

A CASE REPORT ON CLINICAL HUMAN BRUCELLOSIS OUTBREAK IN KERALA

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ABSTRACT: Brucellosis is considered as a major health problem with a broad spectrum of clinical manifestations. This case involved a 50 year old female who was admitted to the hospital with complaints of itching all over the body, joint pain, on & off fever and cough. She developed a joint pain in the past 1 month, predominantly over the right ankle, progressed to the right knee then to left knee. She also had pain in both the wrists along with these symptoms. Patient complains of low grade fever which was on and off since 1 and half months associated with generalised weakness. She complained of cough, non-productive since 1 month. Her physical examination revealed a fever of 101⁰ and a systolic/diastolic blood pressure of 110/80mmHg. A complete blood count showed Hb: 9.7g/dl, PCV: 29, Rectics%: 0.8, Platelets: 2.8cumm, ESR: 140mm/hr, WBC: 7800. IGM brucella was done which showed high titre positive value as 4.8 (normal value <1.1). Tab.Rifampicin 600 mg 1-0-0 and Cap. Doxycycline 100 mg 1-0-1 was continued for 6 weeks and a proper follow up was done.

Keywords: Brucellosis, Human, Rifampicin, Doxycycline

INTRODUCTION

Brucellosis is a zoonotic infection transmitted from animals to humans by the ingestion of infected food products, direct contact with an infected animal or inhalation of aerosols^[1].

B. abortus, the causative agent of abortion in cattle and of brucellosis (undulant fever) in human beings^[2]. The disease, as a debilitating illness characterized by malaise, anorexia, fever and profound muscular weakness. The cells do not produce capsules, spores, or flagella. They do not grow well on media commonly used in microbiology laboratories. The main sources of *Brucella* are infected animals or their products, such as milk, cream, butter, fresh cheese, ice cream, urine, blood, carcasses and abortion products. Routes of transmission of the infection to humans include direct contact with infected animals and their secretions through cuts and abrasions in the skin, by the way of infected aerosols inhaled or inoculated into the conjunctival sac of the eyes, or via the ingestion of unpasteurized dairy products. The incubation period varies between 1 and 5 weeks and *Brucella* infection may be asymptomatic or symptomatic. The onset of symptoms may be acute or insidious.^[3]

The symptoms will vary according to the area affected:

Skeletal System

Skeletal complication in brucellosis is one of the serious medical problems and is frequently seen^[4]. Peripheral arthritis, sacroiliitis and spondylitis are the frequent skeletal complications of human brucellosis.^[5]

Nervous system

The common presentations include fever, meningitis, brisk deep-tendon reflexes, extensor plantars, sensory deficit usually below the twelfth thoracic vertebral level, weakness of lower limbs, ocular signs of papilledema, and retrobulbar neuritis^[6].

Cardiovascular System

Cardiovascular complications of this disease, such as endocarditis, myocarditis and pericarditis, are very rare, with even fewer cases of myocarditis or asymptomatic pericardial effusion in the absence of concomitant endocarditis being reported^[7].

Skin

A variety of skin lesions have been reported in patients with brucellosis, including rashes, nodules, papules, erythematous nodosum, eczematous lesions, psoriasis form lesions, petechiae, purpura and others^[8].

Gastrointestinal System

The gastrointestinal complications include complaints like diarrhoea, vomiting to more serious complications like involvement of the liver, the spleen and the gallbladder to rarely life-threatening complications like colitis, pancreatitis, peritonitis and intestinal obstruction^[9].

Diagnostic methods for brucellosis are primarily based on serology, with the LPS smooth chains producing the greatest immunological responses in various hosts^[10]. Bone marrow cultures may provide higher sensitivity, yield faster culture times, and

may also be superior to blood culture, when evaluating patients with previous antibiotic use. *Brucella* can also be cultured from pus, tissue, cerebrospinal fluid (CSF), and pleural / joint / ascitic fluid^[11]. Isolation of organism is time-consuming and hazardous, so must be performed by highly skilled personnel, so serological methods are preferred. Advanced serological methods like ELISA, Brucellacapt are more sensitive techniques. Combination of culture and serological test should be used to avoid misdiagnosis. Molecular assays come with high sensitivities and specificities and may reduce diagnostic delays in clinical laboratories. Several PCR based assays have been studied for standardizing them for brucellosis diagnosis. Another rapid, sensitive and inexpensive molecular technique, LAMP has been developed by designing primers specific for *Brucella abortus* genes. This technique can prove helpful in resource limited settings in developing countries^[12].

In 1986, the World Health Organization (WHO) recommended antibiotic regimen of oral doxycycline 100 mg twice a day for 6 weeks plus oral rifampicin 600 to 900 mg daily for 6 weeks or streptomycin 1g intramuscularly daily for 2-3 weeks for the treatment of brucellosis^[13, 14]. This treatment is accepted as the preferred treatment for most of the infectious diseases by specialists. Despite employing this regimen, treatment failure and relapse rise to between 5-15% cases^[13-15].

CASE REPORT

A 50 year old female was admitted to the hospital with complaints of itching all over the body, joint pain, on & off fever and cough. She is a known case of PCOD and she was treated for infertility in 2001, history of ruptured tubular pregnancy and cholecystectomy in 2003, h/o renal stones in 2014, right carpal tunnel syndrome operated and hypertensive. Itching was present all over the body predominantly over face. She developed joint pain in the past 1 month predominantly over the right ankle, progressed to right knee then to the left knee. She also had pain in both wrists along with these symptoms. Patient complains of low grade fever on and off since 1 and half months associated with generalised weakness. She complains of cough, non-productive since 1 month. Her physical examination revealed a fever of 101° and a systolic/diastolic blood pressure of 110/80mmHg. A complete blood count showed Hb - 9.7g/dl, PCV - 29, rectics % - 0.8, platelets - 2.8cumm, ESR - 140mm/hr, WBC - 7800cells/cumm, DC neutrophil - 74, lymphocyte - 20, eosinophil - 2, monocyte - 4, MCH 26.2pg, MCHC- 33.5g/dl, MCV - 78.2fL, SGOT - 45units/ml, SGPT - 42units/ml, ALP - 149U/L, LDH - 922.

The presence of fever during the hospital stay was managed with Tab. Paracetamol 650mg TID, Tab. Azithromycin 500mg 1-0-0. Fever was subsided but still joint pain and generalised weakness were present and patient had a history of consuming milkshake. IgM *Brucella* was done which showed high titre positive 4.8, (normal value <1.1). Tab. Rifampicin 600mg 1-0-0 and Cap. Doxycycline 100mg 1-0-1 was started.

General Examination

O/E Patient was conscious and oriented

Temp: 98.6° F; PR: 76/min; BP: 110/80mmHg; RR: 16/min

Weight: 76kg; Height: 152cm; BMI: 36kg/m²

No pallor, icterus, clubbing, cyanosis, lymphadenopathy or edema

Acanthosis nigricans present all over the neck, Hyperpigmentation present over the face

Systemic Examination

RS: Trachea central, B/L air entry equal, NVBS heard (+). No added sounds

CVS: JVP not raised. Apex left 5th intercostal space 1cm medial to mid clavicular line, S1, S2 heard, No murmurs.

GIT: Oral cavity normal, P/A soft non tender, Palpable liver 1cm below the right costal margin, spleen non palpable, Bowel sounds heard (+).

CNS: Conscious, oriented to time, place and person

Investigation Summary

CXR (5/7/17): Within normal limits

ECG (5/7/17): Within normal limits

PBS (5/7/17): Normocytic normochromic anaemia

USG abdomen (6/7/17): Fatty liver, gall bladder not visualised, post operative status

Stool occult blood (6/7/17): Negative

Serum protein electrophoresis (8/7/17): The electrophoretic pattern shows decrease in albumin region, alpha1, alpha2 and beta regions are increased.

IgM Brucella (10/7/17): Positive 4.8, (normal value <1.1).

DISCUSSION

The presented patient was initially misdiagnosed as Arthralgia and the patient was under evaluation to rule out hematologic disorder. Rheumatoid arthritis evaluation was negative (anti-CCP: negative, ANA:negative), so she was being worked up in view of low haemoglobin with elevated ESR. Stool occult blood was negative. However in view of elevated LDH, Haemolytic Anaemia work up was done. Peripheral Smear showed normocytic normochromic anaemia. Serum protein electrophoresis, coombs test were negative. In view of intermittent low spikes of fever prior to admission (during hospital stay had low grade fever for two days only) associated with Arthralgia, and on the basis of patient history interview (consumption of milk shake), IGM brucella was done which showed high titre positive 4.8, (normal value <1.1). Accordingly she was started on treatment with antibiotics (oral Rifampicin and Doxycycline) and for fever was managed with Tab. Paracetamol 650mg TID, Tab. Azithromycin 500 mg 1-0-0. Fever subsided and she became symptomatically better and is being discharged after 10 days with following advice: Tab. RIFAMPICIN 600 mg 1-0-0; Tab. DOXYCYCLINE 100 mg 1-0-1, regular follow up was done and showed normal haematological findings with a progressive reduction in the titre of the agglutination test for brucella.

CONCLUSION

Brucellosis is an infection with multiple presentations which can be easily spread from animals to humans and may cause severe complications. A thorough history of exposure and clinical suspicion were required since thresholds in serological evaluation may lead to misdiagnosis and withholding of adequate treatment. Doxycycline-Rifampicin combination therapy for 45 days was an effective combination and regular follow up was done.

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