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A Rare Case of Intracranial Hypertension

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Abstract
Brucellosis is a systemic infection caused by gram-negative bacilli of the genus Brucella, Four species are pathogenic for humans: B.abortus, B.melitensis, B. suis. B. canis. The most invasive and pathogenic type of human brucellosis is due to B. melitensis. It is also known as Undulant fever and Malta Fever.
Neurobrucellosis is a rare complication reported in 1–5% of adults, severe complications including meningitis, meningoencephalitis, myelitis-radiculoneuritis, brain abscess, epidural abscess, and meningovascular syndromes, have been reported , only few cases of central nervous system involvement and isolated intra cranial hypertension reported.We are presenting a case report of neurobrucellosis in which patient developed right abducent nerve palsy and papilloedema which eventually recovered with treatment.

Introduction

Brucellosis is the most frequently encountered worldwide zoonotic disease, which can be acquired from sheep, goat, cattle, swine, and other animals and transmitted to humans. The incidence of brucellosis across the world varies from less than 0.03 to 160 per 100,000 population. Brucellosis is most commonly seen in the Mediterranean countries, the Balkans, the Persian Gulf, the Middle East, and Central and South America [(1)]

Brucellosis is a systemic infection caused by gram-negative bacilli of the genus Brucella, Four species are pathogenic for humans: B. abortus, B. melitensis, B. suis. B. canis. The most invasive and pathogenic type of human brucellosis is due to B. melitensis followed by B. abortus and B. suis. It is also known as Undulant fever and Malta Fever [(1)]

Neurobrucellosis is a rare complication reported in 1–5% of adults, severe complications including meningitis, meningoencephalitis, myelitisradiculoneuritis, brain abscess, epidural abscess, and meningovascular syndromes, have been reported , only few cases of central nervous system involvement and isolated intra cranial hypertension reported. [(7)]

We are presenting a case report of neurobrucellosis in which patient developed right abducent nerve palsy and papilloedema which eventually recovered with treatment.

Case Report

A 18 year old female from southern part of india presented to our hospital with history of high grade fever since 1month ,vomiting 10 days and pain abdomen 4 days. On examination patient had hepatosplenomegaly with normal neurological examination at the time of admission. As patient had the habit of consuming raw milk and there was an outbreak of brucellosis in Karnataka a state in southern part of india in the same month a possibility of brucellosis was considered.

Routine investigations were normal except TLC-16600, DC(N-40% L-58% M-2%), ESR 25 & serum IGM was positive for Brucella (ELISA Method). hence patient was started on Doxycycline 100 BD. On day 3 patient developed headache, blurring of vision and right abducent nerve palsy. Fundoscopy showed bilateral papilloedema and patient MRI brain was normal.

A possibility of neurobrucellosis was considered. Lumbar puncture showed CSF pressure of 220 cm of H2O, 9 cells - 8 lymphocytes and 1 neutrophil with protein -79 mg/dl, chloride- 123meq/l, glucose -56 mg/dl. CSF was negative for IGM and IGG Brucella, tuberculosis antibodies (ELISA Method) and PCR tuberculosis.

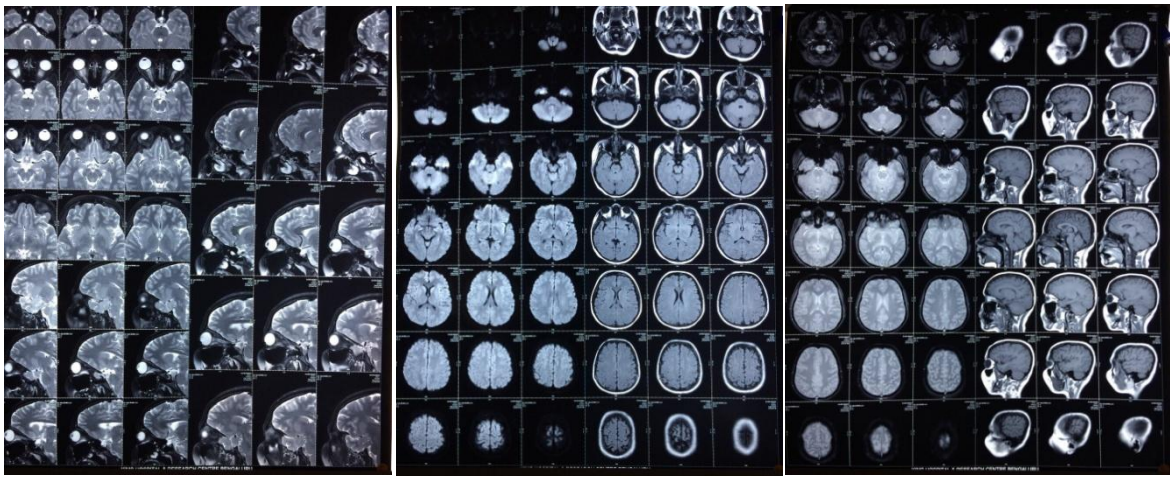
After investigation possibility of neurobrucellosis causing pseudotumorcerebri like presentation was considered. Patient was started on triple drug regimen with Doxycycline 100mg PO twice daily, Rifampicin 600 mg PO once daily and Trimethoprim/sulfamethoxazole 160/800mg PO twice daily with acetazolamide 250 mg PO three times daily.

Patients symptoms gradually subsided lateral rectus palsy and papilloedema also subsided over 2 weeks. Repeat serum IGG brucella was positive after 2 weeks.

Figure1: Patient's fundus intially showed papilloedema which resolved over 2 weeks with treatment

Figure2: Right lateral rectus palsy which resolved over 2 weeks

Figure3: Normal MRI Brain



Discussion

Brucella are facultative intracellular bacteria that can multiply within phagocytic cells with human beings as end hosts. Brucella may enter the host via ingestion, inhalation, through conjunctiva or skin abrasions. After infecting the host, the pathogen becomes sequestered within cells of the reticuloendothelial system [(2)]. The mechanisms by which brucella enters cells and evades intracellular killing and the host immune system are the subject of much research and debate.

Brucellosis is a systemic infection, which can involve any system but involvement of central nervous is uncommon, the incidence reported to be 1-5%. Meningitis is the most frequent clinical presentation of neurobrucellosis which is followed by meningoencephalitis (50%), inflammatory neuritis (20%), inflammatory demyelinating syndromes, papilloedema, papillitis, neuropsy-chiatric manifestaions, rarely cranial nerve palsies, isolated intracranial tension or combination of above [(3)].

Neurobrucellosis among laboratory-confirmed brucellosis patients was diagnosed by the presence of any 1 of the following criteria: [(4)]

(1)symptoms and signs suspect of neurobrucellosis, which were described above. (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 (4) findings in cranial magnetic resonance imaging (MRI) or computed tomography (CT). [(4)]

In the literature, diagnostic criteria of neurobrucellosis is problematic. According to some authors, the diagnosis of neurobrucellosis might be based on clinical neurological symptoms, whereas according to some other authors the diagnosis is based on microbiological and/or biochemical evidence from cerebrospinal fluid.[(4)]

Hence brucella should come high on the list of differentials being a potentially treatable condition. CSF is abnormal in almost all patients with neurobrucellosis with lymphocytic pleocytosis of varying degree. CSF and serum antibodies to brucella antigen can be detected in several ways. Culture of the organism is most definitive but positive in only 30% at best.[(6)]

For most patients the most practical and safe combination is triple drug therapy of doxycycline, rifampicin, and TMP-SMX for 8 to 12 weeks. Children under the age of eight and pregnant ladies are better kept on TMP-SMX with rifampicin for 12 weeks.[(6)]

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