Patient with Acute Psychosis Due to Neurobrucellosis: A Rare Case

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ABSTRACT
Brucellosis is a kind of infection that has been encountered quite often in our country. Neurobrucellosis, which is a rare form of brucellosis, may affect the central and peripheral nervous system and cause serious clinical results. It is a known fact that neurobrucellosis can imitate psychiatric disorders. Psychosis, on the other hand, is a very rare clinical form of neurobrucellosis and there are very few reports of brucellosis due to psychosis in the literature. In our country, where animal husbandry is common and infectious diseases are common, brucellosis should not be ignored in the differential diagnosis of a patient with sudden onset psychotic symptoms. In this case report, a case of neurobrucellosis with psychotic symptoms is discussed in the light of literature.

Keywords: Brucellosis, differential diagnosis, neurobrucellosis, psychosis

INTRODUCTION
Brucellosis is a kind of infection that has been encountered quite often in our country. Brucellosis species are infectious agents that can be passed, through skin, on to humans in consequence of contact with body fluids such as blood, urine, and feces of animals such as goats, sheep, cattle, pigs, etc. or by consuming not enough pasteurized milk and dairy products of aforespecified animals (1). The brucellosis species that can get hold of many organs may lead to very different clinical findings such as mainly fever, headache, night sweats, and joint pain. Since the brucellosis bacterium has the ability to survive in the mononuclear phagocytic system cells, it can get hold of many systems such as reticuloendothelial, skeletal-muscle, gastrointestinal, cardiopulmonary, genitourinary, and central nervous system (CNS) (2).

Neurobrucellosis occurs in nearly 5% of patients with brucellosis (3,4). The effect of neurobrucellosis, which is a rare form of brucellosis, on the central nervous system may be caused by direct invasion or developed due to immunopathological conditions to occur on affected body areas (5,6). Neurobrucellosis can develop at any stage of the disease and may have very different symptoms, including encephalitis, meningoencephalitis, radiculitis, myelitis, peripheral and cranial neuropathies, subarachnoid hemorrhage, and psychiatric indications (7). The diagnosis is usually set down through clinical features, including production of bacteria in cerebrospinal fluid (CSF), demonstration of antibody titer, and CSF findings (lymphocyte dominance, decreased glucose, and increased protein content) (8). Diagnosis of brucellosis becomes more and more difficult due to the phase of disease and the rate of reproduction varies in cultures in case of prior use of antibiotics.
It is a known fact that neurobrucellosis can imitate psychiatric disorders. Though psychiatric findings reported in case reports include more often the depression observed during brucellosis meningitis, amnesia, agitation, euphoria, and personality changes, the depression is a symptom that is observed frequently (7-9). Delirium may also be viewed in the course of acute brucellosis (10). Psychosis, on the other hand, is a very rare clinical form of neurobrucellosis and there are very few reports of brucellosis due to psychosis in the literature (5,10,11). A case of neurobrucellosis consulted with acute psychosis has been discussed in the light of literature in the study. Written informed consent was obtained from the patient for publication of this case report.

CASE PRESENTATION

27 years old male, married and unemployed, lives in a village attached to the central Isparta. The patient was taken to the emergency room by his relatives because of speech disorders and showing harmful behavior to himself in person and his environment. The patient's complaints first started suddenly when he was abroad 15 days ago. It was stated that his first complaint was disorganized speech and he was taken to a hospital where he had resided due to disorganized behaviors, but he did not receive any treatment there.

It was diagnosed, during the first psychiatric evaluation performed in the emergency department, that self-care reduced, gestures were faint, conscious, orientation and cooperative disordered, memory hypomnesia, distracted, feeling condition restricted, sensitivity inappropriate, with thought content paranoid persecutory delusions, thought process slowed down, decreased amount of speech, thought content became poor, impairments in objective judgment, decreased sleep, and irregular appetite. There was no psychiatric disease and treatment in patient and family history. Physical examination revealed no significant pathology. The patient's premorbid personality characteristics were introverted and psychomotor development was normal. In laboratory tests, his leukocyte count was 13500/mm³ (81.2% polymorphonial leukocytes), hemoglobin 12.9 g/dl, platelet count 312000/mm³, and AST: 54.69 U/L (high); in kidney function tests urea was 65.03 mg/dl (high), creatinine 1.32 mg/dl (high), and other parameters were normal. In the first evaluation of the patient, Positive Symptoms Assessment (SAPS) Scale and Negative Symptoms Assessment (SANS) Scale scores 35 and 22, respectively. The patient was not considered delirium because there was no fluctuation of consciousness. The patient was hospitalized in the psychiatry clinic with a preliminary diagnosis of psychosis that could not be named otherwise and treatment of haloperidol 10 mg/day, biperiden 10 mg/day, and lorazepam 2 mg/day was medicated. The patient was consulted to the neurology service in terms of organic pathology. In the tests carried out according to his recommendations, MRI and EEG analyses were normal. In the neurological examination, however, gait behavior was occasional ataxic and occasional normal, and no additional finding was observed. The patient did not have a history of drugs use and his urine analysis for drugs was negative. Primary neurological pathology, meanwhile, was not taken into consideration. It was learned, during ongoing interviews, that he had been bringing up sheep, had fresh cheese-milk consumption, and had occasional lumbago complaints. In light of the aforementioned information, the patient was consulted with a prediagnosis of brucellosis by infectious diseases service. The patient, of whom brucellosis tube agglutination test was positive in 1/1280 titers, was transferred to the infectious diseases service on the 11th day with the preliminary diagnosis of neurobrucellosis. The medications started in our service were discontinued since the disorganized behaviors of the patient regressed. Lumbar puncture was performed in the infectious diseases service. Microscopic examination of cerebrospinal fluid (CSF) revealed 10 leukocytes and 10 red blood cells. The gram coloration performed revealed no microorganism. Acid-resistant coloration for tuberculosis was negative. It was detected in the biochemical examination of CSF that glucose was 59 (concurrent serum glucose: 75), CSF protein 27, and other
levels with normal ranges were determined. Brucellosis Wright agglutination testing and Ig M and Ig G antibody level could not be practiced in CSF.

No growth was observed in CSF and blood cultures. Ceftriaxone 4 g/day iv, doxycycline 200 mg/day p.o, and trimethoprim-sulfamethoxazole (TMP-SMX) 2X1 p.o was medicated. Lumbosacral MRI taken for lumbago complaints revealed no pathological findings. The Brucellosis tube agglutination test repeated on day 4 of brucellosis treatment was detected in 1/320 titer. The psychiatric examination applied on the 6th day of antibiotic treatment resulted with appropriate orientation and cooperation; near-total recovery in ataxic gait; and delusion didn’t recur; SAPS and SANS scores were 15 and 12, respectively. No significant regression was observed for his psychiatric and neurological complaints. On the 10th day of the patient’s antibiotic treatment, he was discharged, because of the absence of active complaints, with medication treatment of doxycycline 2x1 p.o and TMP-SMX 2x1 p.o.

**DISCUSSION**

Brucellosis is an infectious disease which is encountered especially in developing countries and passes from animals to humans. That the brucellosis species to be able to maintain its presence in phagocytic cells can explain the complications and relapses of the disease (12). Brucellosis is divided into four clinical forms as asymptomatic, acute, subacute, and chronic in terms of the incubation period. Neuropsychiatric symptoms may appear in any clinical form of brucellosis (13). Depression, therefore, is the most common psychiatric disorder in brucellosis (14).

The development of psychosis as a neuropsychiatric finding is a very rare situation. Our patient also put in for acute psychosis and very few case reports, therefore, were detected in the literature review. The diagnosis of neurobrucellosis in the literature is controversial. Whereas the diagnosis of neurobrucellosis is based on the presence of clinical neurological findings according to some authors, for some authors, on the other hand, the diagnosis is based on microbiological and/or biochemical evidence to be obtained from cerebrospinal fluid (15). In our case, the diagnosis is supported, in addition to psychotic symptoms and occasional ataxic gait, by dealing with animals, consumption of fresh milk and cheese, brucellosis tube agglutination test in the blood resulted at a level of 1/1280, and clinical picture could not be explained with another disease. It has been notified in the studies that radiological imaging supports the diagnosis of neurobrucellosis, especially demyelinating changes were detected, and in some cases, these findings may return to normal levels by applying appropriate treatment and in some cases, despite the clinical improvement, white matter change didn’t improve yet (16). Cranial MRI of our patient was evaluated as normal.

It has been claimed that neurobrucellosis can imitate many psychiatric disorders. Psychiatric symptoms such as depression, amnesia, psychosis, agitation, euphoria, and personality change can be observed in the course of neurobrucellosis (17-19). Shehata et al. reported that there was a decrease in cognitive functions, orientation, and disorders of memory and attention in patients with neurobrucellosis without impaired consciousness and general condition (7). Eren et al. reported in their study, in which they compared 34 neurobrucellosis patients to 30 brucellosis patients with no neurological involvement, that the depression scores in patients with neurobrucellos were significantly higher and, therefore, cognitive and emotional disorders can be observed (20). In the study of Erdem et al., in which they examined 215 patients with neurobrucellos, they reported that approximately one-fourth of the cases experienced depression and psychiatric support was needed during the management of the disease (21). In neurobrucellosis, disorders of orientation, memory, attention, and thought content, as in our case, can be observed without disorders of consciousness and general condition. Recovery to have occurred in cognitive and mood symptoms of neurobrucellos patients without antidepressive and antipsychotic treatment separates particularly the neurobrucellos from other functional psychiatric disorders (20). It was detected in our case that in brucellosis treatment initiated after discontinuation of antipsychotic drugs, significant regression of psychotic symptoms was observed.
Since brucellosis can affect many organs, it may mimic many diseases. It was emphasized in this case that neurobrucellosis should be considered as a differential diagnosis especially in the presence of unexplained neurological and atypical psychotic symptoms in endemic regions. Early diagnosis and treatment may reduce the sequellae to be developed due to neurobrucellosis.

Patient Informed Consent: Informed consent of the patient was obtained.

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