

Detached mechanical prosthesis due to *Brucella endocarditis*

Brusella endokarditinin neden olduğu mekanik protez ayrılması

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In this article, we report a case of detached prosthetic valve due to *Brucella endocarditis*, which was successfully treated with aggressive surgical debridement following preoperative antibiotic treatment.

Keywords: Brucellosis; endocarditis; surgery.

Brucella endocarditis (BE) is a rare complication of brucellosis, but it is the primary cause of mortality related to this disease.^[1]

Brucella appears to be a slowly destructive organism with a marked tendency toward tissue ulceration and the development of large vegetations. In addition, it is difficult to eradicate with medical therapy alone.^[2] To achieve a cure, removal and replacement of the infected tissue or prosthetic material has been recommended along with long-term antibiotic treatment.^[2]

Herein, we present a patient with a detached prosthetic valve due to BE who was successfully treated with aggressive surgical debridement following preoperative antibiotic treatment.

CASE REPORT

A 51-year-old male with a history of aortic valve replacement was admitted to the hospital with a fever that had lasted for two weeks along with weakness and polyarthralgia.

His vital signs, except for an elevated body temperature, were normal, and a 2/6 degree diastolic murmur was present on the left sternal border. Although he had moderate pretibial edema, there were no clinical signs of congestive heart failure.

Bu yazıda, ameliyat öncesi antibiyotik tedavisini takiben agresif cerrahi debridman ile başarılı bir şekilde tedavi edilen, *Brusella endokarditine* bağlı mekanik kapak ayrılma olgusu sunuldu.

Anahtar sözcükler: *Brusella* hastalığı; endokardit; cerrahi.

His erythrocyte sedimentation rate (ESR) (74 mm/h) and C-reactive protein (CRP) level (16 mg/dL) were elevated, but his leukocyte count was normal. Except for decreased serum protein and albumin levels (total protein: 4.86 g/dL and albumin: 2.12 g/dL), all of the laboratory test results were within normal ranges.

Transthoracic (TTE) and transesophageal echocardiography (TEE) revealed a dense and bright mobile mass (vegetation) on the entire surface of the posterior leaflet of the prosthetic aortic valve. Additionally, we observed another vegetation stuck to the subaortic portion of the interventricular septum (Figure 1 and 2). The maximum and mean aortic gradients were 38 mmHg and 25 mmHg, respectively, and second- to third-degree aortic insufficiency was present.

After positive blood cultures and *Brucella* agglutination tests (>1/1280), rifampicine, cotrimoxazole, and tetracycline were administered. The patient was then followed up with weekly echocardiography and blood cultures. After two weeks of this treatment and negative blood cultures, he was then scheduled for surgery.

During the reoperation, a totally detached aortic prosthesis was observed with a large vegetation attached to it. The infected mechanical prosthesis (Figure 1)



Available online at
www.tgkdc.dergisi.org
doi: 10.5606/tgkdc.dergisi.2014.10086
QR (Quick Response) Code

Received: December 26, 2012 Accepted: March 30, 2013

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Figure 1. Vegetation due to *Brucella endocarditis* on the aortic prosthesis.

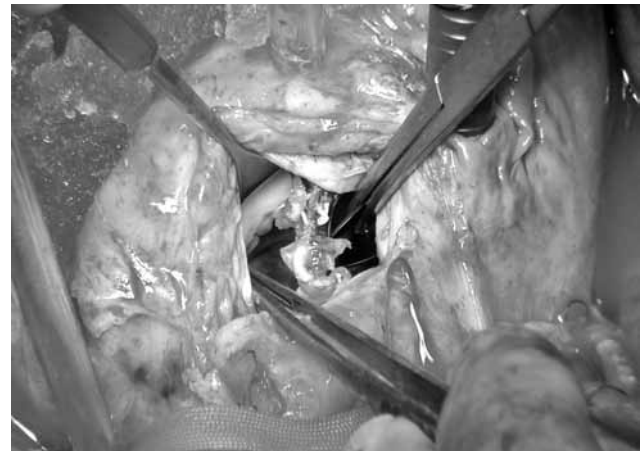


Figure 2. Totally detached aortic prosthesis.

was then removed, and excessive debridement of the remaining aortic annulus and wall was performed. The wall and annulus were washed with rifampicine, and a sorin bileaflet mechanical prosthesis was inserted with inverted pledgeted sutures. After being weaned off of cardiopulmonary bypass (CPB), TEE was performed, and this showed no paravalvular leaks, indicating that the prosthesis was functioning normally.

The postoperative period was uneventful, and repeated blood cultures yielded negative results. The same antibiotic regimen was continued. Furthermore, a postoperative echocardiographic examination revealed a functional mechanical prosthesis with a maximum gradient of 14.0 mmHg and no aortic insufficiency.

The patient was discharged at the end of the second postoperative week with oral antibiotics, which he continued to take for three months postoperatively. During the follow-up period, he was asymptomatic and had his blood cultures and seroagglutination tests were all negative.

DISCUSSION

Brucella endocarditis is an uncommon complication of brucellosis, with incidence rates ranging from 0.7 to 10.9%. Nevertheless, it is a severe complication with a high mortality rate.^[1-3] Although both native and prosthetic valves are affected, there are only a few reports in the literature of prosthetic valve endocarditis due to the *Brucella* species.^[2,4] Due to the slow growth rate of this bacteria and its need for a suitable culture medium, BE is often associated with a higher rate of negative blood cultures.^[5]

Treatment of BE is still a controversial.^[3] Both early surgical removal and replacement of the

infected valves as well as aggressive antibiotic treatment have been recommended. However, another study indicated that antibiotic treatment alone might be adequate.^[5] Currently, there is no consensus regarding the best medical treatment or drugs of choice for treating BE. Combinations of doxycycline, rifampicine, streptomycin, gentamicin, and co-trimoxazole have all been used with variable success rates.^[2,4,6,7]

Controversy also exists regarding the most appropriate time for surgical intervention. In general surgical practice, the indications for an operation are accepted as valvular insufficiency resulting in depressed refractory heart failure, sepsis caused by myocardial abscess and severe valvular involvement, and embolization.^[3]

In this case, antibiotic treatment with co-trimoxazole, rifampicine, and doxycycline was administered, and after two weeks, the patient was afebrile with negative blood cultures. However, TEE detected vegetations and severe aortic insufficiency. Although the patient was clinically asymptomatic, he underwent aortic valve replacement.

In conclusion, valve replacement following surgical debridement and adequate multiple antibiotic therapy may be sufficient for treating prosthetic valve BE if the disease is not complicated by severe cardiac failure. However, when symptoms of cardiac failure are prominent, emergency surgical intervention should be performed with an appropriate mortality rate.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

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