



TUBERCULOUS MENINGITIS PRESENTING WITH QUADRI-PARESIS WITHOUT MENINGEAL SIGNS A DIAGNOSTIC DILEMMA

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ABSTRACT

In common clinical practice, diagnosis of meningitis relies on presence of neck stiffness in alert, healthy adult patients, except infants, the elderly and the immunocompromised. In current era high index of suspicion for meningitis should always be in differential in young immunocompetent patients, who even do not exhibit signs of meningeal irritation.

Key words:

TB Meningitis, Meningeal signs

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INTRODUCTION

Meningitis is an acute inflammation of the protective membranes covering the brain and spinal cord, known collectively as the meninges. The classical clinical triad of meningitis is fever, headache and nuchal rigidity, but the classical triad may not be present. A decreased level of consciousness occurs in >75% of patients. Fever and either headache, stiff neck, or an altered level of consciousness will be present in nearly every patient with bacterial meningitis¹. The true incidence of absent meningeal signs in meningitis is unknown², the condition is rare. Physicians cannot rely on the absence of neck stiffness to rule out meningitis, even in healthy and awake adults. We are presenting a case of immunocompetent TB meningitis patient who presented with quadriparesis but without meningeal signs.

Case Report

A young 30 years old immunocompetent patient labour by occupation presented with history of fever from 6 days, weakness of all the limbs with stiffness of lower limbs since 4 days. Fever was insidious in onset and was low grade, continuous in nature not associated with chills and rigors, evening rise, night sweats, burning micturition pain abdomen, nausea vomiting and diarrhoea. No h/o cough with sputum, weight loss and loss of appetite, photophobia, convulsions and headache. Second day fever subsided but patient developed weakness of both upper and lower limbs which progressed in four days accompanied by stiffness of both lower limbs leading to difficulty in walking. No h/o bladder and bowel abnormality. Past history was non significant. No h/o drug abuse or any other medication was present. On general physical examination patient was oriented to time place and person, BP 136/86 mmHg in both arms supine position, pulse rate 86/minute, respiratory rate 16/minute. Cardiovascular,

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respiratory and abdominal examination was normal. Neurological examination showed no neck rigidity, Kernig's and Brudzinski's sign. Plantars were bilateral extensor, no fasciculations, wasting and atrophy was seen. Cranial nerves and sensory system examination was normal. No speech difficulty. Jaw jerk was absent, ankle clonus was present. Motor examination revealed power grade 3 in both upper and lower limb, superficial reflexes were preserved but deep tendon reflexes were brisk with increased tone in both lower limbs. Cerebellar signs were not elicitable because of weakness. From examination, higher cervical cord injury was ruled out since patient had no bladder and bowel involvement and no respiratory distress. Transverse myelitis was one of suspicion because of short history but there was no definite spinal cord level and sensory system was intact. Patient had UMN features bilateral extensor plantar and no neck rigidity. Blood examination was normal except for ESR which was 68 mm at the end of first hour. MRI was planned to rule out any structural abnormality, multiple sclerosis and sinus thrombosis. Contrast MRI showed mild hydrocephalus with no meningeal enhancement and periventricular hyperintensities. Meanwhile I.V mannitol and conservative empirical antibacterial therapy was started and guarded CSF tap was done which showed TLC 18 with polymorphs 20% and lymphocytes 80%. Proteins were highly raised 220 and glucose 40 with ADA levels 22 IU/L. Diagnosis of TB meningitis with hydrocephalus was made. Antitubercular therapy(ATT), IV dexamethasone was started and patient responded well to treatment.

DISCUSSION

Meningitis is an acute inflammation of the protective membranes covering the brain and spinal cord, known collectively as the meninges. The classical clinical triad of meningitis is fever, headache and nuchal rigidity, but the classical triad may not be present.

approximately 135,000 people around the world each year³. Kernig's sign, Brudzinski's sign, and nuchal rigidity are not accurate in diagnosing meningitis in infants younger than six months, the elderly and the immunocompromised⁴. In a study conducted by Puxty *et al*⁵, Kernig's sign was positive in 12% and Brudzinski's sign in 8% of geriatric patients without meningitis. Nuchal rigidity has been found to occur in up to 30% of the elderly population in the absence of meningitis⁶. The presence of nuchal rigidity in the absence of meningitis, coupled with the increased prevalence of viral meningitis (less severe symptoms) and other underlying disease in geriatric patients, supports the general consensus that the diagnosis of meningitis in this population through the use of meningeal signs is inaccurate and ineffective⁷. As we reviewed the literature, most of these studies were present in infants and geriatric population but not in adults and immunocompetent individuals, which leads to underestimation of diagnosis.

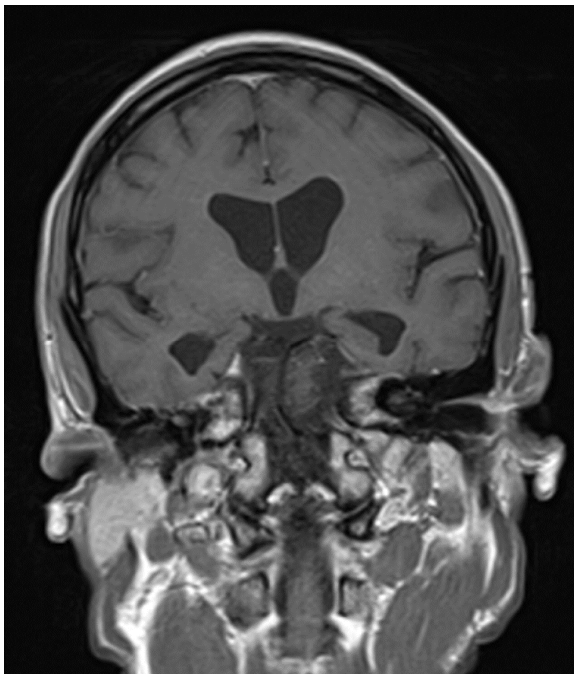


Figure A

Post contrast T1 coronal section at the level of Foramen of Monro revealing dilated Frontal and Temporal horns of bilateral Lateral ventricles and Third ventricle without any essential enhancement of Leptomeninges.

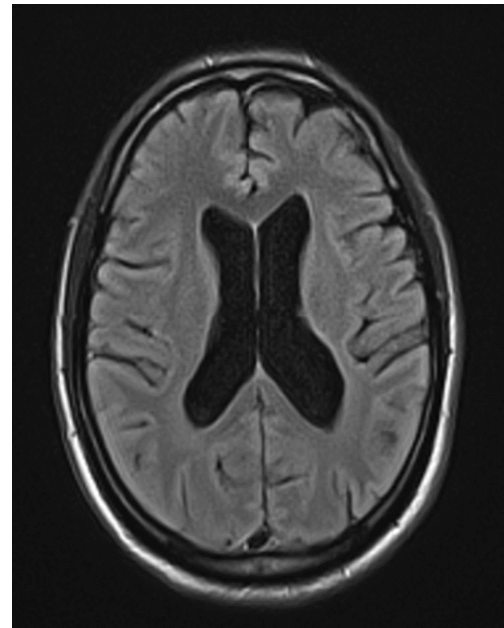


Figure B

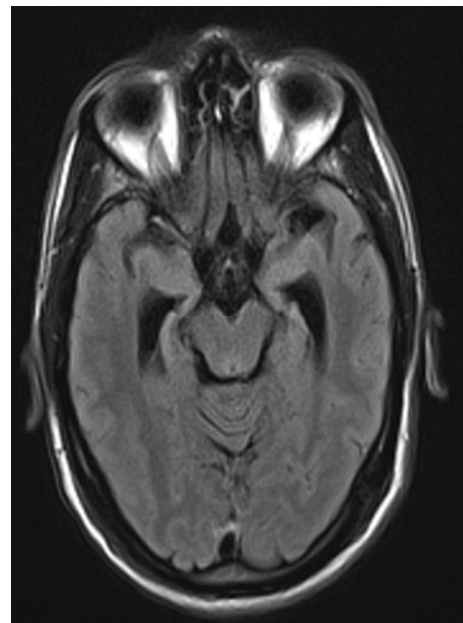


Figure C

Non contrast FLAIR axial sections at Supraganglionic level (Figure B) and at Midbrain level (Figure C) showing dilated Frontal horns, Atria and Temporal horns of bilateral Lateral ventricles with V/H ratio of about 3.05

Inspite of modernization of medicine, bacterial meningitis is still a vivid diagnosis in both developing and devolved world. It is one of the most common infectious cause of death

Study conducted by Callaham M² implies that meningeal signs are reliable and usually present in awake patients, except infants, the elderly, and the immunosuppressed. In the following three cases, two adults and a 4-year-old child, none of them immunosuppressed, presented with bacterial meningitis with no meningeal signs. In the first case, mental status was completely normal; in the second, there was only minor lethargy attributed to pain medication. In the third, lethargy was attributed to head trauma. In all three the diagnosis of meningitis was delayed up to 19 hours; lumbar puncture was performed while meningeal signs were still absent and cerebrospinal fluid analysis was grossly abnormal. All three patients had *Streptococcus pneumoniae* meningitis, and all three suffered massive brain damage within 24 hours of presentation and eventually died.

Study conducted by Thomas KE⁸ To determine the diagnostic accuracy of Kernig's sign, Brudzinski's sign, and nuchal rigidity for meningitis, 297 adults with suspected meningitis were prospectively evaluated for the presence of these meningeal signs before lumbar puncture was done. Kernig's sign (sensitivity, 5%; likelihood ratio for a positive test result [LR(+)], 0.97), Brudzinski's sign (sensitivity, 5%; LR(+), 0.97), and nuchal rigidity (sensitivity, 30%; LR(+), 0.94) did not accurately discriminate between patients with meningitis (≥ 6 white blood cells [WBCs]/mL of cerebrospinal fluid [CSF]) and patients without meningitis. The diagnostic accuracy of these signs was not significantly better in the subsets of patients with moderate meningeal inflammation (≥ 100 WBCs/mL of CSF) or microbiological evidence of CSF infection. Only for 4 patients with severe meningeal inflammation (≥ 1000 WBCs/mL of CSF) did nuchal rigidity show diagnostic value (sensitivity, 100%; negative predictive value, 100%). In the broad spectrum of adults with suspected meningitis, 3 classic meningeal signs did not have diagnostic value.

Abdelrahman Elsayy reported a case of *Aspergillus terreus* Meningitis in immunocompetent patient who presented with a history of fever; and recurrent convulsions, followed by a decreased level of consciousness, physical examination revealed no meningeal signs⁹ while the pupils were normal and reactive.

Nadia Jawad *et al*¹⁰ reported a case of complicated tuberculous meningitis. A 19-year-old married, Asian female, with a strong history of tuberculous contact, presented in a clinical set-up with a headache, backache, and mild lower limb weakness for four months. On neurological examination, she was conscious and alert with a Glasgow coma scale of 15/15. Her higher mental functions and cranial nerves were intact. Signs of meningeal irritation were not present. As above mentioned studies and case reports suggest that absence of meningeal signs is also not essential to exclude the diagnosis of meningitis in adults. They were also absent in our patient.

A major prognosis in patients diagnosed with bacterial meningitis is the time that has elapsed from the onset of symptoms to the initiation of antibiotic treatment^{11,12}. So not absolutely relying on these signs we planned MRI brain urgently and after that CSF was done. MRI showed mild hydrocephalus and CSF report was suggestive of tubercular meningitis. ATT with steroids in tapering dose started patient responded well and is under follow up.

CONCLUSION

Positive elicitation of Brudzinski's and/or Kernig's signs in clinical evaluation of a patient suspected of meningitis can be confidently regarded as sufficient reason for proceeding with a lumbar puncture and treatment considerations; however, absence of these signs should not be used to rule out (exclude) the diagnosis of meningitis. Immediate lumbar puncture after fundus examination or MRI if needed should be performed whenever there is serious consideration of that diagnosis.

References

1. Longo DL, Kasper DL, Jameson JL, Fauci AS, Hauser LS, Loscalzo J. "Acute bacterial meningitis." Harrison's Principle of internal Medicine. 19th ed, Vol2. McGraw Hill. 2016; pp. 887.
2. Callaham M. Fulminant bacterial meningitis without meningeal signs. *Ann Emerg Med.* 1989 Jan;18(1):90-3.
3. Waghdhare S *et al.* Accuracy of physical signs for detecting meningitis: a hospital-based diagnostic accuracy study. *Clin Neurol Neurosurg.* 2010;112(9):752-7.
4. Levy M, Wong E, Fried D. Diseases that mimic meningitis. Analysis of 650 lumbar punctures. *Clin Pediatr (Phila)* .1990;29:254-5, 258-261.
5. Puxty JA, Fox RA, Horan MA. The frequency of physical signs usually attributed to meningeal irritation in elderly patients. *J Am Geriatr Soc.* 1983;31:590-592.
6. Mateen FJ, Mohr DN. 45-year-old woman with recurrent headache and photophobia. *Mayo Clin Proc.* 2008; 83:951-955.
7. Choi C. Bacterial meningitis in aging adults. *Clin Infect Dis.* 2001;33:1380-1385.
8. Thomas KE, Hasbun R, Jekel J, Quagliarello VJ. The diagnostic accuracy of Kernig's sign, Brudzinski's sign, and nuchal rigidity in adults with suspected meningitis. *Clin Infect Dis.* 2002; 1;35(1):46-52.
9. Elsayy A, Faidah H, Ahmed A, Mostafa A, Mohamed F . *Aspergillus terreus* Meningitis in Immunocompetent Patient: A Case Report. *Front Microbiol.* 2015; 6: 1353.
10. Jawad N, Jafri S, Naqvi S *et al.* A Case Report on Complicated Tuberculous Meningitis. *Cureus.* 2017 ; 9(5): 1222.
11. Aronin SI, Peduzzi P, Quagliarello VJ. Community-acquired bacterial meningitis: risk stratification for adverse clinical outcome and effect of antibiotic timing. *Ann Intern Med.* 1998;129:862-869.
12. Proulx N, Frechette D, Toye B, Chan J, Kravcik S. Delays in the administration of antibiotics are associated with mortality from adult acute bacterial meningitis. *QJM.* 2005;98:291-298.

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