ESC European Society of Cardiology
European Heart Journal - Case Reports (2021) **5**(11), 1–2
https://doi.org/10.1093/ehjcr/ytab441

Coronary stent infection

Pim B.J.E. Hulshof *[,1], Jasper Selder[2], Kim C.E. Sigaloff[1], and Otto Kamp [2]

[1]Department of Internal Medicine, Amsterdam UMC, De Boelelaan 1117, Zip Code 1081HV, Amsterdam, The Netherlands; and [2]Department of Cardiology, Amsterdam UMC, De Boelelaan 1117, Zip Code 1081HV, Amsterdam, The Netherlands

Received 25 June 2021; first decision 12 July 2021; accepted 1 November 2021; online publish-ahead-of-print 8 November 2021

A 61-year-old male presented to the emergency department with chest pain and fever for 5 days. His past medical history included ulcerative colitis (no longer on immunosuppressive medication) and coronary artery disease. In 2009, he underwent coronary artery bypass grafting [left internal mammary artery–left anterior descending coronary artery (LAD), aorta–anterolateral branch–right coronary artery (RCA)]. One week before the current admission, he had a non-ST-elevated myocardial infarction (NSTEMI). The coronary angiogram at the time of NSTEMI showed a patent left main coronary artery, a chronic total occlusion of the proximal LAD, a mid left circumflex (LCx) stenosis of 95%, and a chronic total occlusion of the proximal RCA. The grafts were patent but were anastomosed to diffusely diseased native coronaries. Especially the mid and distal RCA were diffusely diseased. He underwent percutaneous coronary intervention (PCI) of the LCx [after predilatation, two overlapping drug eluting stents (DES) were implanted: Promus Elite Ous Mr 2.5 × 28 mm and Promus Elite Ous Mr 2.25 × 12 mm followed by postdilatation of the overlapping segment]. In a separate session, he underwent PCI of the RCA (a retrograde dissection re-entry strategy was used, after predilatation 3× overlapping DES were implanted: Xience Xpedition 3.0 × 48 mm; Xience Xpedition 3.5 × 48 mm; Xience Sierra 3.5 × 23 mm, followed by postdilatation at the overlapping segments).

During the current admission, a chest computed tomography (CT) showed fat infiltration and myocardial oedema surrounding mid and distal RCA. Within 48 h, blood cultures returned positive with *Staphylococcus aureus* (four out of four cultures). The patient was started on intravenous oxacillin awaiting further work-up.

Repeat blood cultures remained positive for three consecutive days. Transoesophageal echocardiography did not show any valvular vegetations. A positron emission tomography (PET)-CT scan demonstrated intense fluorodeoxyglucose-uptake in the right atrioventricular groove, surrounding the three overlapping stents in the RCA, expanding to the right ventricular outflow tract and aortic root. Additional cardiac imaging [CT/magnetic resonance imaging (MRI)] showed a dilated ostium of the RCA and two fluid collections in close relationship to the RCA stents. The largest fluid collection (maximum diameter 42 mm) was located in the right atrioventricular groove within the pericardial space, dorsal in close relationship to the mid-distal RCA stents, and anterior in close relationship to the pericardium. The second (possibly connected) fluid collection (maximum diameter 32 mm) was located craniomedial of the first, in close relation to the more proximal part of the three stents. The fluid collections were strongly suggestive of abscess formation following coronary stent infection.

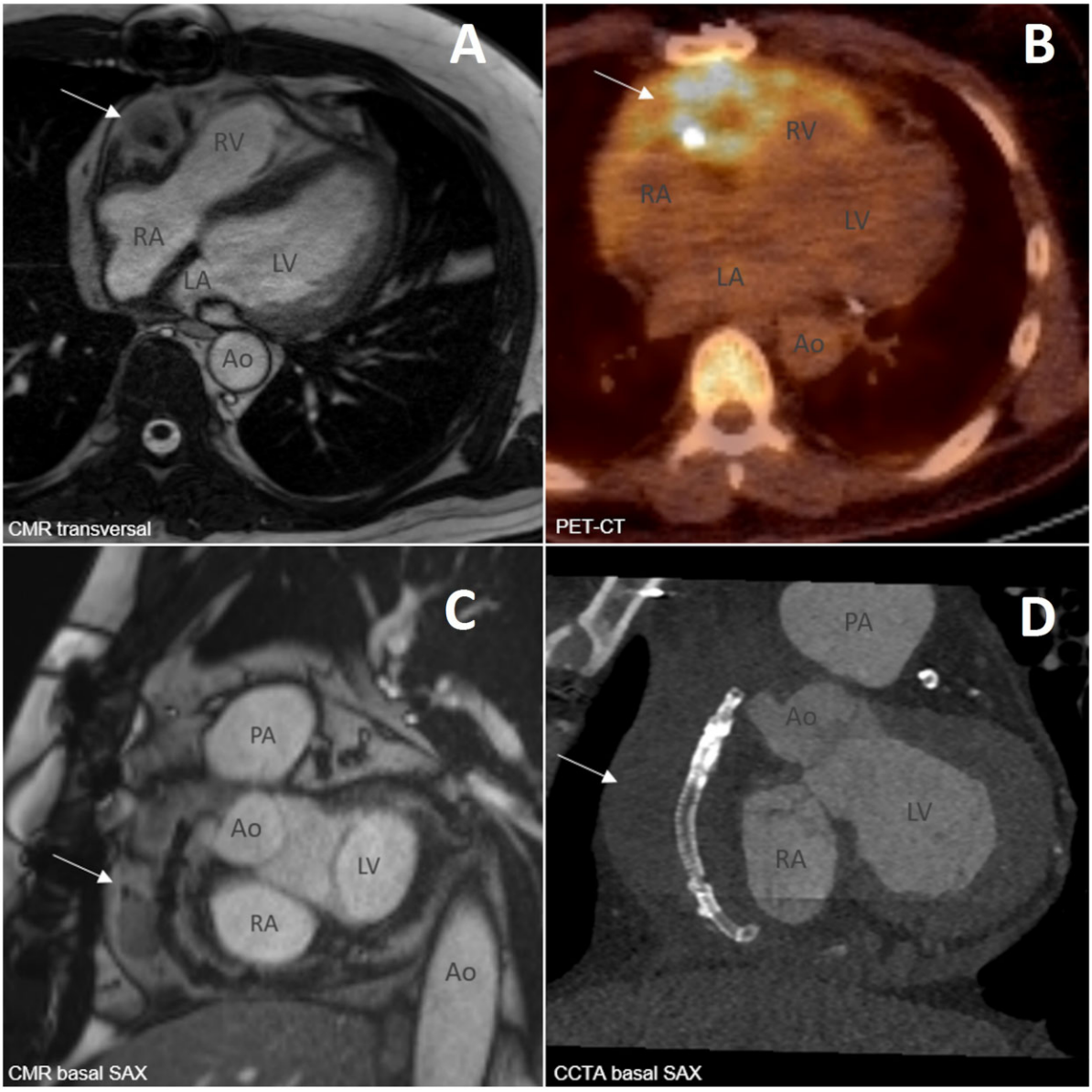
Surgery was not performed because the risks associated with debridement and stent removal were considered too high. Patient was treated with intravenous oxacillin (12 g per 24 h) and oral rifampicine (600 mg twice daily) for a total duration of 16 weeks. He fully recovered without relapse of infection after cessation of antibiotics.

The source of the bacteraemia was unclear. On admission, the patient had no central venous catheter. Peri-procedure stent contamination was considered unlikely. Although there were no local signs of infection, the most likely port of entry was the skin incision used for the PCI in the left inguinal region. Probably, haematogenous seeding of the infection to the stents in the RCA was facilitated by low coronary flow of the RCA because of competitive flow from the bypass graft.

Bacterial infection of a coronary stent is an exceedingly rare entity. Less than 30 cases have been reported in the literature since the advent of coronary stents.[1] Compared to other intravascular stents, the prevalence of coronary stent infection is much lower, probably because of high blood flow in the coronary arteries. In reported cases, mortality is high (40–65%) and *S. aureus* is the most frequently identified pathogen.[2] Transoesophageal echocardiography is used to exclude intracardiac and valvular involvement. CT, MRI, and PET-CT are used to diagnose coronary stent infection and guide further management. Although rare, coronary stent infection should at least be considered in the differential diagnosis of patients with fever and positive blood cultures after PCI and stent placement.

(*Panel A*) Cardiovascular MRI, transversal. (*Panel B*) PET-CT, transversal. (*Panel C*) Cardiovascular MRI, basal short axis. (*Panel D*) Coronary CT angiography, basal short axis. Arrow pointing at infected fluid collection in each figure.

* Corresponding author. Tel: +31(0)20-4461808, Email: p.b.e.hulshof@amsterdamumc.nl
Handling Editor: Parham Eshtehardi



Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: None declared.

Funding: None declared.

References

1. Reddy KVC, Sanzgiri P, Thanki F, Suratkal V. Coronary stent infection: interesting cases with varied presentation. *J Cardiol Cases* 2019;**19**:5–8.
2. Buono A, Maloberti A, Bossi IM, Piccaluga E, Piccalò G, Oreglia JA et al. Mycotic coronary aneurysms. *J Cardiovasc Med (Hagerstown)* 2019;**20**:10–15.