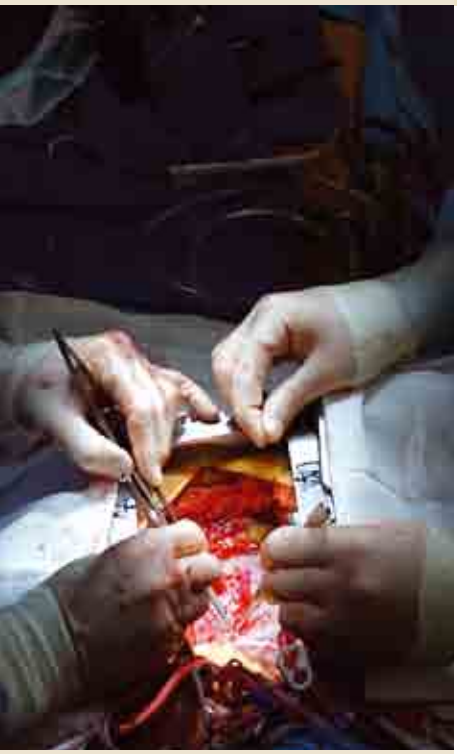
Aortic Valve Endocarditis. A Rare Presentation of Brucellosis



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Brucellosis is an extremely important disease around the world, especially in developing countries. Its clinical manifestations and severity vary with the patient population studied and the species of Brucella involved. Endocarditis is a rare focal complication of brucellosis but the most common cause of mortality.

We present a 35 year old man with brucellosis of Aortic valve with complete destruction of valve. Diagnosis was confirmed with echocardiography and surgery was done with excision of infected valve and aortic valve replacement was done.

Endocarditis was very uncommon presentation of brucellosis and aortic valve is the most common site for infection. Treatment was surgical and antimicrobial therapy, and mortality without treatment is very high.

Key words: brucellosis- cardiac infection- Aortic valve endocarditis-Aortic valve replacement

Introduction

Endocarditis is a rare and serious complication of brucellosis and is the main cause of death in this pathology. Diagnosis requires a high level of suspicion and is based on the association of epidemiological, clinical and serological elements (1). The most frequently presenting symptom was fever (60%). Dyspnea and fatigue were the other frequent symptoms in descending order. Valve pathology was present in 70% of the study population. The aortic valve was affected more than the mitral valve (2). Brucella endocarditis should be considered in the differential diagnosis in patients with vegetations on the cardiac valves, especially in endemic areas. Optimal therapy seems to be a combination of antibiotics and surgery (2).

Case Report

A 35 year old man was referred to our hospital with prolonged history of fever, weight loss, exertional and resting dyspnea. He was a known case of brucellosis with positive serology (Wright & 2ME) and was given antibrucella theraphy or few months. In physical examination was very cachectic and he had ortopnea and dyspnea. In auscultation of chest there was a diastolic murmur in aortic valve position. In laboratory of patient it was mild leukocytosis and other test was normal. Blood culture was positive for Brucellosis. In CX-Ray there was no important finding. In transthoracis echocardiography of patient there was bicuspid aortic valve and three large hypermobile masses were seen attaching to ventricular side of the valve suggestive of vegetations. The anterior leaflet was totally disrupted resulting to sever AR. The mass occasionally protrudes into the ostium of left coronary artery. No obvious mass was seen over mitral valve but pseudoprolapse of Anterior Mitral Leaflet due to sever AR Jet was seen and moderate functional MR. The patient was candidate for surgery and with medi-

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an sternotomy approach, CPB was done in standard fashion and cardiac arrest was done with cardioplegic infusion via anterograde and direct in coronary ostium after opening the Aorta. Aortic leaflet was completely destructed and leaflet was flaccid and a lot of vegetation especially in noncoronary and Right coronary leaflet of aortic valve was seen. After excision of aortic leaflet and cleaning of annulus and debridement, irrigation was done, Specimen was sent for pathologic examination, size of annulus was measured and aortic valve replacement was done with mechanical Aortic valve (n 21). Postoperative and recovery state was uneventful. Pathologic examination of aortic valve confirms endocarditis. Patient was discharge of hospital in 10 day after operation with antibiotic and in 2 months follow up was in good status.

Discussion

Brucellosis is a zoonosis transmitted to humans through the consumption of products derived from unpasteurized milk and through direct contact with infected animal remains. This means the disease is most frequently found among individuals who have regular contact with livestock and their products, such as shepherds, slaughterhouse workers and veterinary staff, as well as people working in microbiology laboratories, who become infected through inhalation of aerosolized particles (1). A zoonosis, Brucella, causes a special form of infectious disease named brucellosis. Any organ system may be affected, although the musculoskeletal, especially osteoarticular part, is the most commonly affected. Involvement of the cardiovascular system is relatively rare (2). Human brucellosis is a systemic disease that involves multiple organs and tissues concomitantly (4). The most common form of presentation being fever of unknown origin, together with constitutional symptoms such as asthenia, sweating and joint pain (1). As is usual in brucellosis, young men were infected more frequently than females. In addition they all had a history of ingestion of contaminated milk or milk products, more commonly non-pasteurized cheese. The predominant symptoms have been fever and dyspnea (NYHA class 3 or 4) (2, 3). Wright agglutination test in a titer of 1/160 or higher is very sensitive and specific for the diagnosis of brucellosis (2). Brucella endocarditis was diagnosed by physical examination, laboratory findings, serological tests, blood culture, transthoracic and trans-esophageal echocardiography and elevated ESR and CRP (3, 7). Etiological diagnosis is not easy; it requires a high level of suspicion and is based on the association of epidemiological data with serological test results or isolation of Brucella in previously collected blood or tissue samples. The sensitivity of blood cultures is extremely variable (15 to 70%), depending on the time elapsed between symptom onset and diagnosis, previous recent antibiotic therapy and culture conditions (culture medium and incubation time) Serological methods are more sensitive but have lower specificity, and are limited by the difficulty of interpreting results in endemic regions and the significant percentage of cases with late or no seroconversion (1). Transthoracic echocardiography plays a crucial role in diagnosing cardiac complications, and a transesophageal approach is required in some cases. However, in the presence of predisposing cardiac factors, the detection of Brucella bacteremia is equivalent to a diagnosis of endocarditis. The aortic valve is most frequently affected, with mitral valve involvement more common in cases of previous changes in its structure, as in rheumatic valve disease. The most common echocardiographic findings are vegetations, normally large, and ulcerations or abscesses, but any structural element of the affected valve may be involved. The most frequent complication is congestive heart failure, with an incidence of 75-90%, and the rate of embolic events is similar to that seen in endocarditis caused by other microbiological agents. Cardiovascular involvement is uncommon, and may present in the form of myocarditis, pericarditis, aortic root abscess or endocarditis, the latter being the principal cause of death (1). Endocarditis is a rare complication of brucellosis with an incidence of 1 to 2%; it is more common in patients with previous valve disease. It is a serious, potentially fatal condition, and pathological alterations typical of endocarditis are found in 80% of autopsy studies performed on patients who have died from brucellosis (1). The 70% of patients had underlying valve pathology for endocarditis. Brucella endocarditis affected the aortic valves more than the mitral valves as expected (70%). The 43% of the infected aortic valves had no predisposing pathology. All the affected mitral valves had rheumatic pathology (2). Brucella endocarditis is a rare type of endocarditis. In endemic regions, its prevalence is higher than in nonendemic parts of the world. It has a much higher mortality rate than endocarditis caused by other pathogens due to its rapid and wide tissue destruction. In addition, the high mortality rate might be due to late diagnosis of the in-

fection, because various diseases such as some malignancies might be considered as the cause instead of brucellosis. The predominantly involved valve in Brucella endocarditis is the aortic valve (2). Other cardiac manifestation of brucellosis is prosthetic valve endocarditis, myocarditis and pericarditis, pacemaker lead endocarditis, Aortic rupture, arterial thrombus, perforation of mitral valve (4-6). There is disagreement concerning the most appropriate treatment for brucella endocarditis, with uncertainties remaining regarding the most effective antibiotic regime and its duration, and the role and timing of surgical treatment (1). Because of limited data associated with Brucella endocarditis, there is no formed consensus about type and duration of optimal antimicrobial and interventional therapies (2). The least 4 weeks of combination antibiotic therapy before the operation was decided. After surgery, if the infectious condition continued in removed pathological material, histopathological antimicrobial therapy was continued at least 6 weeks postoperatively. If no evidence of infection was found, the therapy was stopped after an additional 2 weeks postoperatively (2). There is considerable uncertainty and controversy regarding appropriate treatment for this clinical entity, with questions concerning the most effective antibiotic regime and its duration, and the role and timing of surgical treatment. Traditionally, given the intracellular nature of Brucella (which makes it inaccessible to most available antibiotics) and the degree of tissue destruction, several authors recommend early surgical valve replacement, combined with preand postoperative antibiotic therapy. However, more recently, some authors have suggested a more conservative strategy for some patients based on medical therapy only, using a combination of antibiotic agents over a prolonged period, rejecting the idea that valve replacement is always necessary (1). The most effective regime and duration of antibiotic therapy have not been fully determined, although it is clear that a combination of antibiotic agents (with high intracellular penetration) for prolonged periods is necessary. Most authors recommend combination therapy with doxycycline and rifampicin for 8 to 12 weeks, together with an amino glycoside for the first four weeks of treatment. Alternatives include drugs such as trimethoprim-sulfamethoxazole, quinolones or streptomycin; the latter, in association with doxycycline, has been shown to have lower recurrence rates compared to rifampicin (1). All cases should undergo surgery after 4-6 weeks of medical therapy. Antimicrobial treatment was maintained for an average of 6 months after surgery (7). Tissue loss in most of the affected leaflets and vegetations were presenting all patients. Valve replacements were performed with mechanical and biologic prostheses (3). Combination of adequate medical and surgical therapy resulted in declined morbidity and mortality rate. The valve replacement with aggressive debridement is the most important part of the treatment, which should be supported with efficient preoperative and long term postoperative medical treatment (3). Patients with focal disease, such as spondylitis or endocarditis, may require longer courses of antibiotics, depending on clinical evolution (8).

Figure 1: After aortotomy, vegetation was seen in aortic leaflet.

Figure 2: Transthoracis echocardiography show vegetation in aortic valve.

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