

A study of prevalence and sociodemographic characters of brucellosis at tertiary health care center

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Abstract

Introduction : Brucellosis is a disease, which may be termed as undulant in more sense than one, for like in grass, it steals silently towards its victim, whom it then strike down, not often for the grave but may be for weeks, months or even years of misery, disablement and frustration. **Aims and Objectives:** To Study Prevalence and Sociodemographic Characters of Brucellosis at Tertiary health care center. **Materials and methods:** The present study consists of cases selected from indoor admissions from the Krishna hospital and medical research Centre, admitted in the Krishna hospital and medical research Centre starting from January 2000 to December 2001. The patients of undiagnosed fever for one week with the routine investigation were included in this study, patients having common causes of fever like malaria, enteric fever, tuberculosis, U.T.I etc. with obvious and clear-cut diagnosis were rejected from this study. **Result:** Out of the 6 diagnosed cases the Antigens were BLP, AMP, BSK, KPK, SAP, and MC S respectively. Majority of the cases were Males i.e. 5 and 1 case was female. There were 6 cases one - 10-20 years, Two- 30-40 years, One- 40-50 years, Two- 50-60 years. By Occupation three were Farmers, One- Veterinary staff, One- Housewife, One - School boy. Most common symptoms were Fever- 11, Body ache- 7, Weakness- 6, Arthralgia- 4, Anorexia- 5. Hepalomegaly- 2, Splenomegaly- 3, lymphadenopathy- 1. By syndrome like Brucellosis the final diagnosis was Brucellosis – 6, Atypical enteric fever- 7, Chronic malaria- 8, Viral hepatitis – 14, Liver abscess- 8, Tuberculosis- 17, U T I- 6, Rheumatic fever- 4. **Conclusion:** In our study the most common symptoms were Fever, Body ache, Weakness, Arthralgia, Anorexia and most common occupations were Farmers, Veterinary staff, Housewife, School boy. There were 8.57% (6 out of 70) prevalence of Brucellosis among suspected brucellosis patients at tertiary health care Centre.

Keywords: Brucellosis Antigens BLP, Antigens AMP, Antigens BSK, Antigens KPK, Antigens SAP, Antigens MCS

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INTRODUCTION

Brucellosis is a disease, which may be termed as undulant in more sense than one, for like in grass, it steals silently towards its victim, whom it then strike down, not often for the grave but may be for weeks, months or even years of misery, disablement and frustration. This is not a remote lurking enemy, an enemy which neither the family

doctor nor the consultant be he a physician, surgeon, orthopaedician or any other kind of specialist, whosoever, can afford to ignore. The disease has multiple faces of its eradication is a challenge to the physicians. To comment that this is one of the most important and serious zoonotic diseases of the world will not be an exaggeration. In agricultural country like ours, this disease plays a major part in bringing about economic loss by affecting animals and man. It causes drop in the production of meat, milk and wood and other animal's products. In human beings, it produce a chronic illness resulting in physical incapacity and disability which on a national scale might turn into millions of rupees and man-hours per year. Therefore, awareness has been created in India and cases of human brucellosis have been reported from almost all states of India. In view of these facts. It was thought that a review of the knowledge about the incidence and epidemniology of brucellosis would be interesting and useful in indicating further research needed and measures

to be taken. In our country, the situation is a little different in most cases infection is derived from domestic animals e.g. sheep and goats as well as pigs, cattle buffaloes and horses. Deshpande K. Y demonstrated dogs and cocks as carriers of Brucella organisms. Mathur *et al* published reports of various authors and from his own work concluded that all human brucellosis in the different states of India are due to brucellamelitensis, acquired from goats and sheep, when there is apparent suspicion of cattle as the source of infection. Brucellosis is one of the important neglected bacterial zoonotic diseases that has affected animals and humans for decades^{1, 2}. The disease is caused by bacterial agent of genus Brucella. Human brucellosis is caused mainly by Brucella abortus, B. melitensis and B. suis, also the main causes of brucellosis in cattle, goats/sheep and pigs respectively^{1, 3}. Wild life animals are also equally affected and these may act as reservoirs to both domestic animals and humans⁴. Human infection is through contact with infected animals and ingestion of contaminated animal products such as milk, meat, or carcasses⁵⁻⁷. Brucellosis therefore, remains an occupational hazard to veterinarians, slaughter house workers, farmers and laboratory personnel, who commonly get in contact with the animals⁸. However, few cases of human to human transmission have been reported⁹. Human brucellosis has a wide clinical spectrum, presenting various diagnostic difficulties because it mimics many other diseases for example malaria, typhoid, rheumatic fever, joint diseases and other conditions causing pyrexia¹⁰⁻¹⁴. The disease manifests with continued, intermittent or irregular fever (hence the name undulant fever), headache, weakness, profuse sweating, chills, arthralgia, depression, weight loss, hepatomegaly, and splenomegaly and generalized aching. Cases of arthritis, spondylitis, osteomyelitis, epididymitis, orchitis, and in severe cases neurobrucellosis, liver abscesses, and endocarditis have also been reported in humans^{15, 16}. Endocarditis and infection of the aortic valves and other multiple valves with Brucella has been reported to cause an average of 5 % case mortality rate in humans^{17, 18}. Chronic cases are common and are due to the Brucella pathogen's ability to survive and multiply in macrophages, the major cells of immune response¹⁹. In humans, under diagnosis and under reporting is the major cause and consequence of chronic debilitating cases of the disease²⁰. The most important natural reservoir of brucella organisms is domestic animals, especially goats (5.5%), sheep (3.4%), pigs (16%), cattle (6.4%), buffaloes (4.9%) and horses (12.8%). In animals brucella tends to get localized in mammary glands and in the pregnant uterus. Healthy looking animals may shed large number of organisms in the milk for months or years. Host range: - a wide range

of hosts is one of the characteristics of "Brucellosis". Natural infection has been reported from a large number of species of vertebrates, mostly mammals and blood sucking arthropods like ticks, mites and other insects.²¹

MATERIALS AND METHODS

The present study consists of cases selected from indoor admissions from the Krishna hospital and medical research Centre, admitted in the Krishna hospital and medical research Centre starting from January 2000 to December 2001. The patients of undiagnosed fever for one week with the routine investigation were included in this study, patients having common causes of fever like malaria, enteric fever, tuberculosis, U.T.I etc. with obvious and clear-cut diagnosis were rejected from this study. Still those having uncommon manifestation of common diseases could not be excluded. Patients in whom diagnosis could not be established in one –weeks duration with all the routine investigations, which are mentioned below, were subjected to tests for brucella. Detailed history pertaining to the patients was noted and all patients were subjected to detailed investigation on following lines. Investigations: Temperature chart, Haemogram –hb-, WBC total/differential, Urine routine /culture –Widal test, Montoux test (T.T), Plain x-ray chest, Plain x-ray spines, Liver function test, Lymph node biopsy, Brucella antigen test, Standard tube agglutination test, Quick slide agglutination test All patients are subjected to standard tube agglutination test.

RESULT

In our study, we studied seventy cases of undiagnosed fever. Krishna hospital and medical research centre, Karad. Standard tube agglutination test, Quick slide agglutination test Out of seventy patients six cases were positive for tube agglutination test and all them showed positive agglutination on slide.

Table 1: Seropositive cases for brucellosis by brucella antigen test

OPD No.	Name	Age	Sex	Occupation	Agglutination titre
345378	BLP	35	Male	Farmer	1:160
342507	AMP	56	Male	Farmer	1:230
340542	BSK	40	Male	Cleaner on vehicle which carry animals	1:160
345153	KPK	20	Male	School Boy	1:160
382544	SAP	35	Female	Housewife	1:160
352191	MCS	60	Male	Farmer	1:240

Out of the 6 diagnosed cases the Antigens were BLP, AMP, BSK, KPK, SAP, MCS respectively.

Table 2: Sex distribution of patients

Sex	No. of cases
Male	5
Female	1

Majority of the cases were Males i.e. 5 and 1 case was female.

Table 3: Age distribution of patients

Age Group	No. of cases
0-10 Years	Nil
10-20 years	One
20-30 years	Nil
30-40 years	Two
40-50 years	One
50-60 years	Two

There were 6 cases one- 10-20 years, Two- 30-40 years, One- 40-50 years, Two- 50-60 years.

Table 4: Occupation distribution of cases

Occupation	No. of cases
Farmers	three
Veterinary staff	One
Housewife	One
School boy	One

By Occupation three were Farmers, One- Veterinary staff, One- Housewife, One - School boy.

Table 5: Symptomatology

Symptoms	No. of cases
Fever	11
Body ache	7
Weakness	6
Arthralgia	4
Anorexia	5
Hepalomegaly	2
Splenomegaly	3
lymphadenopathy	1

Most common symptoms were Fever- 11, Body ache- 7, Weakness- 6, Arthralgia- 4, Anorexia- 5, Hepalomegaly- 2, Splenomegaly- 3, lymphadenopathy- 1.

Table 6: Final etiological analysis of 70 cases of prolonged fever

Symptoms	No. of cases
Brucellosis	6
Atypical enteric fever	7
Chronic malaria	8
Viral hepatitis	14
Liver abscess	8
Tuberculosis	17
U T I	6
Rheumatic fever	4
Total	70

By syndrome like Brucellosis the final diagnosis was Brucellosis – 6, Atypical enteric fever- 7, Chronic malaria- 8, Viral hepatitis – 14, Liver abscess- 8, Tuberculosis- 17, U T I- 6, Rheumatic fever- 4.

DISCUSSION

Human brucellosis is one of the worldwide zoonotic diseases which can produce significant public health problem. The magnitude of this problem is not known. The global incidence of human brucellosis is not known because of the variable quality of disease reporting and notification systems in many countries. Worldwide, the only countries believed to be free of brucellosis are Norway, Sweden, Finland, Denmark, Iceland, Switzerland, the Czech and Slovak republics, Romania, the United Kingdom (including the Channel Islands), the Netherlands, Japan, Luxembourg, Cyprus and Bulgaria; the U.S. Virgin Islands are also free of the disease. Reports indicate that even in developed nations, the true incidence of brucellosis may be up to 26 times higher than official figures suggest.²² Consumption of imported cheese, travel abroad and occupation-related exposures are the most frequently identified source of infection. In communities where brucellosis occurs in children, the disease occasionally develops among farmers, meat-processing workers, veterinarians, and laboratory workers. In our study we have found that out of the 6 diagnosed cases the antigens were BLP, AMP, BSK, KPK, SAP, and MCS respectively. Majority of the cases were Males i.e. 5 and 1 case was female. There were 6 cases one - 10-20 years, Two- 30-40 years, One- 40-50 years, Two- 50-60 years. By Occupation three were Farmers, One- Veterinary staff, One- Housewife, One - School boy. Most common symptoms were Fever- 11, Body ache- 7, Weakness- 6, Arthralgia- 4, Anorexia- 5. Hepalomegaly- 2, Splenomegaly- 3, lymphadenopathy- 1. By syndrome like Brucellosis the final diagnosis was Brucellosis – 6, Atypical enteric fever- 7, Chronic malaria- 8, Viral hepatitis – 14, Liver abscess- 8, Tuberculosis- 17, U T I- 6, Rheumatic fever- 4.

CONCLUSION

In our study the most common symptoms were Fever, Body ache, Weakness, Arthralgia, Anorexia and most common occupations were Farmers, Veterinary staff, Housewife, School boy. There were 8.57% (6 out of 70) prevalence of Brucellosis among suspected brucellosis patients at tertiary health care Centre.

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