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Stentocarditis Presenting as a Giant Left Main Coronary Artery Aneurysm: A Case Report

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Abstract

Coronary stent infection is a rare but frequently fatal complication of percutaneous coronary intervention (PCI). Its clinical features are nonspecific, and blood cultures may be negative, so the diagnosis is often delayed. We report the case of a 53-year-old man with diabetes and hypertension who underwent elective PCI of the left main and left anterior descending arteries with a drug-eluting stent for chronic coronary syndrome. Fifteen days later, he presented with fever and chest pain. Coronary angiography showed an aneurysmal left main coronary artery and thrombotic occlusion of the left circumflex artery, which was treated with a second stent. His symptoms persisted, and he was referred to our institution one month after the index procedure with leukocytosis and raised inflammatory markers. Blood cultures drawn before antibiotics were sterile, but 18F-fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG PET-CT) showed intense uptake around the stent. Inflammatory markers settled during four weeks of intravenous vancomycin and piperacillin-tazobactam, but repeat angiography showed that the left main aneurysm had enlarged into a giant aneurysm. He underwent coronary artery bypass grafting with a left internal mammary artery graft to the left anterior descending artery. Because the aneurysm wall had begun to calcify, the surgeons judged the risk of rupture to be low and left the aneurysm and stent in situ. His postoperative course was uneventful, and he was discharged in stable condition. This case shows that fever and chest pain in the weeks after PCI should raise suspicion of stent infection, that sterile blood cultures do not exclude it, and that 18F-FDG PET-CT can support the diagnosis. An infected aneurysm that keeps growing despite antibiotic therapy needs surgical review, and the operative strategy can be individualized.

Categories: Cardiology, Medical Education, Cardiac/Thoracic/Vascular Surgery
Keywords: coronary artery aneurysm, coronary stent infection, drug-eluting stent, fdg pet-ct, left main coronary artery, mycotic aneurysm, percutaneous coronary intervention, stentocarditis

Introduction

Coronary stent infection, sometimes called stentocarditis, is a rare complication of percutaneous coronary intervention (PCI), occurring in fewer than 0.1% of procedures [1]. Patients typically present with fever and chest pain, usually within the first month after stenting [1,2]. *Staphylococcus aureus* is the most frequent pathogen, followed by *Pseudomonas aeruginosa* [1,3].

The diagnosis is difficult. The presentation is nonspecific, conventional markers of sepsis may be only mildly raised, and blood cultures may be sterile, especially when antibiotics have been given before cultures are drawn or when the infection is a low-grade endovascular one [4]. Tissue is rarely available, because many patients are treated without removal of the stent. Dieter therefore proposed criteria in which a definitive diagnosis requires a surgical or autopsy specimen of the infected stent, and a probable diagnosis rests on three or more clinical, laboratory, and imaging features [5]. These criteria were derived from published case reports and have not been prospectively validated, so without tissue they support only a probable diagnosis. 18F-fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG PET-CT) is not part of the original criteria, but it can localize metabolic activity to the stent and is increasingly used to support the diagnosis when cultures are negative [4,6,7].

Coronary aneurysm is one of the most frequent consequences of stent infection [1]. A coronary artery aneurysm is a focal dilatation of a coronary segment to more than 1.5 times the diameter of the adjacent normal vessel. It is termed giant when it is more than four times the reference diameter or more than 8 mm in diameter, and it is distinguished from coronary ectasia, which involves more than 50% of the length of the vessel [8]. Aneurysmal dilatation is seen in up to 5% of patients undergoing coronary angiography, most commonly in association with atherosclerosis and, in children, Kawasaki disease [9]. A small proportion of coronary aneurysms follow stent implantation. Aoki et al. classified these into three types: type I aneurysms grow rapidly and are usually pseudoaneurysms detected within four weeks of the procedure; type II aneurysms have a subacute to chronic course and are usually detected six months or more after the procedure; and type III aneurysms are mycotic, or infective, in origin [10]. Most post-stent aneurysms are sterile. They result from mechanical injury during the procedure, such as dissection or perforation, or from a hypersensitivity response to the stent with delayed healing [10]. An infected aneurysm differs because the vessel wall is destroyed by infection. It tends to enlarge quickly and needs antimicrobial and often surgical

treatment rather than observation alone [1,10].

We describe a patient in whom culture-negative, suspected stent infection presented as a rapidly enlarging giant aneurysm of the left main (LM) coronary artery, and in whom 18F-FDG PET-CT supported the diagnosis.

Case Presentation

A 53-year-old man with type 2 diabetes mellitus and hypertension presented with chronic coronary syndrome. Coronary angiography showed two-vessel coronary artery disease; the left circumflex artery (LCx) was normal. He underwent PCI of the LM to the left anterior descending artery (LAD) with a 3.5 × 32 mm drug-eluting stent (DES), with drug-coated balloon angioplasty of a major diagonal branch. The procedure was performed through transfemoral access, and no complications were documented.

Fifteen days later, in March 2026, he was readmitted to the same hospital with fever and chest pain. Coronary angiography showed a giant saccular aneurysm of the LM measuring approximately 2.5 × 3.1 cm and thrombotic occlusion of the LCx, which had been normal on the index angiogram. The electrocardiogram and cardiac biomarkers from this admission were not available to us. He underwent PCI of the ostioproximal LCx with a 3.0 × 16 mm DES and was discharged. Whether he received antibiotics at the referring hospital is not documented.

His fever and chest pain persisted, and he was referred to our institution one month after the index procedure. On admission, his temperature was 101°F (38.3°C), pulse 102/min, and blood pressure 110/60 mmHg. No clinical focus of infection was found. Investigations showed a total leukocyte count of 13,000/µL, an erythrocyte sedimentation rate of 57 mm/hour, and a C-reactive protein level of 12 mg/L; procalcitonin was negative (Table *1*). We looked for other causes of fever. Serological tests for dengue, malaria, scrub typhus, and leptospirosis were negative; urinalysis and urine culture were negative; and the chest radiograph was unremarkable. Fever and chest pain beginning within about two weeks of PCI, a new aneurysm at the stented segment, and the absence of another source led us to suspect stent infection.

Investigation	On admission	After four weeks of antibiotics	Reference range
Total leukocyte count	13,000/µL	8,000/µL	4,000-11,000/µL
Erythrocyte sedimentation rate	57 mm/hour	11 mm/hour	0-15 mm/hour
C-reactive protein	12 mg/L	8 mg/L	<5 mg/L
Procalcitonin	Negative (<0.5 ng/mL)	-	<0.5 ng/mL
Blood cultures (two sets, drawn before antibiotics at our institution)	No growth	-	-

TABLE 1: Laboratory investigations at our institution.

Reference ranges are those of the institutional laboratory.

Two sets of blood cultures were drawn, and intravenous vancomycin 1 g twice daily and piperacillin-tazobactam 4.5 g every eight hours were then started. The regimen was chosen empirically, in consultation with the internal medicine and infectious diseases teams, to cover methicillin-resistant *S. aureus* and *P. aeruginosa*, the most frequent pathogens in stent infection [1,3]. Both blood culture sets showed no growth. Transthoracic echocardiography showed a large LM aneurysm adjacent to the aorta with the stent in situ (Figure *1*). Transesophageal echocardiography (TEE) was not performed. 18F-FDG PET-CT performed during the admission showed focal, intense FDG uptake around the coronary stent (Figure *2*), distinct from the physiological uptake seen elsewhere in the body (Figure *3*). The criteria for coronary stent infection met by the patient are summarized in Table *2*.

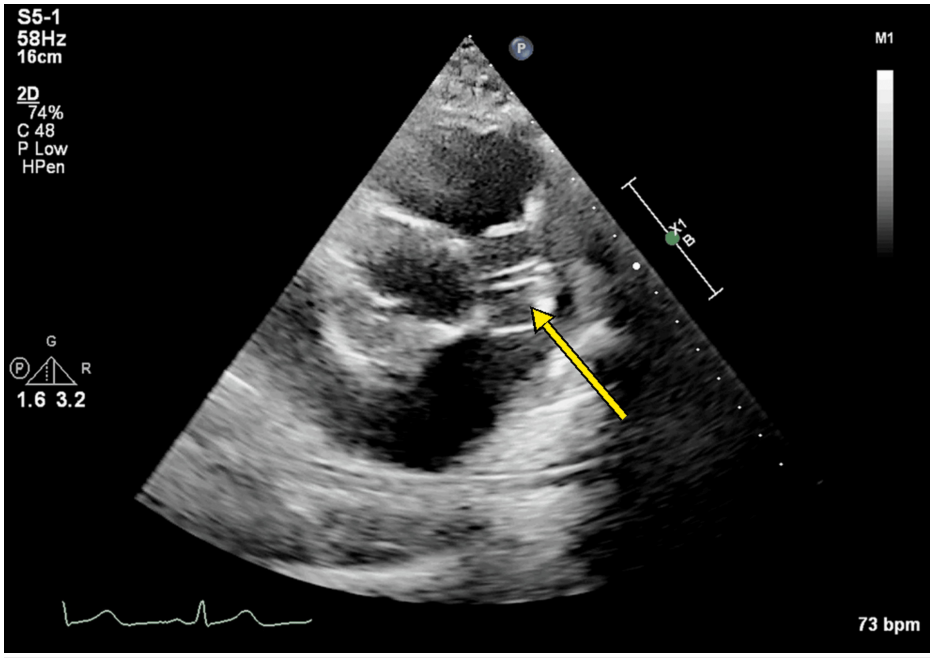


FIGURE 1: Transthoracic echocardiography showing the left main (LM) coronary artery aneurysm.

Modified short-axis view showing a large LM coronary artery aneurysm adjacent to the aorta, with the stent in situ (arrow).

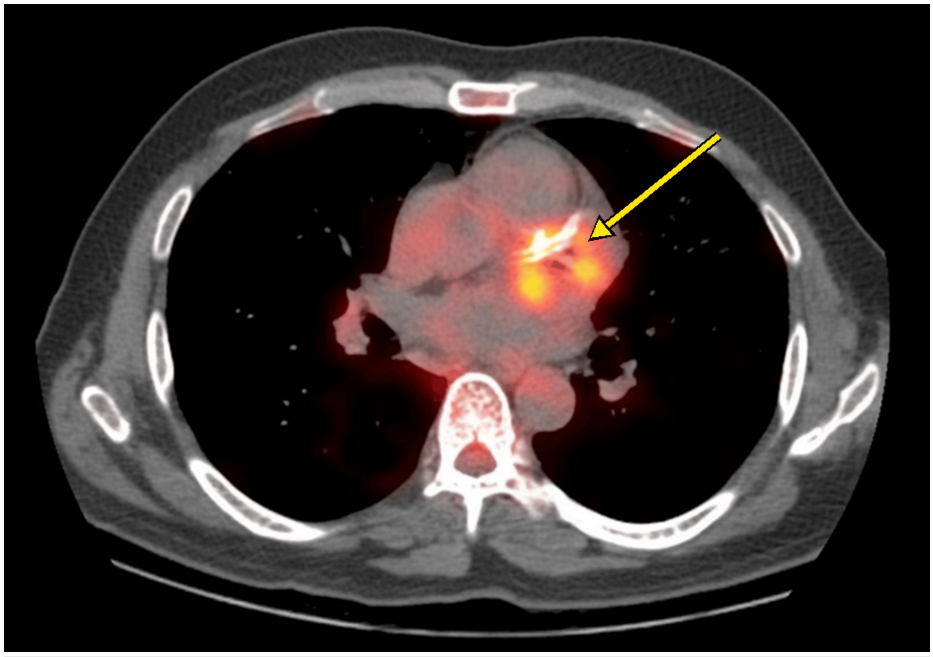


FIGURE 2: 18F-FDG PET-CT showing uptake around the coronary stent.

Axial fused 18F-fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG PET-CT) image showing focal, intense uptake (arrow) surrounding the left main (LM) coronary stent.

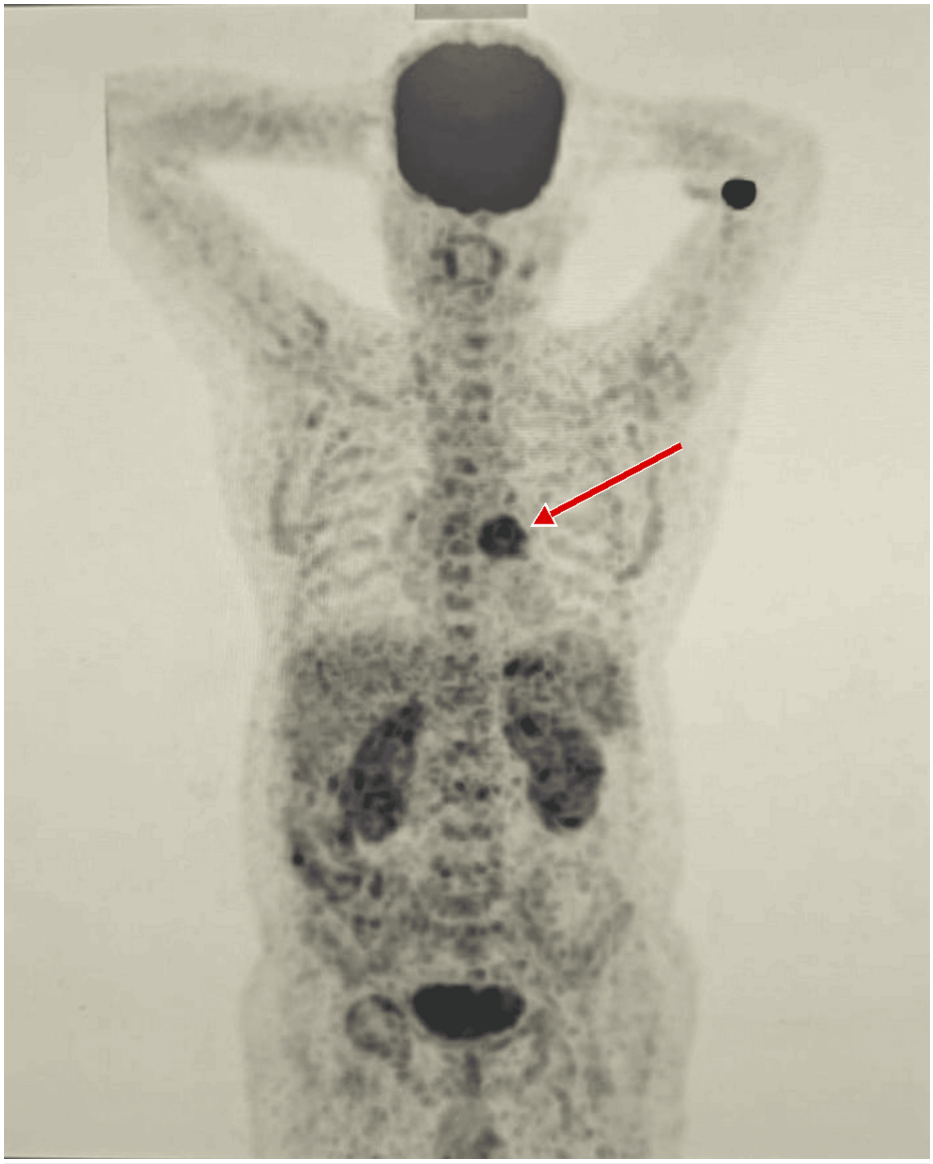


FIGURE 3: Whole-body 18F-FDG PET image.

Maximum intensity projection image showing focal uptake at the site of the coronary stent (arrow), distinct from physiological uptake in the brain, kidneys, and bladder.

18F-FDG PET-CT: 18F-fluorodeoxyglucose positron emission tomography-computed tomography

Category	Criterion	Met in our patient
Definitive	Autopsy or surgical specimen showing an infected coronary artery stent or stent-artery complex	No (no specimen obtained)
Probable (three or more)	PCI within the preceding four weeks	Yes
	Repeated cardiac interventions through the same arterial sheath, or arterial sheath complications	No
	Bacteremia on blood culture	No
	Fever >38.6°C without another identified source of infection	No (maximum documented 101°F (38.3°C))
	Leukocytosis without another identified source of bacterial infection	Yes (13,000/μL)
	Acute coronary syndrome	Yes (chest pain with new thrombotic occlusion of a previously normal LCx)
	Cardiac imaging (CT, MRI, or TEE) showing evidence of stent infection	Not by the original definition; TTE and 18F-FDG PET-CT findings supportive

TABLE 2: Diagnostic criteria for coronary stent infection.

Adapted from Dieter, with permission from John Wiley & Sons (license number 6381990057474) [5]. The third column was added by the authors.

PCI: percutaneous coronary intervention; CT: computed tomography; MRI: magnetic resonance imaging; TEE: transesophageal echocardiography; TTE: transthoracic echocardiography; LCx: left circumflex artery; 18F-FDG PET-CT: 18F-fluorodeoxyglucose positron emission tomography-computed tomography

During four weeks of antibiotic therapy, his leukocyte count and erythrocyte sedimentation rate normalized and C-reactive protein fell to 8 mg/L (Table *2*). Repeat coronary angiography through transfemoral access in April 2026 then showed that the giant LM aneurysm had enlarged to approximately 2.8 × 3.5 cm, from 2.5 × 3.1 cm on the referring-hospital angiogram in March 2026 (Figure *4*). In view of the enlarging aneurysm, he was referred for cardiac surgery.

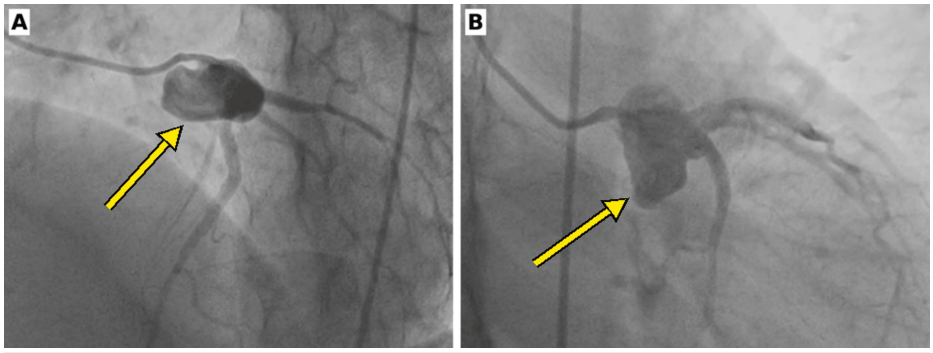


FIGURE 4: Coronary angiography showing a giant aneurysm of the left main (LM) coronary artery.

(A) Left anterior oblique cranial and (B) right anterior oblique caudal views in April 2026 showing a giant saccular aneurysm of the LM at the site of the stent (arrows), measuring approximately 2.8 × 3.5 cm, compared with approximately 2.5 × 3.1 cm on the referring hospital's angiogram obtained in March 2026.

He underwent coronary artery bypass grafting with a left internal mammary artery graft to the LAD. At surgery, the wall of the aneurysm had begun to calcify. The surgical team judged the risk of rupture to be low and did not open or excise the aneurysm. The stent was left in situ, and no tissue was sent for culture or histology. His postoperative course was uneventful, and he was discharged in stable condition. At follow-up two months after surgery, he was well and asymptomatic from a cardiac standpoint. The timeline of events is summarized in Table *3*.

Time	Event
Day 0	Elective PCI of LM to LAD (DES) and drug-coated balloon to diagonal; LCx normal
Day 15 (March 2026)	Fever and chest pain; giant LM aneurysm (~2.5 × 3.1 cm) and thrombotic LCx occlusion; LCx PCI (DES)
~One month	Referred to our institution; blood cultures drawn; vancomycin and piperacillin-tazobactam started
During admission	Transthoracic echocardiography and 18F-FDG PET-CT
After four weeks of antibiotics (April 2026)	Repeat angiography: LM aneurysm enlarged to ~2.8 × 3.5 cm
Subsequently	Coronary artery bypass grafting (left internal mammary artery to LAD); discharged
Two months after surgery	Asymptomatic at follow-up

TABLE 3: Timeline of events.

PCI: percutaneous coronary intervention; LM: left main; LAD: left anterior descending artery; DES: drug-eluting stent; LCx: left circumflex artery; 18F-FDG PET-CT: 18F-fluorodeoxyglucose positron emission tomography-computed tomography

Discussion

Coronary stent infection is a rare but potentially fatal complication of PCI [1,11,12]. Published reports are limited to case reports and small series [1,11], and pooled analyses have reported mortality of about 25% to 40%, even with antibiotic therapy and surgery [1,12]. Because the diagnosis requires a high index of suspicion, it is probably underrecognized, and delays allow complications such as aneurysm or pseudoaneurysm formation, abscess, purulent pericarditis, and coronary-cameral fistula to develop [1,4,13].

Our patient fits the typical profile: a middle-aged man with diabetes who developed fever and chest pain within weeks of DES implantation. In a systematic review of 34 cases, most patients were men, chest pain and fever were the most common symptoms, and DES were more often involved than bare-metal stents; aneurysm was the most frequent coronary abnormality [1]. Another review found that most infections occurred within one month of stenting and involved DES [3]. Repeated procedures through the same arterial access and prolonged sheath dwell time have been proposed as risk factors [2,5]. Bacterial seeding is most likely before the stent is covered by neointima. In a swine model, stents challenged with bacteria at implantation or one month later were frequently infected, whereas stents incorporated into the arterial wall for three months were rarely infected [14]. The delayed endothelialization associated with DES may therefore prolong the period of vulnerability [1,10]. Our patient had two stenting procedures within 15 days, which may have added to his risk.

Applying Dieter's criteria, our patient met three probable criteria: PCI within four weeks, leukocytosis without another identified source, and an acute coronary syndrome (Table *2*) [5]. The last was inferred from chest pain with new thrombotic occlusion of an LCx that had been normal 15 days earlier; the electrocardiogram and biomarkers from that episode were not available. His documented fever peaked at 101°F (38.3°C), below the 38.6°C threshold. The original imaging criterion refers to CT, MRI, or TEE. We regard the echocardiographic and PET-CT findings as supportive, but the probable diagnosis does not depend on them. Because the stent and aneurysm were not removed, no specimen was available, and a definitive diagnosis could not be made. The aneurysm was classified as Aoki type III because of its suspected infective cause, although its early appearance and rapid growth also resemble type I [10]. Rapid progression of a post-PCI aneurysm to a giant aneurysm over a few weeks has been described before and should itself raise suspicion of infection [15].

Both blood culture sets were sterile, even though they were drawn before antibiotics were started at our institution; sterile cultures have also been reported in other cases [4]. Whether he had received antibiotics at the referring hospital is not documented, and prior exposure could have suppressed growth. Culture-negative infection may also reflect a low-grade endovascular infection. Procalcitonin was negative, and C-reactive protein was only mildly raised, which shows that conventional markers of sepsis may be unremarkable. In this setting, imaging carries much of the diagnostic weight. Echocardiography may show an aneurysm or a collection around the stent, and coronary angiography documents the aneurysm and its growth. 18F-FDG PET-CT can localize metabolic activity to the stent when other findings are equivocal [4,6,7]. Its findings must be interpreted with care soon after stenting, because the vessel-wall response to stent implantation can itself cause low-grade uptake. In our patient, the scan was performed during the admission to our institution, within about two months of the index PCI. The uptake was focal and intense, confined to the aneurysmal stented segment, and accompanied by an enlarging aneurysm and leukocytosis,

which together favored infection. We therefore regard PET-CT as supportive rather than diagnostic. TEE was not performed; it may have provided additional information about peri-stent collections or vegetations.

Antibiotic therapy is the foundation of treatment, but surgery is often needed. Infections that present 10 days or more after stenting, and those complicated by aneurysm or abscess, are less likely to respond to antibiotics alone [2]. In a review of intravascular stent infections, 62.1% of coronary cases required emergency surgery [6]. Surgical management usually involves removal of the infected stent, repair or exclusion of the aneurysm, and bypass grafting of the distal vessels [4].

Our patient was managed differently. His inflammatory markers improved on antibiotics, but the aneurysm continued to grow, and he was referred for surgery. At operation, the aneurysm wall had begun to calcify. The surgical team took this to suggest an organized, healing wall with a lower short-term risk of rupture. Calcification is not an established marker of aneurysm stability, however, and we do not offer it as one. The decision was a case-specific judgment. It weighed a much more extensive operation, with excision of a giant LM aneurysm, stent removal, and LM reconstruction, against the risks of leaving infected material in place. The surgeons chose revascularization alone with a left internal mammary artery graft to the LAD. Medical treatment without removal of the infected stent has been reported before; in one case, a stent-related coronary aneurysm resolved over eight months with antibiotics alone [16]. Leaving the stent and aneurysm in place, however, leaves a potential source of recurrent infection and an aneurysm that may still enlarge, rupture, or thrombose. Such patients need close clinical follow-up, monitoring of inflammatory markers, and repeat imaging of the aneurysm.

This report has limitations. The diagnosis was probable rather than definitive: no tissue was examined and no organism was identified. Records from the referring hospital did not include angiographic images, the electrocardiogram and biomarkers for the LCx event, or any antibiotics given before referral. PET-CT was performed early after stenting, when post-procedural inflammation may confound its interpretation, and TEE was not performed. Follow-up so far is two months after surgery and clinical only; the aneurysm has not yet been imaged again because he has remained asymptomatic. The long-term safety of leaving the aneurysm and stent in situ in this patient is therefore unknown, and repeat imaging is needed. The management of a single patient cannot be generalized.

Conclusions

Coronary stent infection should be considered in any patient who develops fever and chest pain within days to weeks of PCI, most often within the first four weeks, particularly after DES implantation or repeated procedures. Sterile blood cultures do not exclude the diagnosis. Multimodality imaging, including echocardiography, serial coronary angiography, and 18F-FDG PET-CT, can support a probable diagnosis using Dieter's criteria, even when conventional markers of sepsis are only mildly abnormal.

A suspected infected coronary aneurysm that keeps enlarging despite appropriate antibiotic therapy should prompt early surgical referral. Although surgical exclusion or excision of an infected coronary aneurysm may be considered, the operative approach should be individualized according to aneurysm anatomy, the extent of infection, coronary anatomy, and operative risk. In selected circumstances, revascularization without aneurysm excision may be considered; however, this approach requires careful postoperative surveillance, particularly when the suspected infected stent remains in situ. Awareness of this complication, together with strict attention to sterility and access-site care during PCI, may allow earlier recognition and potentially better outcomes.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Dipesh Soni, Ajay U. Mahajan, Zulqarnain Inamdar, Girish Sabnis

Acquisition, analysis, or interpretation of data: Dipesh Soni, Zulqarnain Inamdar, Girish Sabnis

Drafting of the manuscript: Dipesh Soni, Zulqarnain Inamdar, Girish Sabnis

Critical review of the manuscript for important intellectual content: Dipesh Soni, Ajay U. Mahajan, Zulqarnain Inamdar, Girish Sabnis

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **AI use statement:** The authors used Claude (Claude Opus 5.5; Anthropic, San Francisco, CA, USA) as follows: language polishing, structure or formatting, and edit the references

according to the journal requirements in Introduction, Case presentation, References. The clinical data and images are from the authors' own patient. The authors confirm that they have reviewed and verified all AI-assisted content and take full responsibility for the work. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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