

Clinical profile of brucellosis - A cross sectional study

Swapnil Ganeshpure, Sham Kamble

Department of General Medicine, Terna Medical College, Nerul West, Beside Sarsola Bus Depot, Navi Mumbai, Maharashtra 400706

Email: spganeshpure@gmail.com

Abstract

Background and Objectives: Human brucellosis is an important but neglected disease in India. It is traditionally described as a disease of protean manifestations. The aim of this study was to access the epidemiological, clinical and laboratory characteristics of brucellosis. **Methods:** In this cross sectional study, all the patients admitted with symptoms and signs suggestive of brucellosis were screened serologically for brucellosis by standard agglutination test. A total of 30 cases diagnosed as brucellosis were investigated in terms of spread of infection, age and sex distribution, clinical and laboratory characteristics and response to different treatment regimens. **Result:** Our study revealed a prevalence of 0.61 percent in adults and 0.1 percent in children. Fever with drenching sweats remained one of the most important symptoms of brucellosis. Other common symptoms were generalized weakness, anorexia, bodyache, joint pain and headache. Amongst the signs, hepatomegaly and splenomegaly were more common whereas lymphadenopathy was seen in only few cases. All patients responded to either of the drug regimens, namely rifampicin plus doxycycline or rifampicin plus streptomycin. Overall prognosis was good and none of the patients expired. **Conclusion and Interpretation:** It is concluded that brucellosis is a disease with protean manifestation with no single diagnostic symptom or sign. Brucellosis should be considered as a differential diagnosis in all cases of pyrexia of unknown origin, low backache, arthralgia, sciatica and in all cases of progressive weight loss


Key Words: Brucellosis; diagnosis; epidemiology; prevention; treatment.

*Address for Correspondence:

Dr. Swapnil Ganeshpure, 103/Sahil Heights, Near Govardhani Mata Mandir, Killa Gao, Opp to NMMC Head Office, cbd Belapur – 400614.

Email: spganeshpure@gmail.com

Received Date: 15/02/2017 Revised Date: 10/03/2017 Accepted Date: 17/04/2017

| Access this article online | |
|---|--|
| Quick Response Code: | Website: www.medpulse.in |
|  | DOI: 25 April 2017 |

INTRODUCTION

Brucellosis is a zoonosis widely distributed around the world. Gram negative bacteria of the genus *Brucella* cause it and *Brucella melitensis* is the leading cause of brucellosis in humans. It is transmitted directly or indirectly to humans from infected animals predominantly domesticated ruminants and swine. The illness is characterized by fever, sweats, weakness,

malaise and weight loss often without localized findings. Brucellosis is also called undulant fever, Malta fever or Mediterranean fever. Human brucellosis is an important but neglected disease in India. Only a few and recent studies have addressed the prevalence and importance of human brucellosis as a human disease problem in India. Human brucellosis is traditionally described as a disease of protean manifestations. Patients are often labelled pyrexia of unknown origin and subjected to various laboratory tests which do not include *Brucella* serology. This is because of the general perception that brucellosis is only seldom encountered in this part of the world. As the disease has a wide variety of clinical presentation, an attempt is made in this study to know the clinical presentation, diagnosis and complications of the disease in D.Y Patil School of Medicine.

AIMS AND OBJECTIVES

In our study, we aim to determine the epidemiological factors, clinical features and laboratory diagnosis and

complications of Brucellosis. Depending on the time duration, the disease is classified into 3 types.

1. Acute brucellosis
2. Subacute brucellosis
3. Chronic brucellosis

Complications of Brucellosis

1. Osteoarticular – Most common complication and exists in three distinct forms peripheral arthritis, sacroilitis and spondylitis
2. Neurobrucellosis- It is uncommon and diverse, and can affect any part of the central or peripheral nervous system.
3. Cardiovascular - Endocarditis is the most seen cardiac involvement. Endocarditis and vegetations may develop on damaged valves, prosthetic heart valves and especially normal valves, there seems to be high incidence of heart failure.
4. Hepatic complications – Hepatitis is common, usually manifesting as transaminasemia. Granulomas can be found.
5. Genitourinary complications – Epididymoorchitis in men and spontaneous abortion in pregnant females
6. Pulmonary complications – Lobar pneumonia and pleural effusions.
7. Ocular complications- Diplopia or amaurosis. Nummular keratitis, retinal thrombophlebitis and uveitis.

The absolute diagnosis of brucellosis requires isolation of the bacterium from blood or tissue samples. Bone marrow cultures are considered the gold standard for the diagnosis of brucellosis, since relatively the high concentration of brucella in reticuloendothelial system makes it easier to detect the organism. The treatment of human brucellosis should involve antibiotics that can penetrate macrophages and can act in the acidic intracellular environment. In 1986, WHO issued guidelines for the treatment of human brucellosis. The guidelines discuss two regimens, both using doxycycline for a period of 6 weeks, in combination with either streptomycin for two to three weeks or rifampicin for 6 weeks. Alternative drug combinations have been used, including other aminoglycosides (e.g gentamicin and netilmicin). Trimethoprim- Sulfamethoxazole is a popular compound in many areas, usually used in triple regimens.

MATERIALS AND METHODOLOGY

We studied a total of 30 patients of brucellosis and observed for various clinical manifestations of patients with brucellosis presented to us and also tried to look for

various laboratory parameters and complications of brucellosis.

Study Design: One year cross sectional study

Selection Criteria: A clinical compatible case presenting with any of the following

1. Fever of more than 10 days
2. Joint pains
3. Low backache
4. Bodyache
5. Generalized weakness.

Other diseases known to produce the symptoms in the present cases were ruled out by all possible investigations. A diagnosis of brucellosis was made according to the CDC criteria. Case classification: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e. Brucella agglutination titer of greater than or equal to 160 in one or more specimens obtained after onset of symptoms) Patients who are diagnosed to have brucellosis were examined according to the proforma and other relevant investigations carried out after obtaining informed written consent. The patient underwent the following investigations

1. Complete blood count
2. Urine routine
3. Serology (SAT, 2ME, PS for MP, QBC for MP, VDRL, Widal, ASLO)
4. Blood culture
5. Chest X ray
6. Other relevant and special investigations were carried out as and when required.

RESULTS

576 cases were screened for brucellosis and 30 cases of brucellosis were diagnosed. Out of these 30, 27 were from the medical wards and 3 cases were from pediatric wards. In the total of 30 patients, more number of cases i.e. seven cases each (23.33%) were in the age groups of 41 to 50 years and 21 to 30 years. Out of 30 cases, six cases (20%) were in the age group 41 to 50 years, five cases (16.6%) in the age group 21 to 30 years, three cases (10%) in the age group zero to 10 years and two cases (6.66%) in the age group 51 to 60 years. We observed that males are more commonly affected with brucellosis than the females. In our study 23 (76.66%) patients were males while 7 (23.33%) were females, male to female ratio been 3:1. In the present study, brucellosis was seen more commonly among farmers, shepherds and butchers. We observed that the rural dwellers, 26 patients (86.66%) were commonly affected than the urban dwellers , 4 patients (13.33%).

In the present study, 27 patients had history of contact with animals, while 3 patients did not have history of contact with animals. In the present study, history of raw milk consumption was present in 9 patients whereas 23 patients did not have history of raw milk consumption. In the present study, acute presentation of brucellosis was seen in 19 patients (63.33%), subacute in nine patients (30%) and chronic in two patients (6.66%).

Laboratory Parameters

The present study revealed that total leucocyte count is not much altered in brucellosis. It was found that ESR was between 20 to 40 mm at the end of first hour in 12 patients and more than 40 mm at the end of first hour in 14 patients. It was less than 20mm at the end of first hour in only four patients. In the present study, 21 patients had titres in the range of 1:160 to 1:640 and titres of 1:1280 and above were seen in nine patients. Blood culture was done in all the patients. It was positive in 11(36.66%) cases and negative in 19 patients (66.66%). CSF cultures which were done in two cases of chronic meningitis were negative. CXR did not show any signs specific for brucellosis in all the 30 patients. Bone marrow study was done in one patient, although diagnosis of brucellosis was already established serologically. ECG was normal in 29 patients and only one patient who was diagnosed to have aortic regurgitation with infective endocarditis showed evidence of left ventricular hypertrophy.

Treatment

All patients were treated with standard regimen of rifampicin plus doxycycline for 6 weeks or streptomycin for 3 weeks plus doxycycline for six weeks. 14 patients were treated with rifampicin plus doxycycline.

Complications

Neurobrucellosis and skeletal brucellosis, each of which were seen in six patients (20%) were the most common complications. Among the six patients of neurobrucellosis, three had radiculopathy, two had chronic meningitis and one patient had myelopathy secondary to brucellosis. Among the six patients of skeletal brucellosis, four had sacroiliitis, one had elbow arthritis and one patient had polyarthritis. Brucellar infective endocarditis was seen in one patient with rheumatic aortic regurgitation and one patient had epididymo-orchitis.

DISCUSSION

576 cases were investigated clinically, serologically, bacteriologically, and with other laboratory investigations

to confirm the diagnosis of brucellosis. Out of the 576 cases, 30 cases were diagnosed as brucellosis according to CDC criteria. Of the 30 cases, 27 were in adult patients and 3 cases were in the paediatric age group. In this study, more number of cases were seen in the age group of 11 to 50 years. In the present study males were more commonly affected than females. Most cases were from rural areas; indicating that brucellosis is still a disease of the rural population. We made an attempt of finding the source of infection in our study patients and found that 90 % had history of close contact with animals and 30 % of the patients had history of raw milk consumption. In the present study, acute and subacute type of presentation was more commonly seen than chronic presentation. In our study, symptoms like fever, sweating, generalized body ache, arthralgia, headache and low backache were more commonly observed symptoms. Less commonly observed symptoms were cough, dyspnoea and vomiting. In our study, signs like fever, hepatosplenomegaly, hepatomegaly and splenomegaly were common observations. Osteoarticular signs were also seen. Standard agglutination titres were positive in all the patients. In our study neurobrucellosis was seen in 20% of the patients. Musculoskeletal involvement is seen as the most frequent complication. In our study all the patients responded to both the drug regimens and no relapses were noted. No mortality was noted among the patients which in accordance the other studies. Brucellosis was of acute type in 63%, subacute type in 30% and chronic in 6.6% of the patients. Total leucocyte counts were not much altered in majority of cases of brucellosis.

REFERENCES

1. Corbel MJ. Brucellosis: an overview. *Emerg Infect Dis* 1997; 3:213-21
2. Mantur BG, Akki AS, childhood brucellosis - a microbiological, epidemiological and clinical study. *J Trop Pediatrics* 2004; 50: 153-7
3. Alumuneef MA, Memish ZA, Balkhy HH. Importance of screening household members of acute brucellosis cases in endemic areas. *Epidemiol Infect* 2004; 132: 533-40
4. Solera J, Lozano E, Martinez- Alfaro E, Espinosa A, - brucellar spondylitis: review of 35 cases and literature survey. *Clin Infect Dis* 1999; 29; 1440-9
5. Ariza J, Pigrau C, Canas C. current understanding and management of chronic hepatosplenic suppurative brucellosis
6. Pappas G, Boilkovski M, Akritidis M. Brucellosis and respiratory system. *Clin Infect Dis* 2003;37: e95-e99
7. Bannatyne RM, Jackson MC, Memish Z. rapid diagnosis of brucella bacteremia by using BACTEC 9240 system. *J Clin Microbiology* 1997; 35: 2673-4
8. Al Dahouk S, Tomaso H, Navarro E. laboratory based diagnosis of brucella- a review of literature. Part II: serology tests for brucella. *Clin Lab* 2003;49:301-5

9. Solera J, Geijo P, Largo J. A randomized, double blind study to asses optimal duration of doxycyclin treatment for human brucellosis. Clin Infect Dis. 2004;39:1776-82
10. Solera J, Martinez- Alfaro E, Espinosa. Recognition and optimum treatment of brucellosis. Drugs 1997;53:245-56
11. Corbel MJ, vaccine against bacterial zoonoses. J Med Microbiology 1997;46: 267-9
12. Bellissima P, Turturrici MA. Neurobrucellosis : clinical and therapeutic features. Incft Med 1998;6: 25-30
13. Khan MY. Brucellosis: observation on 100 patients. Ann Suadi Med 1986; 6: 519-523

Source of Support: None Declared
Conflict of Interest: None Declared