

Case Study**A CASE REPORT ON SCRUB TYPHUS IN SIKKIM****JAYA GURUNG***^{ORCID}, **SABIN BARUN RAI**^{ORCID}, **DIWASH SHARMA**^{ORCID}, **BIJAY BHATTARAI**

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ABSTRACT

Scrub Typhus is an acute febrile illness caused by a g-negative obligate intracellular organism called *orientia tsutsugamushi* [Japanese word *tsutsuga* ("dangerous"), *mushi* ("bug")]; hence it is also called Tsutsugamushi disease. Diagnosis of the disease is challenging, as its early symptoms mimic other febrile illnesses like dengue, influenza, and coronaviruses. An 11 y old female patient presented with complaints of fever for 3 d, vomiting and, difficulty in breathing, swelling of the lower face and limbs with Escher behind the ears. The diagnosis was based on the laboratory investigation and Rapid ICT For *O. Tsutsugamushi* which appear positive for the scrub typhus. The patient was treated with Tab doxylin-100 IB BD for 7 d and was discharged stable with no complications.

Keywords: Scrub typhus, Escher, Rapid ICT

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INTRODUCTION

Scrub Typhus is an acute febrile illness caused by a g-negative obligate intracellular organism called *orientia tsutsugamushi* [Japanese word *tsutsuga* ("dangerous"), *mushi* ("bug")]; hence it is also called Tsutsugamushi disease [1]. Transmitted zoonotically by the bite of the almost microscopic larva of *trombiculid mites* (*chiggers*) which are often brilliantly colored (red) [1]. "Scrub" was used to describe this disease because of the type of vegetation that maintains the chigger-mammal relationship even though rodents and mites are also found in other regions [1]. Particularly found in areas of heavy scrub vegetation during the wet season, this disease has also been called "river/flood fever" [1]. The mite lays eggs around wet seasons, usually during June through November [2].

It is endemic to the part of the world known as "tsutsugamushi triangle" which extends from Japan, Taiwan, China, South Korea [3], Nepal, Northern Pakistan, Papua New Guinea, and the Australian states of Queensland and Northern New South Wales [4]. In India alone, scrub typhus has been known for several years. Spread all over the country and was reported in several states-Haryana, Jammu, and Kashmir, Himachal Pradesh, Uttaranchal, West Bengal, Assam, Maharashtra, Kerala, and Tamil Nadu [5].

Humans are accidental hosts of this zoonotic disease. Around a billion people are at risk and nearly a million cases are reported yearly, although scrub typhus is confined geographically to the Asia Pacific region [6].

Mortality rates for scrub typhus range from <1% to 50% and depend on the availability of proper antibiotic treatment, the status of the individual infected, and the strain of *O. Tsutsugamushi* involved [7].

CASE REPORT

A 11 y old female patient presented with complaints of fever for 3 d, vomiting and, difficulty in breathing, swelling of the lower face and limbs with Escher behind the ears. The vitals and clinical laboratory investigation are mentioned in the below tables. Urine test report (Sterile after overnight incubation at 37 °C (aerobic)), Blood test report (Sterile after 48 h of incubation at 37 °C (aerobic)) and Rapid ICT for *O. Tsutsugamushi* showed positive. USG abdomen shows mild splenomegaly. Patient was treated with Inj. Traxol 1 g BD for 7 d, Tab Lasix 20 mg OD for 4 d, Tab Paracetamol 250 mg SOS, Tab Doxylin 100LB 100MG ¾ BD for 7 d, Tab Onden MD 4 mg SOS. Patient was stable without any complications and got discharged.

Table 1: Vitals signs of the patient

Parameter	Observed value
Temperature	102F
Pulse rate	63BPM
BP	91/52 mmHG
SOP2	91%

Table 2: Laboratory findings

Test	Observed value	Normal value
HBG	12.9 g/dl	10.0-17.0
Neutrophils	79.2 %	37.0-72.0
Lymphocytes	16.5 %	20.0-50.0
Serum creatinine	0.5 mg/dl	0.6-1.1
AST/GOT	98 u/l	0-31
ALT/GPT	65 u/l	0-34
Total protein	4.5 g/dl	6.4-8.3
ALP	208 u/l	53-128
Albumin	2.4 g/dl	3.2-5.2
Globulin	2.10 g/dl	2.50-3.50

HBG-Haemoglobin, AST/GOT-Aspartate aminotransferase/Glutamic-oxaloacetic transaminase, ALT/GPT-Alanine transaminase/Glutamic-pyruvic transaminase, ALP-Alkaline phosphatase.

DISCUSSION

In recent years, Scrub typhus has spread throughout India and has emerged as a significant cause of severe febrile illness, and has a higher death rate and fatality rate. In this case, the patient was admitted with the chief complaint of fever for 3 d along with breathing difficulty and vomiting swelling of the face and lower limbs. Laboratory findings were interpreted, which showed elevated liver enzymes, mild elevation of neutrophils, mild decrease in the level of lymphocytes, and Rapid ICT For O. Tsutsugamushi showed positive. Due to the possibility of Scrub Typhus being associated with other endemic diseases because of shared risk factors like the absence of personal protective measures and a favourable environment for the vector-specific diagnosis, this becomes imperative [8, 9].

Rapid diagnosis plays a decisive role in such circumstances. Rapid diagnosis has recently become abundant due to its advantages concerning cost, single test results, and simplicity of interpretation. Rapid diagnostic tests by the use of immunochromatography test (ICT) technologies have provided a mechanism for point-of-care serological testing [10]. Many countries have reported the use and limitations of immunochromatography-based rapid tests [11, 12]. In China and Thailand, broadly reactive rapid ICTs for scrub typhus have been evaluated with standard immunofluorescence in comparative studies and ICTs were found to have higher specificity and sensitivity when compared to immunofluorescence with regards to early diagnosis of Scrub Typhus [13, 14]. Currently, established molecular assays have lower absolute sensitivities (36–56%) for the diagnosis of scrub typhus in the acute context [15, 16]. Second line of treatment drugs, such as chloramphenicol 500 mg QID, Rifampicin 900 mg/day for a week, and macrolides (Azithromycin 10 mg/kg/d for 5 d), are the preferred choice treatment for diseases conditions that are resistant to doxycycline [17]. The preventive measures involve control of vectors, prevention of vector bites, immediate removal of attached ticks, and pre-exposure chemoprophylaxis. There is no vaccine currently available to prevent scrub typhus [18].

CONCLUSION

Scrub typhus often associated with an acute febrile illness caused by mites is an endemic disease. Early detection and proper initiation of treatment can reduce the risk of complications. Patient prone to have a fever during monsoon require higher index of suspicion. Therefore, all the Health care providers should know about the preventive measures regarding vector control, empirical treatment and implementation of effective diagnostic to prevent morbidity and mortality rates.

In addition, scrub typhus co-infections with other endemic diseases due to common behavioural risk factors

(i. e. outdoor activity or sleeping, lack of personal protective measures and conducive environment for the vector), increases the need for specific diagnosis [5–9].

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AUTHORS CONTRIBUTIONS

Dr. Jaya and Dr. Sabin has framed and written the entire case report, wherein Dr. Diwas has done the corrections and Mr. Bijay has helped in case collection.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

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