Late Silent Stent Abscess

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Established Facts

- It is not common for infections to be associated with coronary stent implantation.
- A myocardial abscess after stenting is an extremely rare anecdotal complication that usually emerges early after coronary intervention.

Novel Insights

- Late silent stent abscess may represent an unexpected autopsy finding.
- Late silent stent abscess may be more common than previously thought and may exist without any clinical manifestation.

Key Words
Coronary stent · Complication · Infections · Abscess · Autopsy

Abstract
Background: Coronary stent infections in general and stent abscesses (SAs) in particular are rare but often deadly complications. Most SAs manifest with fever and chest pain within 30 days after intervention and require antibiotics and stent removal. Case Report: A 45-year-old man with second ST elevated myocardial infarction and cardiogenic shock was admitted to a hospital that had no cardiac catheterization laboratory. The patient underwent fibrinolytic therapy with alteplase but died 1 h later. His medical history revealed posterior myocardial infarction 7 years before, which had been successfully treated with a bare metal stent of the right coronary artery. The post-discharge observation had been unremarkable with no evidence of ischaemia or infection but gross non-compliance. Autopsy revealed complete closure of the left main coronary artery and a surprise additional finding, namely SA; the stented portion of the artery was enveloped by an abscess, and purulent material completely occluded the stent, which was floating in pus. Impressions: Since coronary angioplasty is so common, the incidence of late silent SA is probably higher than expected, especially considering that there is often a lack of clinical manifestations. Clinicians should be cognizant of this complication. More attention may be required to assess the condition of existing stents during repeated interventions. Gross non-compliance and/or early withdrawal from dual anti-platelet therapy may be directly responsible for the development of silent delayed SA.
Introduction

Despite being so rare, coronary artery stent infections are indeed serious, life-threatening complications associated with a mortality rate as high as 40–67% [1]. Among stent-associated infections, abscesses are anecdotal, with less than a dozen verified cases having been reported [1, 2]. Moreover, only a few of the published case reports on stent abscesses (SAs) were confirmed by autopsy. Difficult interventional techniques with complicated coronary anatomy and multiple overlapping stent implantations of the same artery are associated with infections in general and SAs in particular. Cultures of the myocardium are commonly positive for methicillin-resistant Staphylococcus aureus, coagulase-negative staphylococci, group B streptococci or Pseudomonas aeruginosa [3, 4]. In the few cases reported in the literature, the patients presented with fever within days to weeks of stent implantation, and the infection was presumed to be related to peri-procedural bacteremia or direct septic stent implantation [1–4]. The diagnosis of SA is usually based on repeated angiography [5], echocardiography [6] or scintigraphy [7].

Medical therapy of SA conventionally consists of broad-spectrum antibiotics. Surgical intervention includes stent removal if possible, and abscess drainage or perforation repair when indicated. Since such infections are often deadly, autopsy commonly reveals the cause of death to be pericardial tamponade due to rupture of the ventricular myocardium as a result of abscess expansion [1, 3, 4, 8]. To the best of our knowledge, no case of silent late abscess of the myocardium after coronary stent implantation confirmed by autopsy has been described before.

Case Report

We report on a 45-year-old man with cardiogenic shock and 6-mm ST elevation in V1–V6 leads on ECG who was admitted to our hospital. Since there is no cardiac catheterization laboratory in the hospital, the patient underwent fibrinolytic therapy with alteplase. He died 1 h after admission. His medical history revealed that, 7 years earlier, he had experienced posterior myocardial infarction, and was successfully treated with a bare metal stent into the right coronary artery. The post-discharge observation had been unremarkable with no evidence of ischaemia or infection. The patient had a prescription for aspirin and clopidogrel for 12 months, but he did not take any medication and was not hospitalized thereafter. Autopsy revealed complete closure of the left main coronary artery and a surprise additional finding, namely a myocardial abscess. The stented portion of the right coronary artery was enveloped by an abscess and purulent material completely occluded the stent, which was floating in pus (fig. 1).

Discussion

We describe the very late development of a silent abscess of a coronary stent. The patient presented 7 years after stent deployment, and the diagnosis was made post-mortem.
Infection is a rare complication of percutaneous coronary interventions [8]. The first reliable observation of coronary SA was made in Germany in 1983 [9]; interestingly, similar to our case, the abscess emerged in the right coronary artery following a bare metal stent implantation. The majority of the reported cases presented with fever occurring days to a few weeks (but no later than 1 month) after stenting. The aetiology was likely bacteraemia, with secondary seeding of an unendothelialized foreign body or stent contamination at the time of deployment. S. aureus was the most common bacteria isolated. Despite therapy with intravenous antibiotics and surgery, the mortality rate in these reported cases was nearly 50% [8].

The unique feature of the index case is that, not only was the discovery of the SA very late (>7 years after implantation), surprisingly, the patient was free from myocardial ischaemia and had not had repeated infections. Importantly, he was non-compliant with follow-up recommendations, and completely ignored anti-platelet therapy after the first myocardial infarction. As a proposed mechanism, it is possible that, due to the lack of anti-platelet protection, very late incomplete stent thrombosis underwent an in situ infectious transformation which led to the rare complication of a late silent SA.

There are several practical implications to be yielded from our report. First, since coronary angioplasty is so common, the incidence of late silent SA is probably more frequent than we anticipate, especially when there is a lack of clinical manifestations, so clinicians need to be cognizant of this potential complication. Second, more attention should be given to assessing the condition of existing stents during repeated interventions or diagnostic procedures. Finally, gross non-compliance and/or early withdrawal from dual anti-platelet therapy may be directly responsible for the development of a silent SA.

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Conflict of Interest

We have nothing to disclose.

References