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Brucellosis, An Unusual Presentation of Convulsion: A Case Report from Azal Hospital, Sana'a – Yemen

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Abstract

Brucellosis is an enzootic infection caused by gram-negative coccobacilli, the most important of which is Brucella melitensis. Acute illness is associated with high swinging fever, rigor, lethargy, headache, myalgia, and arthralgia. Localized infection occurs in 30% of patients, particularly if treatment is delayed. We aimed to record a case of a female patient who presented with convulsions and high-grade swinging fever and was admitted to the medical ward, which revealed the diagnosis of brucellosis. The patient was treated for brucellosis until symptoms improved and was discharged to continue medication for up to 6 weeks. Our study highlights the necessity of high suspicion of unusual presentations when dealing with medical cases.

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1. INTRODUCTION

Brucellosis is a zoonosis first described in 1859 by Marston in Malta. Other names for the disease include Mediterranean Fever, Malta Fever and Bang's disease. The causative agent was found to be Brucella melitensis isolated by David Bruce in 1886. The other species were B. abortus, B. suis, B. ovis, B. neotomae and B. canis. B. maris was isolated from marine mammals in 1994 and found to be pathogenic to humans. In 1897, a new species, Bacillus abortus, was isolated by a Danish veterinarian, Bernard Bang, and named Bacillus abortus and found to cause contagious abortion in animals [1]. The primary sign of Brucella abortus infection is infertility, which can result in abortion and the birth of a frail fetus that may go on to infect other animals. In addition, brucellosis causes economic losses. In humans, the main symptoms are acute febrile illness with or without signs of localization and chronic infection [2, 3]. Moreover, Brucella melitensis and Brucella abortus are high contagious to camels [4]. Approximately half a million people are affected annually by brucellosis. The mode of infection is through milk products. The most common presentation is fever. Meningoencephalitis and cranial nerve palsies occur in 4-7% of cases. Culture is the most important investigation method for brucellosis; however, it is difficult and can be falsely negative. Agglutination tests are useful for the detection of various species of organisms [5, 6]. Pathogenic mechanisms of the disease in humans is still unclear [7]. When conducting surgical operations in countries with endemic brucellosis, extra precautions should be taken to prevent the spread of the disease [8]. Brucellosis can rarely be transmitted from mother to fetus, and if so, fetal death may occur due to prematurity [9, 10]. Brucellosis can also spread through the inhalation of airborne agents, but human-to-human infection is unusual [11]. The clinical presentation can vary from asymptomatic infection to severe symptoms, particularly fever, night sweats, and joint manifestations, and to a lesser extent, hepatic, cardiac, renal, ocular, and central nervous system involvement. Because travelers

may be infected, travel health physicians need to know the clinical presentation of patients with brucellosis and preventive strategies [12, 13]. The treatment of choice for brucellosis is a combination of doxycycline 100 mg twice daily for six weeks and gentamicin 5 mg/kg/day IV for the first seven days. The second choice consists of a combination of doxycycline and rifampin administered for 45 days [14].

2. OBJECTIVE

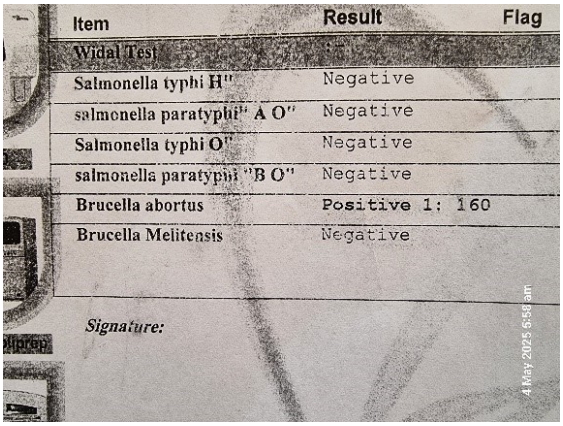
Our objective is to record this case of brucellosis that presented with convulsion. Convulsion is an unusual symptom of brucellosis.

3. CASE PRESENTATION

A 37 years old female patient reached the internal medicine outpatient clinic in the hospital with swinging high-grade fever with two bouts of convulsions. The patient was then admitted to the medical ward. The patient complained of fever, headache, fatigue, anorexia, arthralgia, and myalgia. Physical examination revealed a body temperature of 39 ℃, heart rate of 121, respiratory rate of 21, oxygen saturation of 93%, and blood pressure of 110/70. Chest auscultation showed good air entry into both lungs and no lower limb edema. Investigations showed hypokalemia but normal CBC, Brucella abortus, and random blood suger. Serological tests showed positive results as shown in figure (1), which was confirmed by two laboratories. Treatment was started with dextrose plus normal saline 500 ml 1 × 2, gentamicin 3 mg/kg/day, oral doxycycline 100 mg 1 × 2, IV pantoprazole 40 mg 1 × 2, IV ondansetron 4 mg 1 × 2, potassium chloride 20 milliequivalent 1 × 2, and paracetamol 1 g 1 × 3. After 48 h, the fever, headache, and arthralgia were relieved, and the overall health status of the patient improved. No further seizures occurred and the patient and his relatives were asked to leave the hospital for financial reasons. The patient was discharged against medical advice (DAMA) and asked to continue taking medication. Oral doxycycline 100 mg 1 × 2 and rifampin 300 mg 1 × 2 for 45 days.

4. DISCUSSION

The novelty of our work is that our patient first presented with convulsions for brucellosis, which is an unusual presentation. This convulsion was not due to cerebral pathologies, as shown in figure (2). Common symptoms and signs of brucellosis include fever, sweating, splenomegaly, and polyarthritis, particularly in the hip and knee [15]. Almost all these symptoms and signs were observed in our patient. Fever-induced seizures are most common in children but are less common in adults [16]. The mechanism of febrile seizures is not fully known, but it is thought to involve the release of



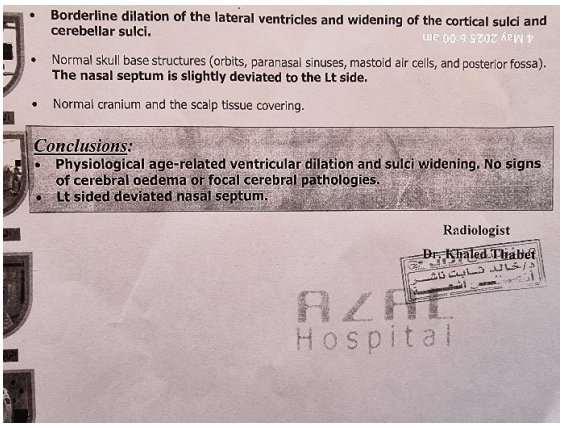
Item	Result	Flag
Widal Test		
Salmonella typhi H"	Negative	
salmonella paratyphi" A O"	Negative	
Salmonella typhi O"	Negative	
salmonella paratyphi "B O"	Negative	
Brucella abortus	Positive 1: 160	
Brucella Melitensis	Negative	

Signature:

4 May 2025 6:58 am

Figure 1. Positive test for Brucella abortus

cytokines, particularly CSF IL-1β and serum IL-6 [17].



- Borderline dilation of the lateral ventricles and widening of the cortical sulci and cerebellar sulci.
- Normal skull base structures (orbits, paranasal sinuses, mastoid air cells, and posterior fossa). **The nasal septum is slightly deviated to the Lt side.**
- Normal cranium and the scalp tissue covering.

Conclusions:
- **Physiological age-related ventricular dilation and sulci widening. No signs of cerebral oedema or focal cerebral pathologies.**
- **Lt sided deviated nasal septum.**

Radiologist
Dr. Khaled Thabet

AZAL Hospital

Figure 2. Brain CT scan showed no cerebral pathologies

Febrile seizures occur with a fever greater than 38 ℃ not associated with a central nervous system infection, not provoked by electrolyte imbalance, hypoglycemia, or substance abuse [18]. Two-thirds of febrile seizures are simple seizures, and only one-third are complex febrile seizures [19]. The latter was observed in our patient. Notably, antinuclear antibody (ANA) and double strand DNA autoantibodies were tested in our patient and showed negative results, excluding autoimmune causes of convulsions, especially systemic lupus erythematosus (SLE) [20].

5. CONCLUSION

Our study highlights the necessity of maintaining high medical suspicion to detect unusual presentations when dealing with medical cases, especially infectious diseases.

HUMAN ETHICS

Consent was obtained from the patient in this study.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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