

The Role of Antibiotic Treatment Alone for the Management of Brucella Endocarditis in Adults: A Case Report and Literature Review

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Endocarditis is a rare complication of brucellosis but it is the main cause of the mortality in this disease. The accepted treatment for Brucella endocarditis (BE) is a combination of valve replacement and antibiotics. Conservative antibiotic treatment alone is not recommended by most of the authors as it is considered ineffective and increase the risk of fatality. In our literature search, we found 14 adult patients with BE treated only with antibiotics with a favorable outcome. In this report, we described a patient treated with antibiotics alone and reviewed the literature. Depending on the data from the growing literature and our patient we suggest that in selected patients with BE who do not have congestive heart failure, valvular destruction, abscess formation, or a prosthetic valve, conservative antibiotic treatment may be a valid alternative to surgery. (Ann Thorac Cardiovasc Surg 2002; 8: 381–5)

Key words: brucellosis, endocarditis

Introduction

Brucellosis is a systemic infectious disease caused by gram-negative bacilli, the genus *Brucella*. Almost every organ is involved in different degrees.¹⁾ Although *Brucella* endocarditis (BE) is a rare complication of brucellosis, it is the main cause of the mortality related to this disease.²⁻⁴⁾ By necropsy, endocarditis was found in 35 out of 44 patients who had died of brucellosis (80%).⁴⁾ Indeed when treated by antibiotics alone, this complication is usually fatal. Therefore the most effective therapy for BE is a combination of antibiotic administration with valve replacement.²⁾ To our knowledge, only 14 adult cases have been cured by antibiotic therapy only, which have been reported in the English-language literature.^{3,5-14)} We

report another patient with BE cured solely by medical treatment.

Case Report

A 60-year-old male was hospitalized in November 1997 with chills, fever, and back pain for seven days. He had a history of brucellosis in January 1997 and use of some antibiotics and also a relapse of brucellosis in July 1997. He had used doxycycline + rifampin, and developed rifampin-induced thrombocytopenia, then switched to ciprofloxacin (1,000 mg/d, per os (po), six weeks) + gentamicin (160 mg/d, intravenous (iv), two weeks) + prednisolone. He had also a history of acute rheumatic fever when he was 17.

On physical examination, blood pressure was 130/80 mmHg, pulse rate was 76 beats/min. Fever (axillary: 38°C) and splenomegaly (3 cm) were noted. An aortic systolic murmur (grade III/VI) and mitral diastolic rumble (III/VI) were audible. The remaining was normal.

Laboratory studies were as follows: hematocrit 31%, leukocyte 5,000/mm³ (granulocyte 80%, lymphocyte 20%), platelets 161,000/mm³, erythrocyte sedimentation

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Table 1. Clinical features of the patients with Brucella endocarditis treated with antibiotics treatment alone

Reference No.	Year	Age/sex	History of rheumatic fever	Underlying cardiac disorder	Time up to diagnosis (months)	Brucella type	Valve involved	Presence of vegetation	Presence of heart failure	Antibiotics used	Duration of treatment (months)	Duration of follow-up (months)
5	1954	25/M	(+)	Mitral stenosis and regurgitation, aortic regurgitation	1	B. abortus	Aortic	No echo	(-)	TS (24 d) + SM (10 d) + sulfadiazine (10 d)		36
6	1957	33/M	(+)	Mitral stenosis	1	B. abortus	Aortic	(-)	(-)	TS+SM	3.5	18
8	1985	40/F		-	5	B. abortus	Mitral	(+)	(-)	TS (2 m) + SM (14 d) + GM (21 d)		NA
7	1985	35/F		Mitral stenosis	1	B. melitensis	Mitral	(-)	(-)	TS+SM+RIF	1.5	12
7	1985	43/M		Heart failure	1	B. melitensis	Aortic	(+)	(-)	TS+SM+RIF	1.5	12
9	1989	51/M	(-)	Aortic regurgitation	6	B. melitensis	Aortic	(+)	(-)	DS (12 m) + RIF (3 m)		24
10	1989	30/M	(+)	-	6	Brucella spp.	Aortic	(+)	(-)	TS+RIF	3	6
11	1989	18/M	(-)	-	1	B. melitensis	Aortic	(+)	(+)	TS (42 d) + amikacin (16 d) + TMP/SMX (28 d)		2
12	1990	25/M	(+)	Aortic valve prosthesis	2	B. melitensis	Aortic	(-)	(-)	TS (42 d) + SM (38 d) + RIF (14 d)		NA
12	1990	31/F	(-)	Bicuspid aortic valve	1	B. melitensis	Aortic	No echo	(-)	TS+TMP/SMX	1.5	NA
12	1990	15/M	(-)	Marfan syndrome	1	B. melitensis	Mitral	No echo	(-)	TS+sulfadiazine	1.5	NA
13	1990	56/F	(-)	IHSS	1	B. melitensis	Aortic, mitral	(+)	(-)	pefloxacin	6	36
14	1993	42/M	(-)	Bicuspid aortic valve	3	Brucella spp.	Aortic	(+)	(-)	DS (7 m) + RIF (7 m) + GM (2.5 m)		12
3	1997	55/M	(-)	-	1	B. melitensis	Aortic	(+)	(-)	DS (6 m) + RIF (6 m) + GM (3 w)		12
Present case	1997	60/M	(+)	Aortic and mitral valve disorders	23 d	Brucella spp.	Aortic, mitral	(+)	(-)	DS+CIP+TMP/SMX	4	42

Echo: echocardiography, TS: tetracycline, SM: streptomycin, GM: gentamicin, RIF: rifampin, CIP: ciprofloxacin, TMP/SMX: trimethoprim/sulfamethoxazole, DS: doxycycline, IHSS: idiopathic hyperthrophic subaortic stenosis, d: day, w: week, m: month, SPP.: species, (+): present, (-): absent, NA: not available

Table 2. Incidence of various features in the two groups of patients with Brucella endocarditis

Feature	Medical and surgical treatment group (n=49)	Medical treatment alone group (n=15)	P value
Male (%)	39 (80)	11 (73)	NS
Female (%)	10 (20)	4 (27)	NS
Mean age	36	37	NS
Underlying cardiac disorders (%)	31 (63)	11 (73)	NS
Rheumatic (%)	10 (20)	5 (33)	NS
Prosthetic valve (%)	14 (28.5)	1 (6.6)	NS (0.08)
Brucella type			
B. melitensis (%)	24 (49)	9 (60)	NS
B. abortus (%)	7 (14)	3 (20)	NS
Unknown	18 (37)	3 (20)	NS
Aortic valve involvement (%)	38 (77.5)	12 (80)	NS
Presence of heart failure (%)	34 (70)	1 (6.6)	0.00
Mean duration from clinical onset to the diagnosis	2.5 months	2.1 months	NS
Types of cardiac involvement			
Vegetation (%)	25 (51)	9/12 (75)	NS
Abscesses (%)	14 (28)	0	0.02
Valvular destruction	12 (25)	0	0.03

NS: not significant

lished by Cohen et al.³⁾ We have reviewed and reevaluated all of the cases. The patients including ours are shown in Table 1. One patient was afebrile and only one had an undulating type of fever. Standard tube agglutination test (Wright) was not performed in two. The test was negative in one, three had a titer of >1/160 when repeated a few weeks later, and the remaining had an initial agglutination between 1/160 to 1/5,120. Embolic phenomena were encountered in three: two had splinter hemorrhages and one had hemiparesis with aphasia and facial paralysis. One developed disseminated intravascular coagulation. Clinical response to the treatment (being afebrile and feeling well) was observed within a mean of seven days (range: 2-18 days). The observation of disappearance of the vegetation was possible in two patients: those of both patients disappeared within two months. The majority of the patients were given a triple antibiotics therapy (tetracycline or doxycycline + rifampin + aminoglycoside or trimethoprim/sulfamethoxazole) for a mean duration of three months.

Several features of 49 patients with BE treated with medical and surgical treatment were compared with those of the ones treated with only medical treatment, and shown in Table 2. An important part of this table was obtained from the review of Cohen et al.³⁾

Kula et al. recently reviewed the cases of Brucella endocarditis in children during the past two decades.²⁵⁾ Their report included 15 children and cardiac surgery was performed in five patients.

In conclusion, the patients with BE are generally seen in developing countries where health services and especially surgical facilities are inadequate. On the basis of current data in the literature and of our patient, we suggest that antibiotic treatment alone may be an alternative in patients with BE without prosthetic valves, heart failure, abscess formation, or valvular destruction.

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