



The Unusual Presentation of Human Brucellosis- Case Report

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Abstract

A 28-year-old male patient farmer by profession with no prior comorbid presented to us in clinic with complaint of fever and burning micturition. He was diagnosed with Urinary tract infection (UTI) which was treated with antibiotics. Three weeks later he presented to us with upper respiratory tract infection (URTI) and diarrhea for which symptomatic treatment was given. He presented to us after 1 week with left hip pain with difficulty on bearing weight. He had a normal range of motion (ROM) of hip. Inflammatory markers were raised. A diagnosis of reactive arthritis was made. He was treated with prednisolone 30mg. His symptoms were improving with steroids, but inflammatory markers were still raised. Two weeks after taking steroids, he presented with left hip pain and back pain. The movements were restricted over left hip. X-Ray left hip was normal. The C-Reactive Protein (CRP) was 97. Further blood tests were requested including ANA, Anti-strep, Rheumatoid factor, Brucella antibodies (IgM and IgG). The patient was then referred to rheumatology clinic. He had positive FABRE test and tenderness over SI joint. X-ray lumbosacral spine showed muscle spasm and patient was kept on NSAIDS and sulfasalazine. The following day after initiating sulfasalazine, the patient presented with worsening pain over both hips including SI joint. MRI pelvis was performed as an in-patient. MRI pelvis revealed sacral edema, fluid around SI joint, synovitis over superior aspect of SI joint. Minimal edema was seen on posterior aspect of iliopsoas muscle and obturator internus muscle. Brucella antibodies were positive. He was then kept on gentamycin 80mg twice a day for 5 days along with doxycycline and rifampicin for 6 weeks. He was safely discharged once his pain intensity was reduced after 1 week. He was followed up in clinic after 6 weeks. The brucella antibody titer was significantly reduced and the patient was asymptomatic.

Keywords: *Infection, Unprocessed Milk, Brucellosis, Diagnosis, Treatment.*

Introduction

Brucellosis is an infectious disease that is primarily caused by bacteria. It is characterized by the widespread involvement of various organs of the body. The symptoms usually develop within 2 weeks but sometimes it may take 3-5 months to appear after inoculation of the organism inside the blood [1]. It commonly occurs after the utilization of unprocessed goat milk that was infected with *Brucella Melitensis*. *Brucella* is a gram-negative spore-forming organism that primarily infects goats & sheep. The organism resides in a mononuclear phagocyte system within the infected host. There are six species of *Brucella*. Out of six species, four species commonly cause infection in humans namely, *Brucella Melitensis*, *Brucella Suis*, *Brucella Canis*, and *Brucella Abortus*. The *Brucella melitensis* is commonly found in goats and sheep, *Suis* in pigs, *Canis* in dogs, and *abortus* in cows [2] [3].

Animal and human brucellosis are peculiar among Asian countries such as Pakistan, Srilanka, and India [4] [5]. The number of clinical human brucellosis is increasing globally with over 500,000 new cases observed annually all around the world. *Brucella* was first isolated in animals in Malaysia in 1950. They commenced an eradication program for animal brucellosis in goats and sheep in 1978 [6]. On the other hand, brucellosis was first isolated in humans in 2010 in a 7-year-old boy when he consumed unprocessed goat milk. Even though human brucellosis is prevalent among children, it is also common among people who treat injured animals and farmers with a history of animal exposure. The positive serum titer for brucellosis was commonly seen among males of 20-45 years [7].

We are presenting a case report on human brucellosis involving a Yemeni national.

Case Report

A 28-year-old male farmer with no comorbid presented to us in the outpatient department (OPD) with a complaint of lumbar pain and fever for 1 week. He was vitally stable but febrile with an oral temperature of 102.0F. Urine detailed report (Urine DR) reveals infection which was treated with antibiotics according to culture and sensitivity (C&S). He then presented after 3 weeks with symptoms of URTI and diarrhea which was treated symptomatically. After 1 week, he presented with left groin pain for 3 days confined to the inguinal region. The doctor performed inflammatory markers such as ESR and CRP which were raised. He was discharged on analgesics and broad-spectrum antibiotics. He came for a follow-up after 1 week and was still complaining of low-intensity pain. His hip movements were painful; hence a diagnosis of reactive

arthritis was made. He was prescribed prednisolone 30mg by the doctor. After that he presented with back pain and right hip pain after 2 weeks of commencing steroids. The hip ROM was within range, but his CRP was raised. Other blood investigations such as ANA, Anti-Strep, RF, Brucella IgM & IgG were advised. He was then discharged on analgesics and asked to follow up with blood reports. 2 days later, he presented in the emergency department (ED) with bilateral hip joint pain and fever. The movements of both hips were globally limited. His CRP continued to be raised. Few blood reports were still awaited. X-Ray pelvis was within normal limits. The patient was now referred to the rheumatology clinic. He had a positive FABRE test and a tender bilateral sacroiliac joint on examination. Sulfasalazine and analgesics were prescribed at this stage. On the very next morning, he returned to ED with worsening pain. The patient was admitted, and an MRI of the pelvis was advised which revealed sacral and iliac surface edema, fluid in the sacroiliac joint, and synovitis on superior aspect of the sacroiliac joint. There was minimal edema with collection on the posterior aspect of the iliopsoas and obturator internus muscle and a diagnosis of infective sacroiliitis with peri-articular abscess was made. His Brucella antibodies were found to be positive. The patient was then kept on gentamycin for 5 days along with doxycycline and rifampicin for 6 weeks. He was discharged on the 3rd day of initiating treatment when his general condition was stable and pain intensity lowered. After 6 weeks, he came for follow-up with normal inflammatory makers, Brucella titer was dropping, and the patient was asymptomatic. The summary of events and specific action taken are presented in Table 1.

DATE	SYMPTOMS	LABS	PRESUMPTIVE DIAGNOSIS	ACTION
24/2/22	Lumbar pain, fever	Urine DR- >30 Pus cells Urine C/S- E-coli	UTI	Analgesics, antibiotics
10/5/22	Cough, diarrhea, fever	-	URTI	Symptomatic treatment
26/5/22	Left groin pain, fever	ESR- 52 CRP-46	Infective adenitis	Analgesics, antibiotics.
30/5/22	Left groin pain- low intensity ache	-	Reactive arthritis	Analgesics, steroids.
14/6/22	Back pain Right hip pain for 2 days	CRP-19.4	Reactive arthritis	Analgesics, continue steroids
16/6/22	On-going right hip pain.	RF- Negative ANA- Negative Anti-Strep- Negative ESR-28	-	Continue same treatment.
19/6/22	Bilateral hip pain with movements	CRP- 97 X-ray pelvis- within	Septic arthritis?	Analgesics Sulfasalazine

	globally restricted, fever	normal limits.		
22/6/22	Worsening pain in both hip joint and fever	MRI Pelvis-sacral and iliac surface edema, fluid in the sacroiliac joint, synovitis on the superior aspect of sacroiliac joint Brucella antibodies-Positive	Brucellosis	Gentamycin, Doxycycline, Rifampicin.
7/8/22	Asymptomatic	-	CRP- Within normal limit. ESR- Within normal limit. Brucella titer-Improving	Treatment stopped.

UTI- Urinary tract infection

URTI- Upper respiratory tract infection

ESR- Erythrocyte sedimentation rate

CRP-C-reactive protein

RF-Rheumatoid factor

ANA-Anti-nuclear Antibody

MRI-Magnetic resonance image

Table 1: Summary of Events and Specific Actions

Discussion

This was a case report of a male patient from Yemen but residing in Qatar, who presented with unusual symptoms of human brucellosis. Human brucellosis is more prevalent in Mediterranean regions such as Africa, Asia, and the Middle East. The annual incidence of human brucellosis varied globally. However, the WHO states that the annual incidence is higher than what has been recorded [8]. The factors responsible for the transmission of human brucellosis include consumption of unprocessed milk, humidity, contaminated environment, and social as well as economic factors that influence the transmission of human brucellosis. Patients with brucellosis present with fever, sweat, malaise, anorexia, headache, and fatigue.

Insomnia, night sweats, and joint pain are the non-specific symptoms associated with human brucellosis. To diagnose brucellosis, blood tests such as routine biochemical, hematology, and Brucella serology and cultures must be performed to isolate Brucella organisms. It is worth noting that in certain research, bone marrow culture is the gold standard modality used to diagnose human brucellosis. Blood cultures for Brucella isolation have been reported to be 80-90% sensitive in acute instances, but only 30-70% sensitive in chronic cases [9]. While the Rose Bengal test is rapid, it has a significant false-negative rate in chronic cases [10]. The most frequently accepted test to diagnose human brucellosis is the serum agglutination test. It is vital to explain that brucellosis therapy is related to lowering serum agglutination titer. The Coombs test is effective in determining relapse [11]. In 1986, the WHO suggested a six-week therapy regimen of rifampicin with doxycycline for patients with acute brucellosis. Doxycycline 100mg twice a day and rifampicin 450mg per day for 6 weeks is the current standard treatment modality used to treat patients with brucellosis [12]. Former research reveals that oral doxycycline with intramuscular gentamycin for 7 days is as effective as combining doxycycline with streptomycin for 14 days. Another research confirms that there is no difference regarding the type of combination used to treat human brucellosis. The treatment regime varies according to age [13] [14]. The treatment regimen according to age is presented in Table 2.

Age	Treatment regime
Less than 8 years	Trimethoprim-sulfamethoxazole and aminoglycosides OR Trimethoprim-sulfamethoxazole and rifampicin for 45 days.
More than 8 years	Doxycycline and rifampicin or rifampicin and gentamycin for 45 days. OR Rifampicin with ciprofloxacin for 30 days.

Table 2: Treatment Regime According to Age

The Center for disease control and Prevention recommends serial follow-up and prophylactic antibiotics in high-risk patients. The advantages of treating asymptomatic patients have not yet been established. It is worth notifying that treating asymptomatic workers with mild symptoms is easier than treating those with clinically apparent disease. Given that the incubation period ranges from one week to five months, exposed personnel must undergo extensive follow-up.

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