



Case Report:

Culture Positive Brucella Endocarditis in a Case of Baloon Mitral Valvotomy

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Abstract: Brucella endocarditis is a rare condition which occurs as a focal complication in chronic brucellosis cases. We report a rare brucella endocarditis case in a RVHD patient. A 26 years old male was admitted with fever on off for almost one year. The blood culture yielded growth of *Brucella melitensis* after ten days of incubation. Isolated colonies were reconfirmed as Brucella species by PCR study. Patient's serum tested positive for brucella slide agglutination test and STAT titer was 640IU. Echocardiography showed vegetation on mitral valve. Patient was treated with both medical and surgical intervention. After chemotherapy, patient's blood culture was sterile, slide agglutination & STAT (40IU) were negative. Repeat echocardiography showed no fresh vegetation. Considering high mortality rate (80%) in Brucella endocarditis, it is very important for clinicians to suspect it. Prompt antibiotic therapy and surgical intervention is life saving in fatal cases.

Key Words: Brucella; Endocarditis; Mitral valve.

Introduction:

Innovations in molecular microbiology, culture methods, and in echocardiographic techniques have led to the discovery of microbes which are rare causes of infective endocarditis. Brucella endocarditis is one such rare condition (2%) which occurs as a focal complication in chronic brucellosis cases.¹ Human brucellosis behaves as a systemic infection with very heterogenous clinical spectrum. The disease usually presents as fever out of which 20 to 40% cases manifest with focal forms. Endocarditis and cardiac failure is a leading cause of mortality (80%) in brucellosis. The clinical features are indistinguishable from endocarditis caused by other organisms. High degree of suspicion is required for early diagnosis of Brucella endocarditis.²

Case Report:

A 26 years old male patient, farm worker by occupation, was admitted in our hospital with history of mild to moderate grade recurrent fever, palpitation and dyspnoea for past one year. Patient had low backache, loss of weight, and diarrhea since 3-4 months.

Old record showed that patient was admitted in a local hospital for same complaints, thrice in last 8 months. He was diagnosed as a case of infective endocarditis and was treated with injectable ceftriaxone, on which fever was relieved every time. Patient was a known case of rheumatic valvular heart disease and

had undergone Balloon Mitral Valvotomy one and half years ago. On examination, patient was febrile, pallor present, JVP raised, tachycardia with minimal pedal oedema. Cardiovascular examination revealed diastolic and systolic murmur in mitral area. There was accompanying hepato-splenomegaly.

On investigations patient haemogram was within normal limits except Hb which was 7.1 gm% , ESR was 35, MP – negative, Widal and ASO –Negative, CRP – Positive, ECG showed atrial flutter – fibrillation. Chest X – ray showed cardiomegaly with mitral valve disease and early signs of heart failure. Echocardiogram showed large vegetation on anterior mitral leaflet. Three blood cultures, at intervals of 12 hours apart were sent to Microbiology dept. Patient was put on Inj. Ciprofloxacin and Gentamicin empirically along with Frusemide and Digoxin.



Figure 1: Culture on Brain Heart Infusion Agar showing Brucella colonies.

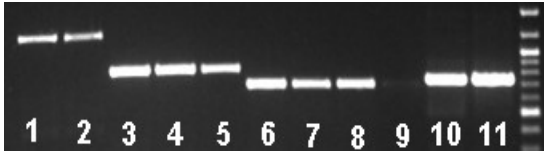


Figure 2: PCR amplification of Brucella specific proteins
Patients Sample: omp2a (Lane 1), 16 S FIR1 (Lane 5 ,6 ,7, 8), IS 711 (Lane 10)
Negative control: Lane 9.
Positive control: omp2a (Lane 2), 16 S FIR1 (Lane 3 ,4), IS 711 (Lane 11)

All three blood cultures were sterile after 48 hrs of incubation. However all three specimens on subculture showed growth on Blood agar plates after ten days of incubation. McConkey agar showed no growth. Gram stain of the colony revealed it as gram negative cocci. Cold ZN stain showed the cocci as acid fast organism. With high suspicion of Brucella species, biochemicals were put. The organism was oxidase, catalase positive with strong urease activity and H₂S was not produced. The organism was identified as *Brucella melitensis*. For confirmation culture was subjected for PCR study. It reconfirmed the species as *Brucella melitensis*. Brucella slide agglutination test was positive. Brucella standard tube agglutination test titre (STAT) was 640 IU.



Figure 3: Echocardiography before Treatment (Arrow - Vegetation on Mitral Valve)

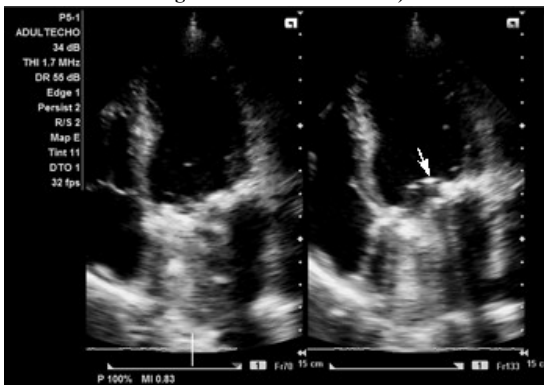


Figure 4: Echocardiography after Treatment (Arrow - Mechanical Valve, no fresh vegetation)

After culture report, patient's antibiotics were changed to Streptomycin, Rifampicin and Doxycycline. Within a week's time patient became afebrile and repeat blood culture was sterile. After stabilizing, patient was referred to CVTS centre for mitral valve replacement which was replaced by mechanical prosthesis.

After this surgical and six months of medical intervention, patient's follow up showed significant improvement in general as well as cardiac conditions. Besides weight gain there was neither breathlessness nor organomegaly. Brucella slide agglutination was negative. STAT titre was reduced to 40 IU. Repeat Echocardiogram showed no fresh vegetation.

Discussion:

Brucellosis is of great health significance and economic importance in many countries including India. Complications can be very diverse depending on site of infection.³ Brucella endocarditis is one rare but devastating complication of brucellosis. Other authors have reported similar cases of Brucella endocarditis.⁴ The severe destructive valvular lesions by Brucella spp. is caused by delayed diagnosis rather than intrinsic virulence of bacteria as in present case.⁵ Most commonly affected valve is aortic valve (75%).¹ In the present case mitral valve was involved, which may be due to preexistence of rheumatic valvular heart disease (affecting mitral valve).¹ Increased diagnostic and therapeutic vigilance is required for timely and efficient treatment of Brucella endocarditis.² Serology plays important role in diagnosis of brucellosis, but culture still remain as gold standard like in our case, though its sensitivity ranges from 17 – 85 %.¹ Another interesting fact is that even though STAT titre was low, culture was positive. Culture positivity in the case may be explained on the basis that, patient may have presented in acute on chronic condition with inadequate chemotherapy. PCR though sensitive, has its own limitation of resources.²

Being an intracellular microorganism and because of its tissue destructive capacity, medical as well as surgical intervention is required as in above case.⁴ Diagnostically what we feel is, there should be high degree of suspicion of Brucella endocarditis, especially in patients with cardiac symptoms with a history of close association of animals or simply of living in rural areas.

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