

Successful treatment of *Brucella* endocarditis with aortic root abscess

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ABSTRACT

Brucella endocarditis is a rare but fatal complication of Brucellosis, it causes destructive valvular lesions. The aortic valve is the most common affected site. We present a case of *Brucella* endocarditis with aortic root abscess, the patient received a prolonged combination of antibiotic therapy, and underwent aortic valve replacement. After one and a half years of follow up, the patient is still without signs of recurrence. The high mortality in *Brucella* endocarditis can be overcome by early diagnosis and aggressive therapy.

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Brucellosis is a major zoonotic disease in several parts of the world, especially in the Mediterranean countries and the Middle East.^{1,2} It is endemic in Jordan with an estimated incidence rate of 2.9/100,000 population.^{2,3} The disease has various presentations and can localize in almost any organ. *Brucella* endocarditis is a rare focal complication reported in only 2% of cases.^{1,4} However, despite its rarity, it accounts for the majority of brucellosis related deaths.⁵ Treatment usually consists of surgical and prolonged antibiotic therapy.

Here, we present, with one and a half year of follow up, a case of *Brucella* endocarditis complicated by aortic root abscess and splenic infarcts.

Case Report. A 46-year-old man, a farmer who keeps sheep and goats and drinks raw milk, was admitted to Jordan University Hospital in January 2003 due to fever for 2 months prior to admission; the fever was associated with weight loss of 22 kgs, arthralgia, and night sweats (he used to change his clothes 3 times per night). Prior to admission he had positive *Brucella* titers, for which he received a combination of unknown antibiotics.

On admission, the patient's body temperature was 37.6°C. the patient looked sick, pale and had finger clubbing. The heart exam revealed an ejection systolic murmur radiating to the neck, and pansystolic murmur radiating to the axilla. In the abdominal exam, the spleen was felt just below the costal margin, but no hepatomegaly, no lymphadenopathy, no skin rash, and no arthritis. Chest x-ray was normal, electrocardiogram showed T inversion in lead II and III. His blood count values were: hemoglobin 9.4 g/dL; white blood cell $12.5 \times 10^3/\text{mm}^3$ (neutrophils 75%, lymphocytes 18%); platelets $401 \times 10^3/\text{mm}^3$. Blood film showed hypochromic microcytic red blood cells. His liver enzymes were normal. Abdomen computed tomography showed multiple splenic infarcts; with spleen size of 12.8 cm. The *Brucella* titer was 1/2560 by standard tube agglutination test. The blood and bone marrow cultures remained negative.

Transthoracic echocardiogram showed a mass that appeared to originate from the left atrium but no further details could be ascertained from this study. The transesophageal echocardiogram revealed an echogenic mass measuring 3 cm in diameter; it appeared to originate from the posterior wall of the

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ascending aorta and was compressing the aortic valve (Figure 1). These findings were consistent with aortic root abscess.

In the light of these findings, we diagnosed *Brucella* endocarditis. We started therapy with gentamicin (for the first 3 weeks), rifampicin (600 mg/day), and doxycycline (200 mg/day). At the time of diagnosis, the patient refused surgery, however, 2 months later he agreed to have aortic valve replacement; intraoperatively, he had a huge 3 cm abscess cavity with necrotic tissue and purulent material located underneath the noncoronary cusps, the opening was patched using a pericardial patch. Histological examination showed fibrin admixed with inflammatory cells. The tissue culture for *Brucella* remained negative. The antibiotics were continued for an additional 5 months following the surgery.

So far, it has been one and a half year since the surgery and the patient is still doing very well without signs of recurrence. His follow up echocardiograms did not show any prosthetic dysfunction, his *Brucella* titers dropped gradually; and his last titer was 1/80.

Discussion. *Brucella* endocarditis is a rare disease, in a recent review of endocarditis due to rare and fastidious bacteria the authors recorded 120 cases,⁶ it is also a serious disease and nearly always fatal if left untreated. It can affect native or prosthetic valves, the myocardium, or the pericardium; however, the aortic valve is affected in 80% of cases.⁷ The valvular lesions were described as bulky and ulcerative, with gross abscesses of the myocardium, microabscesses within the cusps, destruction of the commissures, and calcification. These observations help to explain the high fatality rate in *Brucella* endocarditis.⁶ The intense valvular destruction probably results from the delayed diagnosis rather than the supposed virulence of the bacteria.⁷

Therefore, it is important for physicians, especially in endemic areas, to be aware of this complication and to be able to recognize it. It should be suspected in cases of persistent fever and bacteremia, thromboembolic phenomena, and clearly, the visualization of vegetations.⁸

The most suitable therapeutic approach in *Brucella* endocarditis remains unclear due to the low number of cases reported, and the wide variation in treatment options used. Antibiotic therapy alone was successfully reported in few cases, however, combined antibiotic and surgical therapy remains the most accepted treatment, especially when heart failure occurs.⁷ The optimal combination and duration of antibiotics are unknown, however, the combination of doxycycline, rifampicin, and streptomycin were the

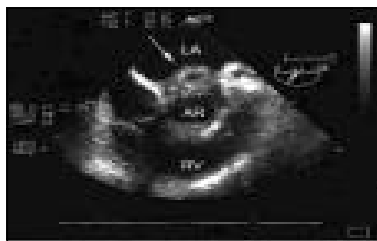


Figure 1 - Short axis view of transesophageal echocardiogram showing an echogenic mass that is 3 cm in diameter (arrow). It originates from the posterior wall of the ascending aorta and compresses the aortic valve. These findings are consistent with aortic root abscess. RV, right ventricle; LA, left atrium; AR, aortic ring.

most studied regimens, in different reports the duration ranged between 6 weeks to 12 months.⁹ In a series of 11 patients, treated uniformly with triple antibiotic therapy using streptomycin (for the first 3 weeks), rifampicin, and doxycycline for 3 months after surgery, there were no signs of relapse.⁷

Our patient was diagnosed on the basis of the clinical picture, serology, and echocardiogram findings; his cultures remained negative, mostly due to the fastidious nature of *Brucella*, and the prior use of antibiotics. Of note is the delayed surgical intervention in our patient; as it was carried out 2 months after diagnosing the aortic abscess, during that time he was kept on antibiotics, and although the aortic abscess did not resolve, he did not suffer from further complications.

In conclusion, *Brucella* endocarditis should be suspected early and treated aggressively, this approach is important to overcome the high fatality rate of this complication.

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