Presentation of Two Cases Diagnosed with *Brucella* Endocarditis

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Abstract

Brucellosis is an important disease in developing countries. Endocarditis is a complication of brucellosis with the highest mortality. Although the most generally accepted therapy is the combination of medication and surgery, it has been reported that antibiotic treatment only might also be adequate. We present two cases for whom antibiotic treatments were initiated, and a follow-up surgery was planned for one of them. The surgery could not be done due to death of the patient, but the other patient fully recovered with antibiotic treatment only. Optimum treatment and prognostic criteria are not well defined for brucella endocarditis, but medical therapy alone can be considered for some chosen patients.

Key words: brucellosis, brucella endocarditis, zoonotic infections

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Introduction

Brucellosis is a zoonotic infection that is endemic in Mediterranean and Middle East regions. It effects many systems and appears with different findings and symptoms. Endocarditis is a complication of brucellosis with the highest mortality. *Brucella* related endocarditis has been reported to be less than 1% of all brucellosis cases in some studies (1). The aortic valve is the most commonly affected region in *Brucella* endocarditis. The disease rarely involves mitral valve. Treatment of *Brucella* endocarditis is still a disputable issue (2). Although treatment is controversial, the most widely accepted practice is combination of medical and surgical therapies. While it has been mostly suggested to remove the infected valves and replace them in addition to aggressive antibiotic treatment, it has been reported that only antibiotic treatment might also be adequate (3).

In this report we present two cases of *Brucella* endocarditis. The patients were examined by transthoracic echocardiography (TTE) with the definitive clinical diagnosis made in accordance with Modified Duke criteria for the diagnosis of infective endocarditis (4). For one of the patients surgery was planned following an initial medical therapy, whereas for the other patient only medical therapy was chosen due to

a stable hemodynamic condition, lack of symptoms, and mild cardiac involvement. The patients had different outcomes even though their initial treatments were the same.

Case Report

Case 1

A 35-year-old man was admitted to hospital due to fever and weight loss. The patient had been diagnosed with chronic obstructive pulmonary disease and heart valve disease in his history. During the physical examination on admission his body temperature was 38.2°C. Diastolic murmur of grade 3/6 at aortic area, and systolic murmur grade of 2/6 in mitral area were found. *Brucella* agglutination tests (Rose-Bengal and Wright) were studied in serum sample. Both Rose-Bengal and Wright tests (the latter in a titer of 1/1,280) were positive. In transthoracic echocardiography examination, active vegetation was present on aortic valve with the size of 1×1.4 cm. A heart valve operation was planned-following a 6-week antibiotic therapy with rifampicin and doxycycline with a combination of streptomycin for 3 weeks. The patient, who developed respiratory and cardiac arrest on the 5th day of admittance, did not give response to resuscitation and died. After 2 days, *Brucella*

Figure 1. The transthoracic echocardiography showing vegetation on the atrial side of the anterior mitral leaflet (the circle shows the vegetation).

melitensis was isolated from blood culture drawn on admission.

Case 2

A 54-year-old woman visited our hospital for *Brucella* examination upon diagnosis of her husband with *Brucella* epididymo-orchitis. The patient, who had no characteristic symptoms in her history, had temperature: 36.8°C, pulse: 80/min, arterial blood pressure: 90/mmHg and systolic murmur of grade 2/6 at mitral area in the examination. Other system examinations were normal.

TTE showed 1.0×1.1 cm vegetation on the atrial side of the anterior mitral leaflet, consistent with infective endocarditis (Fig. 1). In laboratory examinations, the *Brucella* Wright titer was found to be 1/640. A vegetative formation on the mitral valve was seen in echocardiography examination. Rifampicin, doxycycline, and streptomycin treatments were given to the patient with diagnosis of *Brucella* endocarditis. *B. melitensis* was recovered from successive blood cultures and bone marrow aspiration culture. No valve operation was considered for the patient by cardiovascular surgery department. Nine-month medical treatment was planned for the patient. Streptomycin was ceased after 3 weeks and trimetoprim-sulphamethoxazole treatment was initiated. The patient is in the 8th month of treatment and her disease is still under control without any problems.

Discussion

Endocarditis is the most frequent cause of mortality in brucellosis. Endocarditis was found in 80% of fatal brucellosis cases (5). Sasmazel et al. evaluated 186 patients with a diagnosis of endocarditis; *Brucella* endocarditis was found in 13 (7%) of them (6). Different from endocarditis related to other bacteria, the *Brucella* endocarditis has tendency of fibrosis, hyalinization and calcification. Mortality in *Brucella* endocarditis is mostly related with heart failure. In 82% of the cases, aortic valve involvement was reported (7). Mitral valve involvement is less frequent.

Development of cardiac failure, hemodynamic failure, big

vegetation, existence of emboli, valvula damage, and abscess formation are the main surgical indications in *brucella* endocarditis (8). Erbay et al. presented a case of *Brucella melitensis* endocarditis complicated with a superior mesenteric artery aneurysm. In that case, since there was no intracardiac complication of *Brucella* endocarditis, and with medical therapy a significant reduction in the size of the vegetation on the mitral valve leaflets was noticed, they did not perform any cardiac surgery such as mitral valve repair or replacement (9). Medical therapy can be used for patients with mild cardiac involvement and with symptoms of short duration (10, 11). In the present second case, the patient is being treated only with medical therapy for those reasons. To our knowledge only 16 cases have been reported in the literature who have been cured with medical therapy alone (12).

In the present second case, the patient was diagnosed even though there were no symptoms. She was tested for brucellosis because her husband had been diagnosed with *Brucella* epididymo-orchitis. Serological screening of family members is generally suggested in endemic areas (13).

In conclusion, *Brucella* spp. should be considered as a causative organism among patients with endocarditis. And rare complications like endocarditis are possible in patients diagnosed with *Brucella* infection, as the brucellosis is endemic in Turkey. Medical therapy alone can be considered for some chosen patients with *Brucella* endocarditis. We think that the initial clinical presentation of disease is one of the major predictive factors even though optimum treatment and prognostic criteria are not well defined for *Brucella* endocarditis.

The authors state that they have no Conflict of Interest (COI).

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