

Outbreak of Scrub Typhus in Jammu – A Report

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Abstract

Background: Jammu is scrub typhus prone. Scrub typhus is often seen when troops move out of permanent locations.

Methods: In a prospective study cases of fever reporting to the local military hospital from July to October 2002 were examined clinically, investigated and categorised as scrub typhus when Weil Felix readings were above 1:160.

Results: Twelve cases of scrub typhus were diagnosed during the period of study. The clinical features included fever, malaise and conjunctival congestion. However rashes were rare and only one had an eschar. Multisystem complications occurred in one patient. There was a spatial and temporal clustering of cases. Control of outbreak was carried out by 25% benzyl benzoate impregnation of clothing, clearing of scrub, residual spray with malathion and antirodent measures.

Conclusion: Scrub typhus outbreaks have been noted whenever troops move out of permanent locations to scrub areas.

MJAFI 2006; 62 : 342-343

Key Words: Scrub typhus; Mites; Eschar

Introduction

Scrub Typhus, a rickettsiosis caused by *Rickettsia tsutsugamushi* is wide spread in South East Asia and Western Pacific region. The disease was of concern in this country prior to independence. In 1933, the Indian Armed Forces carried out screening of all fever cases by Weil Felix test. The Burma campaign and the Second World War saw increase in cases resulting in the formation of "Field Typhus Research teams" [1,2].

After independence the disease has not been reported so frequently. There have been reports of the disease during the Indo-Pak conflicts in 1965 and 1971. In 1990 11 cases were reported from the North Western parts of the country [3]. In 1993 six cases amongst troops were reported from the eastern and two cases from the northern sectors [4,5]. The occurrence of cases amongst cadets of Indian Military Academy shook up the establishment [6]. All these cases were reported from individuals who had moved out of their permanent location. The region around Jammu has been considered scrub typhus prone but cases have not been reported in the last 15 years from this area.

Material and Methods

All cases of fever occurring during July to October 2002 formed the study group. A thorough clinical examination and investigation including blood counts, urine analysis, peripheral blood smear exam, chest radiograph, electrocardiogram (ECG). Widal and Weil Felix tests were carried out in all cases. The diagnosis of scrub typhus was

based on a single titre of 1:160 or greater of Weil Felix OX-K. Tetracycline therapy was started on confirmation of scrub typhus. Analysis of data was carried out through standard epidemiological techniques consisting of spatial and temporal distribution, projection on spot maps and line diagrams.

Observations

Twenty four soldiers of fever reported to the hospital from July to October 2002. They were screened for malaria, enteric fever and scrub typhus, of which 12 were diagnosed as scrub typhus. Distribution in time and place is shown in Table 1.

The initial presentation was fever ranging from 101-104°F accompanied with malaise and body ache in all cases. Conjunctival congestion was seen in five and two had rashes. The rash was sparse and located on the abdomen. One patient had an infected eschar. Lymphadenopathy was seen in three while one patient had hepatosplenomegaly. The same patient had multi system involvement including pneumonitis, myocarditis and ECG abnormalities.

Laboratory investigation revealed that none of the patients had leucocytosis. Out of the 24 individuals subjected to Weil Felix test, 15 had titres above 1/60 and 12 had titres above 1/160.

Epidemiological investigation revealed clustering of cases with eight of them reporting from one sector within a radius of 3 kms. Three cases reported from sector 2. Sector 3 reported a solitary case of the disease. The incidence of scrub typhus in Sector 1 was 13.3 per 1000 while the incidence in sector 2 and 3 was 5 and 1.6 per 1000 respectively. Sector 2 and 3 were located 22 and 15 km away from sector 1. However all areas had similar ecological conditions with rice fields and

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Table 1
Distribution of cases in time and place

Date of onset	Location
16/7/02	Sector 1A
16/7/02	Sector 1B
16/7/02	Sector 1A
16/7/02	Sector 1A
16/7/02	Sector 1C
16/7/02	Sector 1D
20/7/02	Sector 1B
20/7/02	Sector 1C
24/8/02	Sector 3
22/9/02	Sector 2A
25/9/02	Sector 2B
26/9/02	Sector 2C

marshy areas with a potential for breeding of rodents. All individuals gave history of patrolling during the fortnight prior to the fever.

Preventive measures were hampered due to non availability of benzlhexachloride (BHC) for residual spray and non availability of di-methyl-phalate (DMP)/ Di-ethyl-phenyl-acetamide(DEPA) for impregnation of clothes. All vegetation in and around the camps was cleared and area sprayed with malathion. Anti rodent measures were implemented. As an innovative measure troops were advised to impregnate clothes and locally apply 25% of benzyl benzoate emulsion which has miticidal effect.

Discussion

Full blown scrub typhus was seen only in pre antibiotic era [7]. With early usage of antibiotics all features of the disease are not likely to be encountered. Hence it is necessary to maintain a high index of clinical suspicion. In India the rash is generally not seen [4,8]. In the present study only two cases had rash which was neither typical nor prominent. Eschars are considered common but in the present study there was only one case who had an eschar. These findings are similar to Mehta et al [4], who found only two cases having eschar. Lymphadenopathy, rash, leucocytosis and organomegaly which are features of the disease in South East Asian countries were not prominent in this study, similar to earlier studies in India. Weil Felix test (OX-K) is considered positive with titres of 160 and 320 but is neither highly sensitive nor specific [9,10]. Confirmatory tests like immunofluorescent, immuno peroxidase and polymerase chain reaction (PCR) are currently unavailable.

All cases occurred from July to October when mites are active i.e during or at the end of the rainy season. This is also the optimum season for breeding of rodents. Earlier reports from India indicate similar period of disease occurrence [3,6]. Repellants like dibutyl-phalate (DBP) and DEPA are not readily available. Impregnation

of clothes with cream based repellent like odomos was not practical, hence 25% benzyl benzoate was used. This mitocidal is being increasingly advocated for prevention of scrub typhus in South East Asia [7,8,11].

Tetracyclines were used for treatment and only one case suffered from complications. Rifampicin has also been advocated both in the treatment and prophylaxis of the disease [9,12,13].

In conclusion, 12 sero positive cases occurred in Jammu region in 2002 at the time of troop movement to areas identified as a “Typhus islands” in the past. The clinical features were not typical. The clinical spectrum of scrub typhus mimics enteric, malaria and viral fevers and with indiscriminate use of antibiotics, scrub typhus may remain undiagnosed and unreported [4]. Necessary preventive measures should be implemented on the ground including removal of scrub around camps. Troops moving into scrub areas should be provided sufficient DMP/DEPA for impregnation of their clothing. Introduction of chemoprophylaxis may be considered after a detailed study is carried out.

Conflicts of Interest

None identified

References

1. Directorate General of Health Services, Govt of India. Manual of Zoonoses. National Institute of Comm Diseases, New Delhi 1985, 1-98.
2. Bhalwar R, Tilak R, Rao MKK, Tilak VN. Surveillance of Scrub Typhus in fringe areas around Pune. MJAFI 2002; 59: 117-20.
3. Singh P, Singh R, Dhand VP. Resurgence of scrub typhus. MJAFI 1992; 48: 84-7.
4. Mehta SR, Dham SK, Jetley V, Sahane AG. Scrub typhus – a report of six cases. MJAFI 1993; 49:279-81.
5. Chauhan SS, Ohri VC, Kumar N, Dhingra A. Scrub typhus – Two interesting cases. MJAFI 1993; 49: 277-8.
6. Prasad BNB, Das MR, Kasturi AS. Scrub typhus: Not a bygone disease. J Assoc Physicians India 1997; 45: 188-90.
7. Doherty RL. A clinical study of Scrub typhus in North Queensland. Med J Aust 1956; 2: 212-20.
8. Rapmund G. Rickettsial diseases of the Far East – a new perspective. J Infectious Diseases 1984; 149: 330-8.
9. Gormley T. A diagnosis of scrub typhus. Navy Medicine 1996; 87: 20-2.
10. Beets M, Berkow H, editor. Merck Manual of Diagnosis and Therapy. Whitehouse Station, NJ USA;1996.
11. Jonathan Devine. A review of scrub typhus management in 2000-2001 and implications for soldiers. Journal of Rural and Remote Environment Health 2003; 2: 14-20.
12. Panpanich R, Garner P. Antibiotics for treating scrub typhus. In: The Cochrane Library, Issue 2, 2000.
13. Vig P.Thai Study: Scrub typhus. Lancet 2000; 356: 1057-61.