

Abiotrophia defectiva endocarditis presenting with hemiplegia

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Received: November 01, 2012; Revised: January 30, 2013; Accepted: March 03, 2013

Abiotrophia defectiva was previously known as a member of the nutritionally variant streptococcus (NVS). This microorganism is a member of the normal flora of mouth, urogenital and intestinal tracts. It causes various infections such as bacteriemia, brain abscess, septic arthritis and rarely infective endocarditis. Only <1% of all cases of endocarditis are caused by *A. defectiva*.

A 23 year old previously healthy female was admitted to emergency department for left hemiplegia. On physical examination, petechial rashes were detected on her palmar and plantar regions. Magnetic resonance image of brain revealed acute enfarctus in the striatocapsular area, and total occlusion was detected in right median common arterial segment M1 with magnetic resonance imaging angiography. Urgent thrombectomy was performed. Echocardiography demonstrated a mobile vegetation on mitral valve leaflet.

Infective endocarditis was diagnosed and ceftriaxone at 2gr/day and vancomycin at 2 gr/day doses were started. *A. defectiva* was isolated in blood cultures. Antibiotics were changed to ampicillin/sulbactam at 8 gr/day and vancomycin at 2 gr/day doses. Infective endocarditis caused by *A. defectiva* and other nutritionally variant streptococci are reported to have a higher mortality, morbidity and complication rates. In the current communication we report this rather rare case of infective endocarditis.

Keywords: *Abiotrophia defectiva*, Endocarditis, Hemiplegia, Streptococci

1. Introduction

Abiotrophia defectiva was previously known as a member of the nutritionally variant streptococcus (NVS) (1). The NVS was first described in 1961 by Hirsch and Frenkel as new types of viridans streptococci according to phenotypic characteristics (2). This microorganism is a member of the normal flora of mouth, urogenital and intestinal tracts. It causes various infections such as bacteriemia, brain abscess, septic arthritis and rarely infective endocarditis (3, 4). Only <1% of all cases of endocarditis are caused by *A. defectiva* (1). *Abiotrophia* species causing endocarditis represent 5-6 % of all streptococcal endocarditis cases (5).

2. Case Presentation

A-23-year-old previously healthy female admitted to emergency service of a university hospital with complaints of left hemiplegia for a few hours. The patient had a history of left leg pain for 3 months. Also, there was his-

tory of a tooth extraction followed by intermittent fever and maculopapular rash on her legs at the beginning of the leg pain. These symptoms were resolved without any treatment. A few weeks later, symptoms were resurfaced and the patient was given methotrexate 10 mg /week + prednisolone 10 mg/day with the diagnosis of rheumatoid arthritis ten days before.

On admission, her temperature was 36.8°C, and the pulse was 98 beats per minute, with the blood pressure of 162/104 mmHg. On physical examination, petechial rashes were detected on her palmar and plantar regions. Her blood values were; white blood cell count, 7.860/mm³; hgb, 9, 8 g/dL; platelet count, 266.000 /mm³; C-reactive protein (CRP), 2,12 mg/dL; erythrocyte sedimentation rate (ESR), 72 mm/h. Previous laboratory result for rheumatoid factor were 25, 6 IU/mL and C-reactive protein was 9,13 mg/dL. The magnetic resonance images of the brain revealed acute enfarctus in the striatocapsular area and a total occlusion was detected in the right median common arterial segment M1 with MR angiography (Figure 1).

Implication for health policy/practice/research/medical education

A. defectiva must be remembered by clinicians and microbiologists in cases with bacteremia and endocarditis. Favorable outcome can be reached with early diagnosis, efficient and prolonged antibiotic treatment and surgical management by multidisciplinary approach in this rare but risky disease.

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Urgent thrombectomy was performed. Echocardiography demonstrated a mobile vegetation on the mitral valve leaflet. Infective endocarditis was diagnosed using modified Duke's criteria (6). Ceftriaxone 2gr/day and vancomycin 2 gr/day were started to the patient. On the 3rd day after the treatment, her femoral pulse disappeared and femoral thrombus was detected with doppler ultrasound. Femoral thrombectomy was done concurrently with mitral valve replacement.

Three sets of blood cultures were positive for Gram-positive coccobacillus. Gram-positive coccobacillus grown in chocolate blood agar was identified as *A. defectiva*. Antibiotic was changed to ampicillin/sulbactam 8 gr/day + vancomycin 2 gr/day. Blood cultures collected at the end of the first week of antimicrobial treatment were sterile. Antibiotics were continued for 6 weeks where ampicillin/sulbactam mono therapy ensued after third week. At the end of therapy, laboratory findings were as follows: white blood cell count: 9.4000/mm³, hgb:11, 1 g/dL, platelet count: 413.000 /mm³, CRP:0,9 mg/dL, ESR:30 mm/h. By the end of six weeks, the patient recovered from endocarditis and discharged. However, the hemiplegia continued and physiotherapy was prescribed.

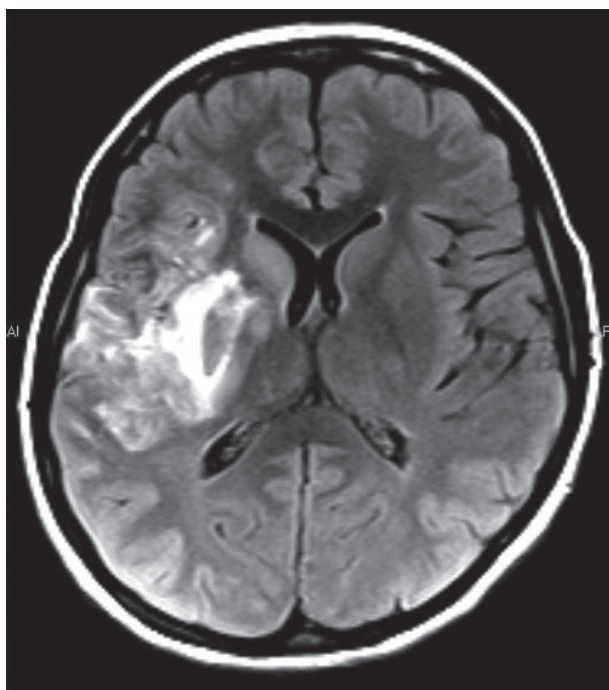


Figure 1. Axial T1W Mr Image Showed Subacute Phase Hemorrhagic Infarction Within the Right Middle Cerebral Artery (MCA) Territory

3. Discussion

Nutritionally variant streptococci were first described in 1961(2). Later, NVS was classified into *Streptococcus adjacens* and *S. defectives* in 1989. In 1995, *A. defectiva* was reclassified independently as *Abiotrophia* genus based on

RNA analysis (1). This fastidious microorganism has been reported to be a common cause of culture-negative bacterial endocarditis (7). Prior heart disease such as congenital valvular heart disease or heart valve prosthesis, dental manipulations were considered as risk factors for *A. defectiva* endocarditis as another streptococcal endocarditis. The antibiotic regimen of *A. defectiva* endocarditis should include penicillin or ampicillin plus an aminoglycoside or vancomycin in case of antimicrobial resistance for 4 to 6 weeks (1, 3, 5).

Infective endocarditis caused by *A. defectiva* and other NVS has a higher mortality, morbidity and complication rates than those caused by other viridans streptococci. The identification and cultivation of *A. defectiva* is very difficult because it is a delicate microorganism which grows rather gently and scarcely than other streptococci (1, 3). In case series of endocarditis caused by NVS; relapse occurred in 17% of cases, bacteriological failure in 41% of cases (8). Infective endocarditis due to *A. defectiva* progresses slowly, despite its sensitivity to antimicrobials nearly half of the cases need surgical management (4). This slowly growing microorganism can unusually result and present with such morbidity like cerebrovascular disease and hemiplegia as our patient. Morbidity and mortality rates are higher than those associated with other forms of viridans streptococcal and enterococcal endocarditis. Although the bactericidal effect was demonstrated in vitro, antibiotic therapy failed in 41% of patients. About 27% of patients required heart valve replacement surgery and mortality rate was approximately 20% (7).

Heart failure is the most serious complication of endocarditis and often requires valve replacement (3). Persistent sepsis, persistent vegetations, severe congestive heart failure and recurrent embolism are major indications for surgical management. *A. defectiva* caused endocarditis is difficult to cure (5). Prolonged antibiotic treatment is crucial whereas most cases need valve replacement. Previously, mortality and morbidity were reported even in cases with early diagnosis or appropriate antibiotic therapy (7). Our case underwent mitral valve replacement due to extensive valvular damage and recurrent septic embolism. In our patient, because of subacute presentation of the clinical features, the diagnosis could be made after embolization. During the 3 months between initial symptoms and diagnosis, the patient was not evaluated for infectious etiologies until the detection of the cardiac vegetation.

In conclusion, *A. defectiva* should be considered by clinicians and microbiologists in cases with bacteremia and endocarditis. Favorable outcome can be reached with early diagnosis followed by efficient and prolonged antibiotic treatment and surgical management by the multidisciplinary approach in this rare but risky disease.

Acknowledgements

None declared.

Authors' Contribution

None declared.

Financial Disclosure

None declared.

Funding/Support

None declared.

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