CASE REPORT

Infective endocarditis with atypical clinical feature and relapse by *Abiotrophia defectiva*

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A case of infective endocarditis caused by an uncommon agent *Abiotrophia defectiva* with atypical manifestations is presented. A 42-year-old woman previously had rheumatic heart disease, presented with the symptoms of fever and chills that resolved within 3 days under antibiotherapy. She was diagnosed with endocarditis due to *A. defectiva*. Despite culture-directed antibiotics being administered in the first admission, her symptoms and also blood culture growth relapsed 3 weeks later. She was successfully treated with antimicrobial therapy and surgical intervention including aorta and mitral valve replacement. This case demonstrates that *A. defectiva* should be considered as a causative organism of endocarditis particularly in the presence of atypical symptoms and should be followed up carefully in terms of relapses and complications.

Keywords: *Abiotrophia defective*, Echocardiography, Endocarditis

Clinical features

A 42-year-old woman, who previously had rheumatic heart disease, presented to our hospital with a 6-week history of fever and chills. She was on penicillin prophylaxis for 5 years. She had gone to a general practitioner several times because of fever. She had been hospitalized for 3 days in a private hospital because of abdominal pain and when her symptoms resolved she discharged without any medication. She was admitted to the infectious diseases clinic to clarify the cause of fever. Her dental history was unremarkable. She had no history of illicit drug use. On examination she had fever of 39 °C, and a pansystolic murmur at both listening areas. There were no peripheral findings for infective endocarditis on physical examination. She had anemia (9.3 g/dL; normal, 12–15 g/dL) and raised C-reactive protein (100 mg/L; normal, 0–3.5 g/dL) but all other tests were within normal range.

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Transthoracic echocardiogram (TTE) showed severe aortic and mitral regurgitation but revealed no suspicion of endocarditis. Three sets of blood cultures were taken. Blood cultures yielded low bacterial growth. On Day 5, the blood culture became positive for Gram-positive cocci, which was identified as *Abiotrophia defectiva* and empirical treatment was started for bacteremia and possible infective endocarditis (intravenous ampicillin sulbactam 4×2 g and gentamicin 2×80 mg). Transesophageal echocardiogram (TEE) was performed because of ongoing possibility. The evidence of multiple vegetation on the atrial side of the mitral valve was seen by further evaluation with TEE. She became afebrile on the 3rd day of treatment. Based on the Duke criteria, incorporating the TEE and culture results we diagnosed the patient as *A. defectiva* endocarditis. Control blood cultures revealed no growth. All the symptoms and laboratory findings of the patient resolved and we discharged her on Day 29 after completing 4 weeks of antibiotics. Although valve replacement or repair was compulsory, she refused the surgical intervention. Three weeks later she presented with fever that began 2 days prior to admission. TEE demonstrated the presence of vegetation like mass extending to the left ventricle exit and also on the aortic and mitral leaflet (Figs. 1 and 2). Intravenous ampicillin sulbactam 4×2 g and gentamicin 2×80 mg were started. Five out of six blood culture bottles yielded *A. defective.* Antibiotic susceptibility testing of cultivated microorganism indicated high sensitivity to a wide range of antibiotics including erythromycin, clindamycin, penicillin, cefotaxime, ampicillin, and chloramphenicol. We continued the initial antimicrobial therapy during the hospitalization for 42 days. Control TEE examination revealed no vegetation. Because of the severe aortic and mitral regurgitation, the patient underwent an urgent aortic and mitral valve replacement. She recovered after surgery. In the 6th postoperative month there was no evidence of disease recurrence.

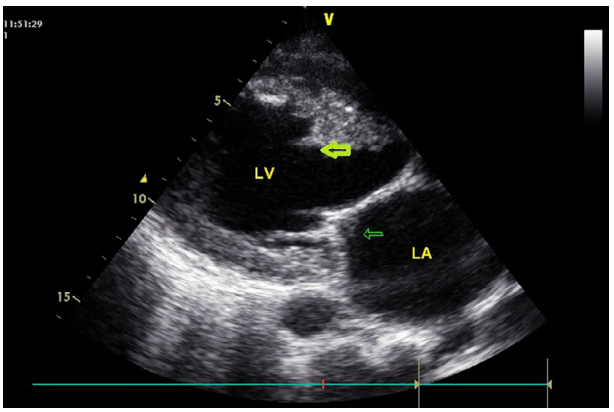

Figure 1. Transesophageal echocardiogram showing vegetation on the atrial side of the mitral valve and left ventricular outflow tract. LA = left atrium; LV = left ventricle.

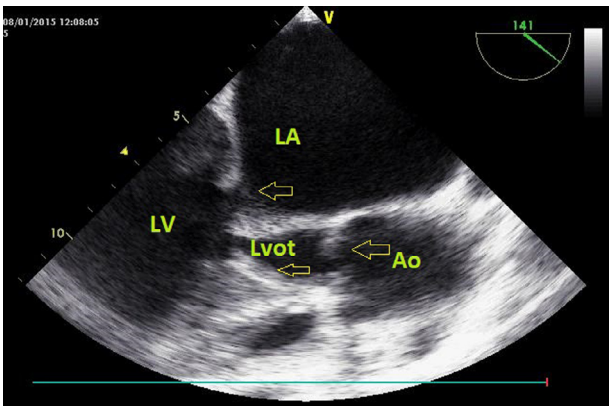

Figure 2. Transesophageal echocardiogram showing vegetation on the ventricular side extending to the mitral and aortic leaflet. Ao = aorta; LA = left atrium; LV = left ventricle; Lvot = left ventricular outflow tract.

Therapeutic challenge

This report highlights the nonspecific presentation of endocarditis caused by *A. defectiva* and the outcome may be improved by at least 6 weeks' appropriate therapy and surgical intervention. Infectious diseases particularly infective endocarditis caused by *A. defectiva* is extremely rare (5–6% of streptococcal endocarditis) and often associated with negative blood cultures [1]. In this case, bacterial identification requires proper attention. *A. defective* is a nutritionally variant streptococcus and forms part of the normal flora of the oral cavity, the genitourinary tract, and the intestinal tract [2]. Endocarditis due to nutritionally variant streptococci often reported in patients who have a previous history of dental procedure [3]. The patient had no history of dental intervention and no specific portal of entry was confirmed. However, tooth brushing is known to cause bacteremia, which could potentially lead to the development of infective endocarditis [4]. The interesting feature of the patient is resolution of manifestations for <4 days, which is one of the rejection criteria for infective endocarditis. The leading cause of difficulty in the diagnosis was related to the absent classic clinical manifestations of endocarditis. TTE can always detect the abnormalities of cardiac structure; however, we were not able to detect vegetation despite recurrent fever and bacteremia. If a patient with underlying heart disease presents with bacteremia and

endocarditis, the heart should be examined carefully by TEE. Because of its greater sensitivity and specificity, TEE is recommended particularly in the case of negative TTE [5].

The recommended therapeutic regimen includes penicillin and aminoglycosides such as gentamicin for 6 weeks. Treatment for <6 weeks can lead to treatment failure as presented here. Relapse developing in a patient may come from septic emboli that could not be detected by routine imaging methods. In contrast to the patient presented here, the relapse rates are low in the literature despite high rates of complications [1]. Most of the cases require surgical interventions despite appropriate antibiotherapy [6]. Although optimal timing of surgery remains unclear during the first attack of infection surgical intervention was suggested to the patient. Early surgery can implement severe complications and ease to control the infection [7]. The patient was treated with recommended antibiotic regimen and operated by replacing the both aortic and mitral valve.

The patient was on penicillin prophylaxis until age 37 years. The optimal duration of antibiotic prophylaxis in the setting of rheumatic fever is uncertain [8]. There are several factors associated with recurrence such as number of previous attacks, patient age, and risk of exposure to streptococcal infections so a case-based approach is preferable. Patient might continue antibiotics to prevent endocarditis. However, antibiotic prophylaxis for patients with rheumatic heart disease is no longer recommended for infective endocarditis [9].

Solution

A multidisciplinary approach is essential for the treatment of endocarditis, including contributions from cardiology, infectious diseases, and cardiovascular surgery [10]. Despite several admissions to a general practitioner and even hospitalization, the diagnosis of the patient was missed and delayed. In the case of valvular structural or congenital heart disease doctors should approach the case with suspicion.

This case demonstrates that *A. defectiva* might be considered as a causative organism of infective endocarditis with atypical clinical feature and relapses. Endocarditis should be considered in patients with recurrent fever and underlying valvular heart diseases. Prolonged courses of therapy of least 6 weeks should be considered to prevent relapse.

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