

**Case Report: A Case of Co-Infection of Scrubtyphus and Cmv As
An Acute Encephalitis Syndrome**

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ABSTRACT

Scrub typhus or bush typhus caused by *Orientia tsutsugamushi* is a common, zoonotic disease in South East Asia, and due to rapid urbanization of rural and forested areas, it has become an emerging public health problem in India. It is commonly presented as fever, headache, inoculation eschar, and lymphadenopathy. In severe forms, pneumonia, myocarditis, azotemia, shock, gastrointestinal bleed, and meningoencephalitis are known to occur.

Keywords: Scrub Typhus, Cmv, Acute Encephalitis.

Introduction

Scrub typhus or bush typhus caused by *Orientia tsutsugamushi* is a common, zoonotic disease in South East Asia, and due to rapid urbanization of rural and forested areas, it has become an emerging public health problem in India (Vivekanandan *et al.*, 2010). It commonly presents as fever, headache, inoculation eschar, and lymphadenopathy. In severe forms, pneumonia, myocarditis, azotemia, shock, gastrointestinal bleed, and meningoencephalitis are known to occur. Although available medical literature mentions many of these complications, central nervous system involvement, in the form of acute encephalitis syndrome (AES), has seldom been highlighted (Trickman *et al.*, 1995). Relative unawareness of this type of presentation of scrub typhus makes a prompt diagnosis difficult, resulting in significant morbidity and mortality (Thai *et al.*, 2001).

Case Report

History

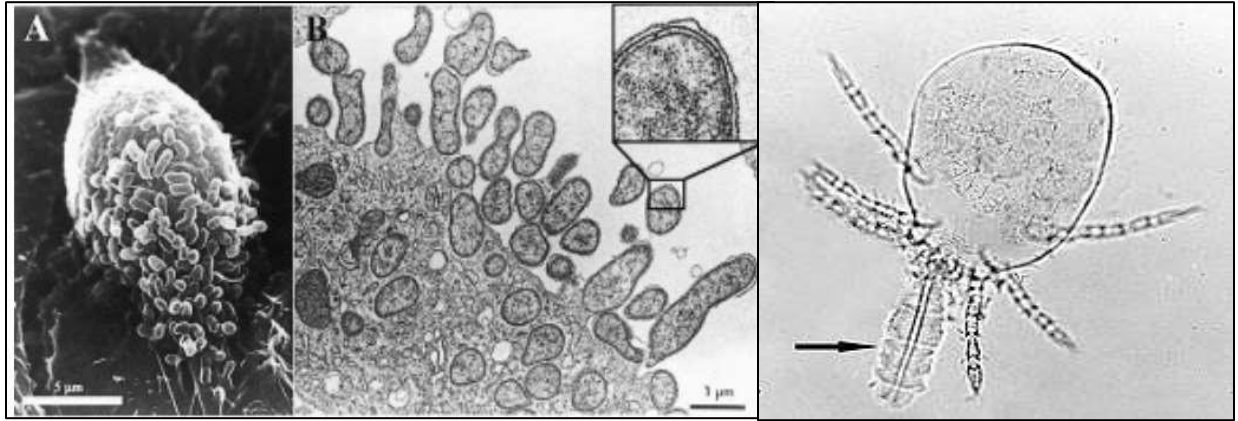
A 53-year-old female on immunosuppressive agents for Rheumatoid Arthritis shows a history of fever and signs of encephalopathy for the past 10 days. The patient was evaluated by performing routine investigations (Including investigations for Endemic tropical infections), CSF Analysis, and appropriate Radiological investigations as needed (MRI-Brain).

Course and outcome

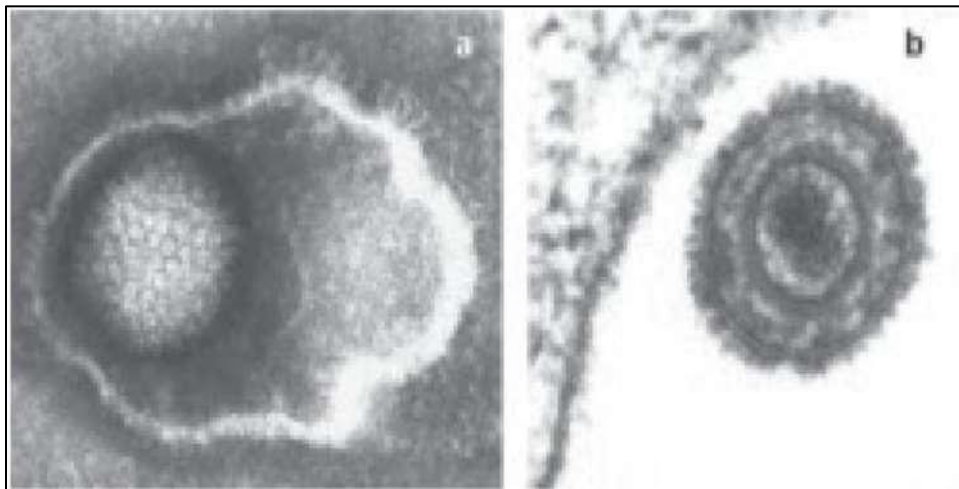
The patient was initially diagnosed with Encephalitis and empirically managed with broad-spectrum antibiotics. After Evaluation by Serological and radiological investigations patient was found to have both Scrub Typhus (Scrub Typhus IgM) and CMV (CSF- IgM) with CSF showing lymphocytosis. The patient was then treated with doxycycline and Valganciclovir and had clinical improvement (Improvement in GCS and Neurological symptoms had subsided).

Discussion

Scrub typhus is grossly under-diagnosed in India due to its nonspecific clinical presentation, limited awareness and low index of suspicion among clinicians, and lack of diagnostic facilities (Varghese *et al.*, 2006). The infection manifests clinically as a nonspecific febrile illness often accompanied by headache, myalgia, nausea, vomiting, diarrhea, cough, or breathlessness (Kamarasu *et al.*, 2007). Severity varies from subclinical to severe illness with multiple organ system involvements, which can be severe enough to be fatal unless diagnosed early and treated (Mahajan *et al.*, 2008).



. tsutsugamushi –SEM ImageChigger with its stylostome



Cytomegalovirus (CMV) can cause severe disease in profoundly immunocompromised individuals, including colitis, pneumonitis, and less commonly encephalitis (Omashekar *et al.*, 2006).

CNS imaging findings are nonspecific and diagnosis is made by identifying CMV through cerebral spinal fluid analysis (Ittyachen, 2009).

Early initiation of antiviral therapy is key with an overall poor outcome (Sharma *et al.*, 2005; Rvencar *et al.*, 2012; Lyu *et al.*, 2013).

CMV Virus - EM Image

Conclusion

In this case, due to the immunosuppressed state, the patient had CMV Infection. Further analysis also confirmed Scrub typhus infection.

The Co-infection of both CMV and Scrub Typhus is uncommon. So a comprehensive evaluation for tropical infections in an immunosuppressed patient is necessary.

Author contribution

Vidhya N, Durga Devi G, Shenbaga Lalitha S, and Swetha N B encouraged and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Acknowledgment

Conflict of interest: Nil

Study significance

The Co-infection of both CMV and Scrub Typhus is uncommon. So a comprehensive evaluation for tropical infections in an immunosuppressed patient is necessary.

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