

UNEXPLAINED BRUCELLOSIS IN A 12 YEARS-OLD GIRL, A CASE REPORT

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ABSTRACT

Brucellosis is the most common zoonotic infection in the world. It is caused by a gram negative aerobic intracellular coccobacillus called Brucella. The most common modes transmission of the pathogen are the consumption of raw unpasteurized milk and other dairy products, inhalation of aerosols and contact with various bodily secretions (placenta, urine, blood) of the infected animal. All age groups are susceptible to human brucellosis, however, a considerable proportion of patients in endemic regions are younger than 14 years. Brucellosis is a neglected and endemic disease in Pakistan. We will be discussing a case of symptomatic brucellosis in a 12-year-old girl.

KEY WORDS: Brucellosis, prevalence, children, Pakistan

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INTRODUCTION

Brucellosis is the most common zoonotic disease in the world. It has an average yearly incidence of nearly 500,000 and prevalence of 10/100,000 people in some endemic areas.¹ In some developing regions of the world namely Indian subcontinent, parts of north and east Africa, parts of middle east brucellosis is very prevalent.² A study in Pakistan regarding the prevalence of Brucellosis showed (16%) 153 out of 250 subjects seropositive for Brucella with higher prevalence among people of rural areas as compared to urban areas.³ Four members of the genus Brucella usually cause infection in humans, *B. melitensis*, *B. abortus*, *Brucella suis*, and *Brucella canis*. Among them *B. melitensis* is the most virulent of all and involved in human Brucellosis.

The most common symptoms and signs in Brucellosis are fever, sweating, body aches, weakness, chills, headache, loss of appetite. Acute infection can also cause lymphadenopathy, splenomegaly and nonspecific gastrointestinal symptoms. A large proportion of patients of brucellosis are children with 20 to 30% of the total number accredited to be pediatric patients.⁴ An epidemiological study in Pakistan found that prevalence of

brucellosis among children and adolescents (10-20 years) was 16.66%.³ This is a case of brucellosis in a 12-year-old girl, who presented to the medicine clinic at Khyber Teaching hospital. She had no prior history of direct animal contact and did not recall directly consuming unpasteurized milk. However, her parents did admit to occasionally using unpasteurized milk to make tea which we believe to be responsible for the transmission of the bacteria in this case.

CASE REPORT

A 12-year-old girl presented to the outpatient department at Khyber teaching hospital, Peshawar complaining of intermittent fever for the last 2 months. There was associated abdominal pain but no history of anorexia, vomiting, diarrhea or constipation. Also no arthralgia, headaches, back pain or weakness. She came from a low socioeconomic background. She denied contact of any nature with animals such as sheep, goat, cattle or drinking unpasteurized milk. But her mother recalled using fresh milk to make tea a few times.

Physical examination of the patient was normal. The respiratory, cardiac, abdominal, musculoskeletal and joint examinations were normal. The patient underwent a detailed workup in order to determine the cause of her fever. Results showed hemoglobin of 9.8 gm%, mean corpuscular volume was 60.0 fL (normal 70-100 fL). Her white blood cell count was 3500/mm³. Lactate dehydrogenase (LDH) and activated partial thromboplastin time (APTT) levels were raised. Serum albumin level was 3.36 g/dl. Her serum alanine transaminase (ALT) was raised initially but returned to normal a few days after starting treatment. Stool and urine analysis findings were also within normal

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limits. Her abdominal ultrasound and echocardiography were normal. Serum Brucella IgM level was raised.

Patient was started on combination therapy with of IV doxycycline and streptomycin. Her temperature was recorded every 4 hours in order to document the effectiveness of the treatment. She responded positively to the management and was discharged after being afebrile for few days on oral doxycycline for 6 weeks.

DISCUSSION

Brucellosis is the most common zoonotic disease in the world. It is caused by Brucella which is a gram negative aerobic intracellular coccobacillus. Brucellosis can manifest as acute (< 2 months), subacute (2-12 months) or chronic (> 1 year) infection with severe complications. It can vary in severity from being asymptomatic to causing a range of signs and symptoms. Patients usually have symptoms such as fever, arthralgia, sweating, abdominal pain, chills, and headache.⁵ Splenomegaly, hepatomegaly and lymphadenopathy were some of the most common signs observed in brucellosis.⁵ Hematological complications are also present in form of anemia, thrombocytopenia, leucopenia and elevated liver transaminases seen in some cases like our case in which investigations showed anemia, leucopenia and elevation of serum alanine transaminase.⁶ In endemic areas 14 years or younger population forms 11-56% of brucellosis cases.⁷

A Study in Pakistan showed 16% sero prevalence of brucellosis in a study group. Males (24%), rural residents (23%) and individuals with animals at home (22.50%) showed a higher prevalence of the disease.³ Exposure to animals and consuming raw milk were strong risk factors for the disease. Among age group 10-20 years the prevalence was 16.66%.³

According to world health organization (WHO) guidelines for treatment of brucellosis doxycycline orally twice a day for 6 weeks in combination with intramuscular streptomycin during first of 2 to 3 weeks of treatment showed greater efficacy than if either of the drugs were used alone for children older than 8 years. For children younger than 8-years combination of rifampin and sulfamethoxazole (SMX)-trimethoprim (TMP) is effective.⁸ The patient in question was treated according to above mentioned treatment guidelines. The patient responded very well to the treatment with complete resolution of her symptoms.

CONCLUSION

It is emphasized that brucellosis remains an endemic disease in the rural areas of developing countries including Pakistan, affecting all age groups especially the children. If physicians encounter a patient with pyrexia of unknown origin for a period of several weeks with or without history of contact with animals or consumption of milk or

milk products, then brucellosis should be considered as a differential diagnosis and ruled out. Furthermore, the most at risk population has to be educated about the risk factors of the disease and also educated in the best preventive methods with the goal being to reduce the prevalence of the disease.

DECLARATION OF PATIENT CONSENT

The authors certify that they have obtained all appropriate informed consent from the patient and her parents. They have given their consent for her clinical findings to be reported in the journal. They understand that her name and initials will not be published, and due efforts will be made to conceal her identity.

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NOTES ON CONTRIBUTORS

The study was part of FK, SK and ZA, all authors were involved in every part of Manuscript writing, analysis, Protocol developments and data collection process.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

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