



## Scrub Typhus-Reemergence in Jammu

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Scrub typhus or tsutsugamushi disease is widely endemic in a geographically confined area of the Asia-Pacific region, the so-called *Tsutsugamushi-Triangle* & in the tropical & subtropical regions of the Asian continent including Indian subcontinent. Many studies from South India (1,2), Haryana (3), Himachal Pradesh (4-6), Mumbai (7) Karnataka (8) and Jammu (9-12) have reported outbreak/ isolated reports of scrub typhus in the past.

In 1978, first time, Jammu was recognised as a scrub typhus prone region, in a survey conducted by Menon *et al* (9) wherein, 3.5% of the total populations examined (n=1017) possessed antibodies to the test antigen of scrub typhus. Few isolated case reports (10,11) and an out break of scrub typhus (12) has been reported in past from Jammu region.

Recent outbreaks of 20 patients from Jammu, have been reported in a period from August 09 to October 09 among adult population & of 21 cases of children (5-18yrs) from period between October 08 to September 09. Most of these patients were from Sunderbani-Naushera-Rajouri belt and some from other hilly areas such as Jindrah and Chenani (*Table-1*). Total six reports of scrub typhus exist from Jammu Region.

Thus, after a gap of many years, now it has reemerged in this region. The important points about recent outbreaks is that instead of Weil-Felix test, this time most sensitive and the one which is considered gold standard i.e. tested for antibodies (IgM) to *O. tsutsugamushi* using ELISA kit to diagnose the cases. This probably has resulted in high pick up of scrub typhus in recent outbreaks in comparison to previous outbreak reported by Vaz *et al* (12). 41 cases picked up in recent outbreaks from adult & pediatric population in comparison to 12 cases only out of 24 samples sent for diagnosis using Weil-Felix test in previous outbreak reported by Vaz *et al* (12). Moreover, use of Immunological test this time helped to establish diagnosis of scrub typhus early and helped in their timely start of treatment and thus all the cases were managed successfully without any mortality or any complication in these recent outbreaks.

The clinical course of the disease and the prognosis vary depending on the character of the endemic strain. These variations in clinical presentations & severity are very much evident in the studies from different parts and at different times from India including Jammu (*Table-1*). Major presenting features though remain fever, severe headache, myalgia, rash, lymphadenopathy, hepatosplenomegaly, cough, sore throat, abdominal pain & altered sensorium. The presence of an eschar is though, highly suggestive of scrub typhus but is reported

(*Table-1*) to occur in a variable proportion of patients. Furthermore, eschars are also detected in rickettsial pox & cutaneous anthrax.

The list of differential diagnosis of scrub typhus includes viral infections (HSV), bacterial conditions (anthrax, tularemia, ecthyma) and fungal diseases (aspergillosis, fusariosis, mucormycosis) and other rickettsial infections like murine typhus, mediterranean spotted fevers, leptospirosis, typhoid, dengue, malaria, HIV, EBV, CMV & *T. gondii*. Thus, Scrub Typhus is diagnosed clinically with difficulty because of its nonspecific, varied clinical presentation & long list of differential diagnosis.

Moreover, at present there is no cheap & easily available diagnostic tool in our hand. Besides this, most commonly available & used Weil-Felix test is becoming abandoned. Many reports of scrub typhus and other rickettsial diseases from the Indian sub-continent are based on clinical findings and the relatively non-specific Weil-Felix test. Immunological testing (antibodies IgM to *O. tsutsugamushi* using ELISA kits) is not available at every tertiary care center. The recent outbreaks & reemergence of disease in Jammu region, urgently demands that these immunological test be made available in tertiary care centers of the affected regions, including Jammu.

The treatment should be initiated early to reduce morbidity and mortality. Even empirical treatment in case of suspected cases is thus recommended. The conventional treatment includes broad spectrum antibiotics like doxycycline (adults) & chloramphenicol (in pediatric population). Rifampicin & azithromycin have been used successfully in areas where scrub typhus is resistant to the conventional therapy. (*Table-1*)

Reemergence of scrub typhus in this region, thus demands, a high degree of clinical suspicion and familiarity with the various clinical manifestations, availability and use of rapid immunological test in suspected case to allow early diagnosis and timely initiation of appropriate therapy and thereby reducing patient morbidity and mortality. The scrub typhus special issue is an attempt to understand various aspects & share experiences about this less known disease.

### References

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**Table 1. Scrub Typhus Scenario in India**

Author	Place	Test	Clinical Presentation and Treatment
Vaz <i>et al</i> (12) 2002	Jammu	Weil-Felix	12/24 suspected cases were positive- Fever, malaise & body ache in all cases. Conjunctival congestion in 5 & 2 had rashes. One patient had an infected eschar. Lymphadenopathy was seen in three while one patient had hepatosplenomegaly. Multi system involvement including pneumonitis, myocarditis & ECG abnormalities in one. Tetracyclines were used for treatment.
Mathai <i>et al</i> (1) 2003	Tamil Nadu	Tested for IgM & IgG using ELISA kit	28 patients were positive. Fever for > one week was the only common manifestation. Myalgias was the next most common feature (52%) & rash in only 22% of the cases. Treated with doxycycline & most recovered in 1-3 days, as well as two patients received chloramphenicol.
Singh P(10) 2004	Jammu	Weil-Felix	Isolated case- Fever of sudden onset continuous with chills and rigor, spiking .There was no history of vomiting, cough, expectoration, dysuria, neck rigidity, any other drug intake or rashes. On examination the individual looked ill, throat was congested. There was mild generalized lymphadenopathy. Liver was palpable, tender on deep palpation
Jasrotia <i>et al</i> (11) 2004	Jammu	IgM antibodies by ELISA	Isolated case- fever, facial puffiness & ankle swelling, abdominal pain & metrorrhagia. Patient had cough and was breathless even at rest. She was drowsy & had subconjunctival haemorrhage. She had tachycardia, tachypnoea, bilateral pedal oedema. JVP was normal & had bilateral crepitations. X ray chest revealed pulmonary oedema. Patient was treated Doxycycline.
Pavithran <i>et al</i> (2) 2004	Vellore	Weil Felix & Micro-IF tests	2 cases - first presented with Fever and Myalgia and second with fever, cough and dihorrea There were skin rashes, no conjunctival suffusion, petechiae, eschar or significant lymphadenopathy. Systemic examination was normal except Hepatomegaly.
Patil <i>et al</i> (8) 2005	Karnataka	Weil Felix & Micro-IF tests	48 patients- Fever & rash (100%), oedema (77%), altered sensorium (52%), convulsions (46%) & joint pains (27%). Characteristic non-confluent maculopapular rash (87%) and purpuric rash (13%), hepatosplenomegaly (85%), altered sensorium (50%), seizures (46%), upper GI bleeds (13%), peripheral gangrene (6%), myocarditis (4%) and pneumonia (4%).
Mahajan <i>et al</i> (4) 2006	HP	Weil Felix & Micro-IF tests	21 +ve cases had fever(100%) 5-25 days. Chills and rigors (72%), vomiting (43%), headache and myalgias (38%), lymphadenopathy (53%), jaundice (53%), congested eyes (34%), hepatosplenomegaly (43%), pain abdomen (29%), altered sensorium (24%), seizures (19%), abnormal bleeding (14%), rash (10%) and eschar (10%). All treated with doxycyclin/ azithromycin.
Mahajan <i>et al</i> (5) 2007	HP	Weil Felix	Isolated case- high grade, intermittent, fever associated with severe headache & bodyaches of 17 days, tinnitus after 8 days, dehydration & congested eyes. Large tender lymph nodes in axillary & inguinal regions. Eschar noted on left breast & on lateral aspect of left leg, speech slurred, tremors & hepatosplenomegaly. Patient treated with doxycycline 200 mg OD day
Mahajan <i>et al</i> (6) 2008	HP	Micro-IFtests	All five children had fever, vomiting and generalized lymphadenopathy, but none had eschar or rash. One was cured with doxycycline, remaining four with azithromycin and one died.
Chaudhry <i>et al</i> (3) 2009	Haryana	Weil-Felix	3- cases of scrub typhus, all of which presented with fever and multi organ dysfunction, rash and without eschar. All were successfully treated with doxycycline
Shah V <i>et al</i> (7) 2009	Mumbai	Weil- Felix	Fever , erythematous hemorrhagic rash which started over face and then spread over the body , altered sensorium & 2 episodes of generalized tonic clonic convulsion ,with multiple eschar
<b>Recent Out breaks</b> Adult Population (13) Sept - Oct 09	Jammu	Tested for IgM using ELISA kit	20- Adult positive cases. Fever 100%, Myalgia 50%, Conjunctival Congestion 30%, Eschar 35%, Rash 25%, Lymphadenopathy 45% , Splenomegaly 40% , Hepatomegaly 40% , edema 25% , altered sensorium 10%. All successfully treated with doxycycline, Azithromycine & one with addition of Rifampicin
Pediatrics Population (14) Oct 08 - Sept 09	Do		21- children positive cases. Fever (100%) & maculopapular rash (100%). lymphadenopathy (61.9%), edema (51.12%) and conjunctival congestion (46%). 76.13%, 23.8%, 19.04%, 9.2% had hepatosplenomegaly, pain abdomen, altered sensorium and gastrointestinal bleed respectively. All of the 21 children were treated with chloramphenicol. None Died.

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