



PANCYTOPENIA WITH FOOT DROP' A RARE PRESENTATION OF BRUCELLOSIS

Medicine

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KEYWORDS

INTRODUCTION

Brucellosis is the commonest bacterial zoonosis and causes more than 500000 human infections per year worldwide¹. The disease has a wide spread geographic distribution and is labelled as regionally emerging zoonotic disease². It also comes under the WHO list of neglected tropical zoonotic infection. 69% of the Indian population lives in rural areas (Census 2011). Most of them have a close contact with domestic animals by virtue of their occupation, mainly agriculture. Hence, they have an increased risk of contracting many zoonotic diseases including brucellosis.

In developing countries like India, poor hygiene, illiteracy and poverty provide favourable conditions for spread of infection. The prevalent species involved in human disease are *B. melitensis* and *B. abortus*. The highly virulent *B. melitensis* is responsible for severe and prolonged disease with resultant disability.¹¹

Neuro brucellosis is a complication of systemic brucellosis infection. The frequency of neuro brucellosis has been reported as 5 -7% in the literature³

Neurological complications include encephalitis, meningoencephalitis, radiculitis, myelitis, peripheral and cranial neuropathies, subarachnoid haemorrhage, psychiatric manifestations, brain abscess, and demyelinating syndrome^{3,4}

Few authors reported neurobrucellosis presented as a foot drop due to spondylodiscitis .but foot drop without spine involvement is exceptionally rare so we reporting this case.

CASE REPORT

A 32-year-old male, agricultural labourer, he recently returned from Kuwait where he occupied as a camel keeper. was admitted in NIMS hospital, with history of fever since 3 months which is intermittent ,high grade, relieved by antipyretics, associated with chills and rigors, Profuse sweating which is more in the night, Myalgias and Easy fatigability,

Weakness of both lower limbs Since 20 days, insidious onset, progressive able to walk only with support. Inability to rise the foot off the ground, Patient able to getting up from squatting position. No history of trauma, Patient was able to feel clothes, feeling hot and cold water while bathing, No history of numbness, pins and needle sensation, no history of band or girdle like sensation, no history of unsteadiness on closing eyes No history of abnormal movements of Limbs, No history of bowel an bladder Incontinence .No history of back pain Altered sensorium for 4 to 5 days which is In the form of confusion, irritability, memory deficit ,after fifth day altered sensorium spontaneously improved not associated with headache, seizures, blurring of vision, diplopia, No history of Difficulty in combing, Difficulty in buttoning or unbuttoning, Slurred speech, Facial deviation.

On General examination patient is conscious, coherent, well oriented with time, place, person, pallor present, he was febrile .apart from this

remaining general examination normal.

central nervous system examination his higher mental functions normal, speech normal, Cranial nerves examination normal.no signs of meningeal irritation, high stepping gait +, Motor examination revealed normal muscle bulk, tone in upper and lower limbs, grade IV power in proximal muscles of both upper and lower limbs, he unable to do dorsiflexion at ankle joint in both lower limbs, decreased sensations in first web space on both toes absent ankle reflex with mute planters. Per abdomen examination massive splenomegaly present. Remaining systems normal.

Upon investigations his complete blood picture revealed pancytopenia Haemoglobin 7gm/, total leukocyte count 1400/cu mm and platelet count 90,000/cu mm. his liver function tests, renal function tests, viral markers normal. Chest Radiograph normal. Malaria, widely, weil felix ,Brucella serology, Lyme disease serology, and blood cultures came negative ,Montoux negative. Iron studies, B12, Folic acid, serum LDH, Haptoglobin with in normal limits.USG showed massive splenomegaly, in view of long duration of fever, pancytopenia, splenomegaly bone marrow aspiration & biopsy normal. MRI spine suggestive of anterior thecal indentation L5-S1 region. Nerve conduction studies revealed sensory motor neuropathy.CSF analysis showed high protein, low glucose, and 30 cells (all are lymphocytes). CSF was VDRL nonreactive, negative for Cryptococcal infection and negative for acid fast bacilli by ZN stain.

Because of the high index of suspicion Brucella SAT repeated .at high titres it came positive at 1.1260 dilution. Blood sub cultures for Brucella came positive.

Patient was prescribed doxycycline 100mg twice a day, rifampicin 600mg once a day Patient became afebrile on fourth Day of treatment. All three drugs were continued for three Months. At the end of three months patient remained afebrile, Patient gait improved. He resumed his work also.

DISCUSSION

Brucellosis is considered a deceptive infectious disease in India⁶. Human brucellosis is well reported in India; however there are only few reports on neurobrucellosis^{7,9} Neurological complications of brucellosis are infrequent but an important clinical entity. Clinical presentation of central nervous involvement is variable. Nervous system involvement is generally in meningoencephalitis form. Guven et al⁴.observed that headache, blurred vision, loss of vision, hearing loss, and confusion were significantly associated with neurobrucellosis. Muscular weakness, disorientation, neck rigidity, changes in deep tendon reflexes, and paraesthesias were also more common among the patients.

Among cranial nerves abducens, facial and vestibulocochlear were affected more than other cranial nerves in neurobrucellosis. Peripheral nerve involvement was observed as radiculopathy or polyradiculopathy. Signs and symptoms of meningeal involvement are nonspecific in neurobrucellosis and meningeal signs are infrequently present.¹⁰

Brucella bacteria may affect the nervous system directly or indirectly, as a result of cytokine or endotoxin on the neural tissue. Cytotoxic T lymphocytes and microglia activation play an immunopathologic role in this disease. Infection triggers the immune mechanism leading to a demyelinating state of cerebral and spinalcord.¹⁰ In neurobrucellosis imaging findings may be found in four types: normal, meningeal contrast enhancement, white matter changes, and vascular changes.¹⁰

In addition to non-enhancing bilateral white matter lesions deep grey matter involvement has also been documented.⁹ most important differential diagnosis of brucellosis is tuberculosis in our country. Neurobrucellosis is a diagnostic problem as there is a lack of consensus in diagnostic criteria. According to Kochlar et al,⁷ the criteria necessary for definite diagnosis of neurobrucellosis are (i) neurological dysfunction not explained by other neurologic diseases, (ii) abnormal CSF indicating lymphocytic pleocytosis and increased protein, (iii) positive CSF culture for Brucella organisms or positive Brucella IgG agglutination titer in the blood and CSF, and (iv) response to specific chemotherapy with a significant drop in the CSF lymphocyte count and protein concentration.

Recently Guvenetal.⁴ diagnosed neurobrucellosis by the presence of any one of the following criteria: (1) symptoms and signs suspect of neurobrucellosis, (2) isolation of Brucella species from cerebrospinal fluid (CSF) and/or presence of anti-Brucella antibodies in CSF, (3) the presence of lymphocytosis, increased protein, and decreased glucose levels in the CSF, or (4) findings in cranial MRI or computed tomography (CT).

Erdem et al.¹² defined chronic Brucella meningitis on the basis of following criteria: (1) The manifestation of clinical neurological symptoms for over 4weeks (2)The presence of typical CSF evidence with meningitis (protein concentrations >50mg/dL, pleocytosis over 10/mm³, and CSF glucose to serum glucose ratios <0.5) (3) Positive bacterial culture or serological test results for brucellosis in CSF(positive Rose Bengal Test or serum tube agglutination)or in blood(positive Rose Bengal Test and serum tube agglutination with a titer \geq 1/160) or positive bone marrow culture (4) Nonappearance of any alternative neurological diagnosis These criteria were applied in the case definition of 177 patients with chronic brucellar meningitis or meningoencephalitis in a multi-centre, retrospective Istanbul 2 study.

Based on the results of the study, the sensitivities of the principal serological tests like serum SAT, RBT, and ELISA as well as CSF RBT and SAT were analysed. The sensitivities of the tests were 94% for serum SAT, 96% for serum RBT, 78%for CSF SAT, and 71%for CSF RBT .The data supported the view that blood serological tests were significantly more sensitive than CSF tests. CSF culture, when positive, is considered the gold standard in the laboratory diagnosis of neurobrucellosis¹³.

However, serological approaches are the mainstays in the diagnosis of neurobrucellosis due to the relatively lower efficacy of bacterial culture. Our patient fulfilled serological criteria, and blood culture also positive. And CSF analysis also in favour of brucellosis.

There is no consensus for choice of antibiotic, dose, and duration of the treatment for neurobrucellosis. Dual or triple-combination therapy with doxycycline, rifampicin, trimethoprim-sulfamethoxazole, streptomycin, or ceftriaxone for >2months (3–6months) has been recommended. Short-course steroid therapy has been found to be effective in minimizing the residual deficits in those with arachnoiditis, and multiple-sclerosis-like presentation¹⁴. Sequelae among survivors despite appropriate antibiotic therapy are well known^{4,8,15}. They are significant if patient has diffuse CNS, encephalitis, or spinal cord involvement compared to meningitis as a presentation. They have been reported as aphasia, hearing loss, hemiparesis, and visual impairment .Mortality is uncommon^{4, 10, 16}. Most of the laboratories lack facilities for diagnosis of human brucellosis in India. In presence of appropriate history and clinical findings, RBT is a very useful test for the diagnosis of human brucellosis.

CONCLUSION

It is very important to know the different atypical presentations of brucellosis. Because it's one of the common diseases which presents as a PUO.

Brucellosis can present with atypical features like pancytopenia with

massive splenomegaly and bilateral foot drop. As brucellosis is associated with prozone phenomenon, it's important to do serial dilutions before ruling out brucellosis.

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