

Case report

A case of brucellosis with speech disturbance

Farid Yousefi, Seyed Mohammad Alavi, Shokrollah Salmanzadeh

Infectious Diseases and Tropical Diseases Research Centre, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Received: March 2009

Accepted: May 2009

Abstract

Brucellosis is a zoonosis with nonspecific signs and symptoms that some times associated with neurological manifestations. In this report, we present a 41-year-old female who presented with inappropriate speech, an unusual presentation of the neurobrucellosis.

Keywords: Brucellosis, Meningoencephalitis, Speech

Case history

A 41-year-old woman was transferred to Razi hospital because of fever and decreased level of consciousness. She was well up to 24 days ago, when she developed fever, sore throat, and productive cough, for which she received amoxicillin and diphenhydramine. During the next week, her problems continued. Seventeen days before the admission, the fever worsened and she developed inappropriate speech and gradually decreasing level of consciousness. Fourteen days before the admission, a brain CT scan, with normal findings, and a lumbar puncture was performed for cerebrospinal fluid (CSF) analysis. The total cell count was 26 per mm³, with 14 red cells and 12 white cells per mm³, and the differential count was seven neutrophils and five lymphocytes per mm³. In addition, the protein and glucose levels were 15mg/dl and 172mg/dl respectively. The concurrent blood glucose level was 320mg/dl. She was admitted with the impression of meningoencephalitis.

The patient's past medical history was significant only for obsessive personality

since many years ago without any treatment. Leukocyte count was 17900 per mm³ with 66% polymorphonuclear cells. Simultaneous Wright, Coomb's Wright, and 2ME (2-mercaptoethanol) tests of the serum were negative. She was treated with insulin and intravenous acyclovir for 10 days and discharged with some improvement. Two days later, she developed fecal incontinence, episodes of abdominal pain, and excessive sweating, and the fever and decreased level of consciousness recurred. Again, she was taken to hospital. On admission, she was confused, ill but febrile, and had hypogastric tenderness without rebound tenderness. On neurological examination, the forces of extremities were 5/5; the deep tendon reflexes were 2+; the plantar reflexes were downward, and the sensory was normal. The rest of the physical examination was unremarkable. Stool examination was normal.

Intravenous ceftriaxone and oral rehydration therapy was started. After four days, the results of serology for brucellosis were obtained; the titre of serum Wright test

was 1/160, and that of 2ME test 1/80. The results of IgM- and IgG-ELISA tests for *Brucella* antibodies on cerebrospinal fluid were positive. The diagnosis of *Brucella* meningoencephalitis was made, and therapy with oral doxycycline (100mg twice daily), trimethoprim-sulfamethoxazole (480mg three times a day) and rifampin (600mg daily) started [1]. On the 6th day of admission, the patient was discharged with good general condition and mental status, with her anti-*Brucella* medications to be continued on an outpatient basis for at least three months. On follow-up visits, the patient remained well.

Discussion

Meningoencephalitis is a disease of the central nervous system (CNS) with various aetiologies. Among infectious causes are bacteria, viruses, fungi, mycobacteria, and parasites, with varying frequencies. The exact aetiology of meningoencephalitis usually cannot be made on the clinical grounds alone. However, the epidemiologic risk factors, such as area of residence and special exposures, such as contact with certain contagious diseases and consumption of unpasteurized milk products, and chronology of the symptoms, can help suggest the etiology [2].

Our case presented with subacute symptoms and, based on CSF analysis, the diagnosis of subacute meningoencephalitis was made and she was managed accordingly. Brucellosis is among the endemic diseases in our area that can present with CNS signs and symptoms [3] and tuberculosis, along with others. Initial evaluations for endemic etiologies were negative. However, with prolongation of the symptoms and signs of the disease and lack of response to initial empirical treatment, one should think about various causes, including unusual presentations of endemic diseases and reevaluate the patient.

Brucellosis is a zoonosis with nonspecific signs and symptoms. Virtually all infections derive directly or indirectly

from exposure to animals. Direct invasion of the CNS occurs in fewer than 5% of cases [1]. Manifestations of neurobrucellosis include meningoencephalitis, cranial neuritis (especially the vestibuloacoustic nerve), peripheral neuritis, radiculitis, CNS demyelinating syndromes, myelitis (which must be distinguished from myelitic syndromes secondary to brucellosis of the spine), meningovascular disease and brain abscesses [4-9]. *Brucella* can cause a lymphocytic meningoencephalitis that resembles neurotuberculosis or noninfectious conditions [10].

This case indicates that in areas, which are endemic for brucellosis, this disease may have unusual presentations, such as inappropriate speech. So, in approach to patients with behavioral manifestations, brucellosis must be considered.

References

- 1) Young EJ. *Brucella* Species. In: Mandell GL, Bennett JE, Dolin R, 6ed., *Principles and practice of infectious diseases*. Philadelphia, Churchill Livingstone, 2005; 2669-2674.
- 2) Diane E. Griffin. Encephalitis, myelitis, and neuritis. In: Mandell GL, Bennett JE, Dolin R, 6ed., *Principles and practice of infectious diseases*. Philadelphia, Churchill Livingstone, 2005; 1143-1150.
- 3) Tabatabaei M, Zahraei M, Ahmadnia H, Ghotbi M, Rahimi F. Principles of Disease Prevention and Surveillance. 2ed, Iran, CDC, 2006; 173-177.
- 4) Akdeniz H, Irmak H, Anlar O, Demiröz AP. Central nervous system brucellosis: presentation, diagnosis and treatment. *Journal of Infection* 1998; 36: 297-301.
- 5) McLean DR, Russell N, Khan MY. Neurobrucellosis: clinical and therapeutic features. *Clinical Infectious Disease* 1992; 15: 582-590.
- 6) Shakir RA, Al-Din AS, Araj GF, Lulu AR, Mousa AR, Saadah MA. Clinical categories of neurobrucellosis. *Brain* 1987; 110: 213-223.
- 7) Al Deeb SM, Yaqub BA, Sharif HS, Phadke JG. Neurobrucellosis: clinical characteristics, diagnosis, and outcome. *Neurology* 1989; 39: 498-501.

-
- 8) Marzo Sola ME, Calderon Giron C, Ayuso Blanco T, Uson Martin M, Marta Moreno ME, Bestue Cardiel M. Neurobrucellosis. A report of 13 cases. *Neurologia* 1995; 10: 375-379.
- 9) Al-Sous MW, Bohlega S, Al-Kawi MZ, Alwatban J, McLean DR. Neurobrucellosis: clinical and neuroimaging correlation. *American Journal of Neuroradiology* 2004; 25: 395-401.
- 10) Corbel MJ, Beeching NJ. Brucellosis. In: Fauci AS, 17ed, *Harrison's principles of internal medicine*. USA, McGraw-Hill, 2008; 914-917.

Address for correspondence:

Farid Yousefi, Department of Infectious Diseases and Tropical Medicine, Razi Hospital, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Tel: +98611 3335935; Fax: +98611-3336513
Email: drfayo@gmail.com