Viewing the Unseen: Scrub Encephalopathy as an Important Differential Diagnosis of AES

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Abstract

Japanese encephalitis (JE) is the important cause of Acute Encephalitis Syndrome (AES). However, in large proportion of AES cases, the specific cause cannot not be established. For this, scrub typhus is one such emerging cause. In line with this, first such case report on AES in Odisha due to scrub encephalopathy in paediatric age group is presented.

Key words: Scrub typhus, Japanese encephalitis, Acute encephalitic syndrome, Scrub encephalopathy

Introduction

Acute Encephalitis Syndrome (AES) poses a great public health problem in India, as 50,000 cases and 10,000 deaths annually have been reported⁶. Traditionally Japanese encephalitis (JE) is important cause of AES, supported by the fact that AES surveillance is paralleled to JE surveillance. In 2014, the total numbers of AES cases and deaths reported from India were 10,853 and 1,717 respectively and the corresponding values for JE were 1,657 (~15%) and 293 (~17%) respectively. This implies that other undiscovered aetiology of AES, which accounts for about 85%, also exists. In various studies of patients with AES, in one-third cases the specific cause could not be established⁷.

AES in India as per definition of WHO³ encompasses several other illnesses; like malaria, enteric encephalopathy, tubercular meningitis, dengue with neurological manifestations, scrub typhus, bacterial meningitis, etc.

For the cases of AES not explained by JE, aetiology could be scrub typhus, a hidden entity. The name typhus was derived from a Greek word meaning stupor; this name is justified by its CNS involvement. Aseptic meningitis is very commonly seen but other complication like cerebritis, myelitis and cerebral haemorrhage has been reported⁸. Study done by KarAetalfound that among 20 consecutive patients with acute encephalitic syndrome (AES), six (30%) were due to scrub infection⁹.

Scrub typhus is emerging as a significant health problem in parts of India⁸,⁹. Due to the varied presentation and lack of diagnostic facilities, and lack of exposure of doctor, it largely remains underdiagnosed. We here discuss a case report on AES in Odisha.
due to scrub encephalopathy presenting to a tertiary care hospital in paediatric age group.

The Case

We are reporting six cases of scrub encephalopathy presented to a tertiary care hospital from June to Nov 2015. The patients were from adjoining districts of the hospital in the age group of 2-7 years referred from other hospitals. All of the patients followed the same sequence of events having the history of fever for six to seven days followed by head ache, altered sensorium on day five and six.

There was hepatosplenomegaly in all the six cases, lymphadenopathy in three cases and in one patient neck stiffness was present. Except for two patients we could not find any inoculation eschar. All the six patients presented to the hospital with an average GCS of 6- 8. Three of them required more than two anticonvulsants to control the seizure. Focal neurological deficit was not seen in any of the cases.

All the six patients had leucocytosis with polymorph predominant differential count, thrombocytopenia haemoglobin was with in normal limit. Blood urea and serum creatinine was mild deranged SGOT and SGPT were remarkable elevated with hypoalbuminaemia. CSF analysis showed 180-200 cell/mm³ with predominantly lymphocytic picture with mild increase in protein and normal glucose level. MRI done in two cases showed diffuse cerebral oedema, hyper intense lesions in the putamen and thalamus and CT head showed diffused cerebral oedema, in other two cases brain scan was not done due to financial constraints.

The patients were started with quinine, acyclovir, ceftriaxone, doxycycline empirically later continued with doxycycline and ceftriaxzone once the diagnosis was confirmed for scrub typhus by ELISA IgM.

Discussion

Rickettsial diseases are caused by an intracellular parasite. Among the Rickettsial infections scrub typhus is one of the important cause of pyrexia of unknown origin.

Scrub typhus is caused by Oriental Tsutsugamushi. Mite is the reservoir and natural vector. The larva known as chigger is responsible for the human transmission. The patients of scrub typhus presents as prolonged fever (4-5 days), hepatosplenomegaly, and inoculation eschar. The serious complication usually seen after the second week, are pneumonia, myocarditis, azotemia, shock, ARDS, gastrointestinal bleed, and meningoencephalitis6,7,8,9.

Epidemiological scenario: Scrub typhus is endemic in the ‘tsutsugamushi triangle’ which extends from northern Japan and eastern Russia in the north, northern Australia in the south and Pakistan in the west10.

Its presence has been documented in at least 11 Indian states including Tamil Nadu, Himachal Pradesh, Jammu, Pondicherry, Andhra Pradesh, Kerala and Meghalaya, among others11,12,13,14. A main diagnostic criterion includes presence of eschar at site of tick bite along with patients travel history in the endemic region15.

Clinical Presentation: Illness varies from mild and self-limiting, to fatal16. After an incubation period of 6-21 days, onset is characterized by fever, headache, myalgia, cough, and gastrointestinal symptoms17. The symptoms gradually increase in severity and a macular rash may appear on the trunk18. If untreated, the patient may become stuporous as meningoencephalitis develops19.

Laboratory studies: In children, leukocyte and platelet counts are usually within normal ranges, although thrombocytopenia and leukocytosis may also occur17. Cerebrospinal fluid (CSF) examinations show a mild mononuclear peocytosis with normal glucose levels19. The Weil-Felix agglutination test, oldest test in current use, detects cross-reacting antibodies to proteus mirabilis OXK. It shows ≥four times rise in titre to proteus OX-K and no reaction to proteus OX-2 or OX-19 (in 50-70% of patients); a single titre ≥1:160 is also diagnostic (normal is ≤1:40.). Other tests available are ELISA, western blot, indirect fluorescent etc20,21,22,23.

Conclusion

This is the first report of scrub meningoencephalitis from Odisha state in paediatric age group. Scrub typhus should be considered as differential diagnosis in AES patients.
References


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