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◇ CASE REPORT ◇

Blood culture-negative infective endocarditis caused by *Bartonella henselae* diagnosed through repeated echocardiography: A case report

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Abstract

A 64-year-old man was admitted to our hospital with fever and fatigue. Blood cultures yielded negative results. Repeated echocardiography during hospitalization revealed marked exacerbation of mitral valve regurgitation, and transesophageal echocardiography revealed a vegetation (2. 65 × 1. 51 cm) attached to the mitral valve and perforation of the anterior leaflet. Blood culture-negative infective endocarditis due to *Bartonella henselae* was considered because of his cat ownership. The mitral valve was replaced. Polymerase chain reaction of the valve revealed *B. henselae* DNA. Minocycline was administered for 6 weeks, and gentamicin was administered for 2 weeks. No fever was observed after treatment, and the patient was discharged to home. As in this case, blood culture-negative infective endocarditis caused by *B. henselae* is difficult to diagnose because *B. henselae* is a fastidious microorganism that does not cause typical symptoms, such as fever and elevated white blood cell counts. The findings in this case, i.e., those revealed by repeated echocardiography, are important in diagnosing blood culture-negative infective endocarditis due to *B. henselae*. Additionally, diagnosis is time-consuming, and the infection tends to progress. Therefore, surgical intervention should be considered when it is diagnosed.

Keywords

blood culture-negative infective endocarditis, *Bartonella spp.*, *Bartonella henselae*

1. Introduction

Blood culture-negative infective endocarditis accounts for approximately 31% of cases of infective endocarditis[1)]. *Bartonella spp*. usually cause blood culture-negative infective endocarditis. Among its strains, *Bartonella henselae* is the most likely to be transmitted to humans from cats. Blood culture-negative infective endocarditis caused by *B. henselae* lacks typical symptoms, making it difficult to diagnose and often delaying appropriate treatment. Herein, we report a case in which blood culture-negative infective endocarditis due to *B. henselae* was diagnosed based on repeated echocardiograms, revealing exacerbation of mitral regurgitation, and in which surgery resulted in a favorable outcome.

2. Case report

A 64-year-old man was admitted to our hospital in late June after intermittently experiencing a fever of approximately 37°C since around April, accompanied by a general sense of fatigue, which had progressively worsened over time. The patient was diagnosed with high blood pressure and diabetes 12 years previously, for which antihypertensive medication and insulin had been prescribed. His occupation was a designer, his height was 180 centimeters, and his weight was 80 kilograms. He consumed alcohol once a week and smoked 60 cigarettes a day from the age of 20 to 50. The patient's vital signs included a body temperature of 37. 6°C, blood pressure of 131 / 75 mmHg, and heart rate of 110 beats/min. No wheeze and crackles were auscultated in the lungs, and Levine grade three-sixths systolic murmur with maximal intensity at the cardiac apex was noted. Pitting edema and petechiae were observed in both lower legs, and there were no rashes on the limbs. An electrocardiogram revealed sinus rhythm, and chest radiography revealed cardiomegaly and a small amount of pleural effusion. Blood tests revealed a white blood cell count of 5, 800 /μL, C-reactive protein level of 2. 88 mg/dL, Hb of 6. 7 g/dL, and HbA1c of 5. 4%. Transthoracic echocardiography on admission revealed left ventricular end-diastolic dimensions (LVDD) of 71 mm, left ventricular end-systolic dimensions (LVDS) of 47 mm, ejection fraction (modified Simpson's method) of 62%, and moderate mitral regurgitation. The anterior leaflet of the mitral valve exhibited calcification. No prolapse was observed. The etiology of mitral regurgitation was presumed to be due to

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