Case Report

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Septic Mono – Arthritis of Hip Joint Due to *Brucella Melitensis*: Case Report

Microbiology Section

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ABSTRACT

A bacteriologically proven case of *Brucella* arthritis, due to *Brucella melitensis* is being reported in a 14–year–old male. The patient presented with fever, low back pain and unable to bear weight on right lower limb. Blood cultures yielded *B. melitensis.*

Key Words: *Brucella melitensis*, Septic monoarthritis, Blood culture

INTRODUCTION

Brucellosis is a febrile disease capable of masquerading a myriad of entities, both infectious and non-infectious. The disease has a tendency towards chronicity and persistence, becoming a granulomatous disease capable of affecting any organ system [1,2]. The disease remains the world's most common bacterial zoonosis, [3] Despite being endemic in many developing countries [3] brucellosis remains underdiagnosed and under-reported [4] due to the difficulty in isolating the organism by routine methods and its slow growth. Prolonged incubation, more than 5 days under CO_2, often result in the growth of *Brucella*.

CASE REPORT

A 14-year-old male presented with severe low back pain and inability to bear weight on right lower limb of one week duration. The patient complained of low grade fever for the past 20 days with loss of appetite and loss of weight. He gave a history of chicken pox one month back.

On examination, patient was conscious, co-operative and haemodynamically stable. Local examination of right hip revealed painful and restricted hip movements with localised tenderness over iliac crest, ischial tuberosity and greater trochanter. In view of the fever and arthritis, a clinical diagnosis of reactive arthritis was made and the patient was further investigated.

Two sets of blood cultures (Bact/alert standard aerobic and FAN aerobic bottle per set, *bioMerieux, La etoile, France*), were submitted to the microbiology department. Hematological investigations revealed a hemoglobin level of 12.4 g/dl, a platelet count of 3.1 lakh/ dl, and a white cell count of 5500/ mm3. C-reactive protein was negative (< 6 mg/L). Blood biochemistry was normal. Plain roentgenograms of the chest and spine and magnetic resonance imaging of sacroiliac joint were normal. HLAB27 was negative. A Computerised Tomography (CT) of the chest showed a pulmonary nodule in left lower lobe, probably of infective etiology.

The patient was administered etoricoxib, (selective COX-II inhibitor), 90mg orally per day along with other supportive therapy. The pain subsided with this therapy and he was discharged after 4 days of admission.

Microbiology results: One set of blood culture (standard and FAN aerobic) was positive after 2.7 days of incubation in the Bact/alert microbial detection system. A Gram's smear and subculture on 5% sheep blood agar & CPS ID (Chromogenic agar (*bioMerieux*) at 37ºC from the blood culture bottles were negative and sterile respectively. However, a 5% sheep blood agar subcultured and incubated in 5% carbon dioxide at 37°C, showed growth of tiny transluscent, non-heamolytic colonies after 48 hours of incubation [Table/Fig-1]. Gram's stain of these colonies showed faintly stained Gram negative

[Table/Fig-1]: Colony Morphology of B. melitensis on 5% Sheep Blood agar under CO_2 showing pin point white non-hemolytic colonies

coccobacili. The isolate was identified as *B.melitensis* with the Vitek 2 compact using ID GN card (*bioMerieux*) (99.5% probability).

Based on the microbiology reports, the patient was recalled for review and appropriate therapeutic management. Patient complained of continuous fever and pain in the hip region and further loss of weight and appetite even after receiving treatment for reactive arthritis and discharge from the hospital. There was no history of exposure to live stock or ingestion of raw milk. A tube agglutination test (*Brucella* M & A, Tulip Diagnostics, India) for anti *Brucella* antibodies was negative.

The patient was started on oral rifampicin, 450 mg once daily along with doxycycline, 100 mg twice daily and intramuscular streptomycin 1000 mg per day. The patient had a good reponse to this therapy and became afebrile and doing well on follow-up after 2 weeks.

DISCUSSION

Automated growth promoting systems, like the Bact/alert, help in isolating the organism within one week. In our laboratory, the time of detection for *Brucella species* is around 2.5 days. Any negative blood culture bottles, in a clinically suspected case of brucellosis, is unloaded from the system after 5 days and further incubated at ambient air in the incubator at 37^0C for another 7–10 days. A terminal subculture is done on 5% sheep blood agar incubated at 37^0C under 5% CO_2 for 48 hours. All positive cultures are identified using the VITEK2 system and the ID GN panel.

Blood culture is positive in 40–90% in acute cases and 5–20% in chronic and complicated cases of Brucellosis. In such cases bone marrow culture is a better and recommended specimen [5].

Antibiotic susceptibility is not routinely indicated, due to lack of resistance plasmids and thereby rare development of antibiotic resistance [5].

Serology using febrile agglutinins has a high rate of false negativity in complicated and chronic cases. However, ELISA for brucellossis is highly sensitive and specific [5].

In this case the serology was negative. Osteoarticular involvement is common in brucellosis, having been reported in 10–85% of cases from India and globally [6,7]. Also it can be associated with osteomyelitis and paraspinal abscesses [8]. However, the clinical picture of joint involvement can be misleading, and rather non-specific.

Sacroilitis, spondylitis and large peripheral joint involvement may occur in brucellosis, particularly common in young adults [9,10]. The usual presentation involves monoarthritis of a large peripheral joint, as was seen in our patient.

Although *B. melitensis* is a rare cause of *Brucellar* septic arthritis, it should not be excluded from the list of suspected organisms in endemic areas for the disease [11].

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