A report on the present scenario of Scrub typhus in Nagaland, India

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Dear Sir,

Scrub typhus, caused by *Orientia tsutsugamushi*, is an acute, febrile, infectious illness. Hakuju Hashimoto in 1810 described it first in people residing on the banks of the Shinano River.[1] When an infected trombiculid mite ("chiggers," *Leptotrombidium deliense*) bites, the disease gets transmitted to the humans.[2] Scrub typhus is prevalent in scrub jungle where forest is regrowing after being cleared, hence the name. Optimal conditions for the survival of the infected mites prevail in areas such as forest clearings, riverbanks, and grassy regions; however, it has also been identified in sandy beaches, mountain deserts, and equatorial rain forests. Scrub typhus occurs more frequently during the rainy season, usually from June to November.[3,4]

The chigger bite is without pain and can be found as a temporary localized itch, and generally, bites are often found on the groin, axilla, genitalia, or neck. The bite of the mite results in a typical black eschar, which enables the diagnosis. Patients develop sudden fever with chills, severe headache, weakness, myalgia, generalized enlargement of lymph nodes, photophobia, and dry cough and gastrointestinal symptoms.[4] A week later, rash may appear on the trunk, and then on the extremities, and turn pale within a few days. However, maculopapular rash are seldom observed in indigenous patients. Symptoms generally disappear after 2 weeks even without treatment. However, in severe/untreated cases, complications such as pneumonia and myocarditis might occur. In untreated patients, case fatality rate is reported to be as high as 30%.[3]

In Nagaland, India, in 2006, scrub typhus was first reported at Longsa village in Mokokchung district. Since then, scrub typhus has been reported from other districts such as Kohima, Peren, Phek, and Mon. However, the disease was brought into the spotlight in 2007, when 24 people died of scrub typhus at Porba village in Phek district, Nagaland. With a population of approximately 2,000 individuals, the high mortality rate created a panic among the villagers of Porba. Although scrub typhus occurs more frequently during the rainy season, it is detected throughout the year in this region.

The aim of this study was to assess the current scenario of incidence of scrub typhus in three districts of Nagaland. Survey of scrub typhus was carried out at three districts of Nagaland, namely Dimapur, Kohima, and Phek in 2014. Blood samples were collected from random population. A total of 436 samples were collected (Dimapur, 135; Kohima, 177; and Phek, 124) and analyzed for scrub typhus by enzyme-linked immunosorbent assay (ELISA). Blood samples (5 mL) were collected and brought to the laboratory under cold condition, and the serum was preserved at –80°C. These samples were tested for specific IgM antibodies against *O. tsutsugamushi* using commercial ELISA kit (InBios International, Inc., USA). The test was performed as per the standard operating procedure of the manufacturer. The sensitivity of this method has been reported to be 86.5%.[5] Of the total 436 samples tested for scrub typhus, 31 (7.2%) samples were found positive by IgM ELISA. The result showed 3.7% positive from Dimapur, 11.9% from Kohima, and 4.1% from Phek districts. The most common clinical presentations were fever, followed by lymph node enlargement, giddiness, weakness, head ache, and stomach pain. Although eschar is an important diagnosis of the disease, it may not be seen in all the cases, and its absence do not rule out scrub typhus. All the cases detected during these surveys were treated with doxycycline successfully without any mortality or complications.

Ever since the first detection of scrub typhus in Nagaland, health-care workers have taken immense measure in curbing the disease. Awareness programs and survey of scrub typhus has been conducted frequently, which brought down the

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mortality rate. Although mortality rate has reduced significantly, scrub typhus is still prevalent in Nagaland as indicated from the random survey. Prevention can be achieved by applying insect repellants to exposed skin surfaces and use of protective clothing outdoors. Good sanitation in and around the house can reduce the rodent population in the vicinity.

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