery. He was treated with dual antiplatelet therapy and antibiotics. Multiple blood cultures subsequently grew *Staphylococcus aureus* (methicillin sensitive) sensitive to flucloxacillin. A few hours later, having continued to have a high temperature, he developed further chest pain and ST-segment elevation with hypotension. An emergency echocardiogram demonstrated a pericardial effusion. Repeat emergency coronary angiography confirmed rupture of the left anterior descending artery aneurysm (Figure 1C), and he was transferred for emergency surgery. At surgery, the left anterior descending artery was exposed (Figure 2A), and the diseased area, including the stent, was resected (Figure 2B–2D). The left internal mammary artery was then grafted to the left anterior descending artery. Postoperative transthoracic echocardiography confirmed the presence of methicillin-sensitive *S. aureus* sensitive to flucloxacillin. The patient recovered well and was discharged home once he completed a 6-week course of antibiotic treatment, which consisted of intravenous flucloxacillin 2 g every 4 hours and peror fucidic acid 500 mg 3 times a day.

Percutaneous stent deployment is the commonest modality for coronary revascularization. Infective complications are rare. The first coronary stent infection was described in 1993,1 and since then, <30 cases have been reported.2 Most cases describe early infection, with onset between 2 days and 4 weeks after percutaneous coronary intervention.3 Late infection is rare, with 1 report of stent infection 3 years after intervention associated with stent fracture.4 These cases of stent infection share similar clinical features: fever usually accompanied with an episode of chest pain.4 Diagnosis of stent infection can be challenging. Clinical suspicion should be high in patients with previous intervention, unexplained fever, positive blood cultures, and chest pain. There is no single modality confirming diagnosis, but hematologic cultures, echocardiography, coronary angiography, computed tomography, and magnetic resonance imaging scanning can provide useful information.4 The natural history of stent infection is often catastrophic. Complications may include pericardial empyema, tamponade, coronary vessel perforation, ventricular rupture, and cardiac arrest, in addition to severe sepsis and multiorgan failure. Surgical intervention is usually required, but even after surgery, overall mortality can reach 25% to 50%.4

Disclosures

None.

References

Figure 1. Series of angiographic stills. A, The drug-eluting stent in the proximal left anterior descending artery (box) after the initial percutaneous coronary angiography. B, Aneurysmal dilatation at the proximal stent edge (box) on this presentation. C, Rapid progression with rupture 12 hours later.

Figure 2. Operative images from surgeon’s view. A, The area of the infected left anterior descending artery (LAD; circle). B, The incised LAD exposing the stent (circle). C and D, Excised LAD specimen with the stent showing the lack of stent coverage.
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Apostolos Roubelakis, John Rawlins, Giedrius Baliulis, Sally Olsen, Simon Corbett, Markku Kaarne and Nick Curzen

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