A Rare Complication of Brucella Infection: Myocarditis and Heart Failure

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Abstract

Cardiac complications from brucellosis are unusual and usually manifest as endocarditis. The other possible complication is myocardial involvement. Brucella myocarditis and development of heart failure is a very rare complication of brucellosis. We present a patient with new onset heart failure due to brucella myocarditis treated with favorable antibiotic therapy.

Key words: brucella, myocarditis, heart failure

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Introduction

Cardiac complications from brucellosis are unusual, occurring in less than 2% of patients and usually manifest as endocarditis. The other possible complication of endocarditis is myocardial or pericardial involvement. Brucella myocarditis and development of heart failure is a very rare complication of brucellosis in the absence of endocarditis. Here, we present a patient with new onset heart failure due to brucella myocarditis treated with favorable antibiotic therapy (1).

Case Report

A 51-year-old Woman from the southeast part of Turkey who has routine contact with sheep was admitted to our clinic with a history of fatigue, sweating, dyspnea, orthopnea and paroxysmal nocturnal dyspnea for 3 months. Her axillary temperature was 37°C, heart rate 45/minute and the blood pressure was 140/70 mm/Hg. Clinical examination revealed muffled heart sounds, distended and tender abdomen with hepato-splenomegaly and also bilateral pretibial edema. Laboratory tests were as the follows: white blood cell count: 14.100/mm³ with 87% neutrophils, hemoglobin: 11.6 g/dL , platelet count: 127,000/mm³, erythrocyte sedimentation rate: 81 mm/h, C-reactive protein: 55 mg/dL, blood urea nitrogen: 10 mg/dL, creatine (Cr): 1.1 mg/dL, creatine kinase: 976 IU/L, creatine kinase MB fraction: 143 IU/L, troponin I: 14 IU/L, AST: 98 IU/L, ALT: 164 IU/L, GGT: 50 IU/L, ALP: 198 IU/L and LDH: 815 IU/L. Arterial blood gas analysis showed pH 7.39, pCO₂ 38 mm Hg, pO₂ 76 mm Hg with oxygen saturation of 82%. The remaining biochemical and coagulation tests were normal. Abdominal ultrasound showed diffuse fluid accumulation in intraabdominal space, dilated bowel segments and hepato-splenomegaly. Serological tests for hepatitis A-B-C, cytomegalovirus, toxoplasmosis and auto-antibodies were negative. Chest X ray showed bilateral minimal pleural effusion. ECG revealed a sinus bradycardia, ST-segment depression and T wave inversion in the anterior precordial leads. Transthoracic echocardiography displayed diffuse hipokinezia without segmental wall motion abnormality and ventricular dilatation with 10-15% ejection fraction. Transesophageal echocardiography was performed upon the diagnosis of endocarditis but no vegetation was reported. Brucella agglutination test was positive at a titer of 1/5,120. Blood culture was performed and it was positive, therefore streptomycin (1 g/day) and doxycycline (200 mg/ day) were started for the diagnosis of brucellosis; three weeks after initiation of treatment streptomycin therapy was stopped and doxycycline was maintained for six weeks. The brucella agglutination test showed a progressive decrease during the following three weeks (1/5,120, 1/2,560 and 1/ 640 IU/L) as with the other laboratory tests include creatine kinase, troponin I, AST, ALT, LDH, erythrocyte sedimentation rate, C-reactive protein. At the 3 month follow-up revision, the patient was asymptomatic, brucella agglutination
test was positive at a titer of 1/160 IU/L, and all laboratory tests had returned to the normal level and repeat transthoracic echocardiography displayed a normal heart image with 50-55% ejection fraction.

Discussion

Brucellosis is an anthropozoonotic infection with a very polymorphic, worldwide distribution especially in developing countries. It is frequently transmitted to humans via consumption of infected unpasteurized dairy products and direct contact with infected animal tissues. The prevalence of the disease is high in the Arabian Peninsula and Mediterranean countries. Turkey is also endemic country and the most common species is Brucella melitensis. Brucella infection has a wide range of clinical complications. Musculoskeletal, genitourinary, gastrointestinal, hematologic, nervous, skin and mucous membranes and respiratory complications are observed. Cardiovascular involvement is an unexpected complication of infection and usually manifests as endocarditis which remains the principal cause of mortality in the course of brucellosis. It usually involves the aortic valve and typically requires immediate surgical valve replacement (2-4).

Myocarditis and development of heart failure is a very rare occasion. To our best knowledge and review of literature only a few cases have been reported (5-7). The mechanism of cardiac damage is not clear but it may be due to the direct effect of the microorganism or local deposit of immune-complexes (8). If the bacteria cannot be demonstrated in pericardial fluid obtained by pericardiocentesis, the other possible causes should be excluded first and then diagnosis should be based on the symptoms, serological tests and blood cultures. Although brucella is an endemic infection, cardiac involvement from brucellosis is not common. The lack of cardiac involvement may be related to some local factors which preserve the heart or early diagnosis of infection. The patients with brucella myocarditis usually respond to antibiotic therapy well. According to previous reports Streptomycin (1 g/day/3 weeks) and doxycycline (200 mg/day/6 weeks) as in the present case or rifampicin (600 mg/day/6 weeks) and doxycycline (200 mg/day/6 weeks) may acceptable therapy regimens (5-7). Although it is unusual, brucella should be kept in mind as a cause of newly developed heart failure, especially in endemic areas because appropriate antibiotic therapy is lifesaving and may prevent unnecessary cardiologic interventions.

References