A STUDY OF CLINICAL PROFILE OF PATIENTS WHO PRESENTED WITH FEVER DURING THE MONTHS OF JUNE 2017 TO JANUARY 2018

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ABSTRACT

BACKGROUND

Fever is defined as temperature above 37.2°C @ 6 AM and temperature recording above 37.7 C @ 6 PM. Malaria is caused by 5 species of Plasmodium (P.falciparum, P.ovale, P.malariae, P.kowlesi and P.vivax). It is widely distributed in tropics and sub tropics of Africa, Asia and Latin America, and is also most common in South India. Scrub typhus is a mite borne infectious disease caused by Orientia tsutsugamushi. Scrub typhus is a significant and widespread disease in Asia. In India, cases of scrub typhus were reported during world war–II from Assam and West-Bengal; later the presence of this disease was found throughout India; from South India isolated case reports are seen from Kerala, Tamilnadu and Karnataka. Many cases were reported in Andhra Pradesh, but no documentation is available, and those cases might exist in other states of India.

MATERIALS AND METHODS

Study Population: Patients admitted in medical wards of S.V.R.R.G.G.H.
Study Place: Department of General Medicine, S. V. Medical College, Tirupati.
Study Period: June 2017 to January 2018.
Methods: From June 2017 to January 2018. Patients admitted at S.V.R.R.G.G.H who had obscure fever for >5 days were tested for IgM antibody against Orientia tsutsugamushi, the causative organism of scrub typhus. Scrub typhus was diagnosed on the basis of ELISA for IgM antibody against Orientia and also tested for MP (QBC)- the lab investigation for malaria. Institutional review board/ethics committee decided approval was not required for this study.

RESULTS

Presence of IgM antibodies against Orientia tsutsugamushi was demonstrated in 67 cases which indicate recent infection of scrub typhus. Majority of the cases belonged to Chittoor district of Andhra Pradesh. Majority of the cases were from the rural belts; 36 patients (64%) were involved in some sort of farm work at the time of infection, and for malaria most of them were treated as clinical malaria. Peak incidence for scrub typhus is seen in the age group of 30-40 years with male to female ratio nearly 2:1.

CONCLUSION

Recurrence of scrub typhus in Andhra Pradesh confirms that scrub typhus prevalence is high in the state which requires high degree of clinical suspicion, knowledge about clinical manifestations of various diseases and use of rapid immunological test in suspected cases to allow early diagnosis. This helps in initiating appropriate treatment with antibiotics. This study highlights the need for further research on epidemiology of scrub typhus and also highlights active preventive measures that have to be taken before it transforms into an endemic disease. We also recommend physicians to consider scrub typhus in their differential diagnosis of fever with altered sensorium as its presentation can vary widely.

KEYWORDS

Scrub Typhus-Eschar, Malaria – Fever with Chills and Rigors.

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BACKGROUND

Scrub typhus is one of the most common causes of prolonged fever in Southeast Asia and Pacific affecting almost one million people annually worldwide out of one billion exposed. Scrub typhus is a well-known disease in India and has been documented in several states like Haryana,[1] Himachal Pradesh,[2] Uttaranchal, Assam. Maharashtra, Kerala and Tamilnadu.[3] Larvae typically bite humans on the lower extremities or in the genital region. Transmission of O.tsutsugamushi may occur in sharply delineated mite island that consists of focal locations of scrub vegetations. Malaria is most common in Punjab, West

Bengal and South India. The two species in India are P.falciparum and P.vivax. It is typically transmitted by bite of Anopheles mosquito. Fever with chills and rigors, profuse sweating, headache, vomiting and diarrhoea.

Objectives of the Study

To document the clinical and epidemiologic characteristics of patients with fever in months of June to January admitted in medical wards of SVRRGGH, Tirupati. To study the epidemiological characteristics of most common fever during the months of June to January.

MATERIALS AND METHODS

Study Population

Patients admitted in medical wards of S.V.R.R.G.G.H.

Study Place

Department of General Medicine, S. V. Medical College, Tirupati.

Study Period

June 2017 to January 2018.

Methods

From June 2017 t0 January 2018. Patients admitted at S.V.R.R.G.G.H who had obscure fever for >5 days were tested for Ig M antibody[4] against Orientia tsutsugamushi, the causative organism of scrub typhus. Scrub typhus was diagnosed on the basis of ELISA[4] for Ig M antibody against Orientia and also tested for MP(QBC). The lab investigation for Malaria. Institutional review board/ethics committee decided approval was not required for this Study.

RESULTS

Presence of IgM antibodies against Orientia tsutsugamushi was demonstrated in 67 cases which indicate recent infection of scrub typhus. Majority of the cases belonged to Chittoor district of Andhra Pradesh. Majority of the cases were from the rural belts 36 patients (64%) were involved in some sort of farm work at the time of infection, and for malaria most of them were treated as clinical malaria. Peak incidence for scrub typhus is seen in the age group of 30-40years with male to female ratio nearly 2:1. Most were diagnosed during the rainy months of June to January. Majority of cases presented to the hospital during the second week of fever. Common physical signs included eschar (85%), rash (57%), splenomegaly (25%), lymphadenopathy (25%), jaundice (14%) and hepatomegaly (11%). Six patients had meningoencephalitis and four patients had ARDS. Majority patients responded well to Doxycycline or Azithromycin, and patients with Malaria were well responded to Artesunate. There was 7% mortality in our study for Scrub typhus

Scrub Typhus in Pregnant Women: We reported Scrub typhus in a pregnant female G2P1L1 26weeks of gestation presented with fever and eschar over thigh. IgM scrub typhus positive. She responded well to azithromycin.

Sl. No.	Clinical Symptoms	No. of Admissions	Percentage
1.	Fever	67	100%
2.	Myalgia	62	92.85%
3.	Headache	58	85.71%
4.	Chills and Rigors	62	92.85%
5.	Joint Pains	43	57.14%
6.	Eschar	59	85.71%
7.	Bleeding Manifestations	42	60.71%

Table 1. Different Clinical Symptoms

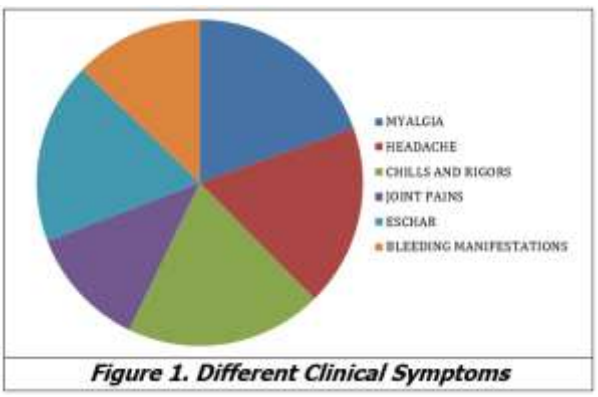

Figure 1. Different Clinical Symptoms

Clinical Sign	No. of Cases	Percentage
Eschar	59	85.71%
Rash	45	57.14%
Splenomegaly	32	25%
Hepatomegaly	10	17%
Jaundice	5	19%
Lymphadenopathy	12	25%

Table 2. Different Clinical Signs

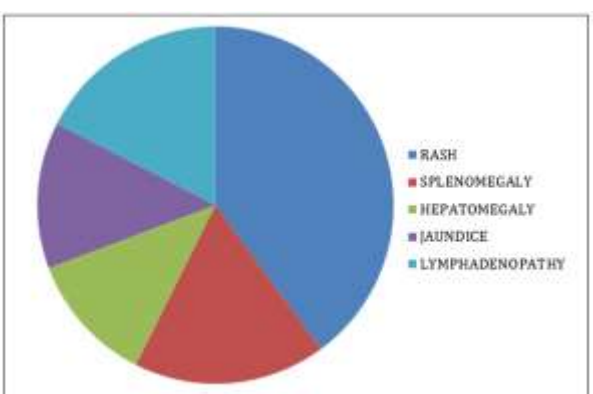

Figure 2. Different Clinical Signs

Complications	No. of. Cases	Percentage
Thrombocytopenia	45	60.71%
Hepatomegaly	21	17.85%
Splenomegaly	16	8.95%
ARDS	15	7.14%
Cerebellitis	13	3.17%
Hypotension	16	7.14%
Pneumonia	14	5.35%
Other Neurological Manifestations	2	1.78%

Table 3. Complications

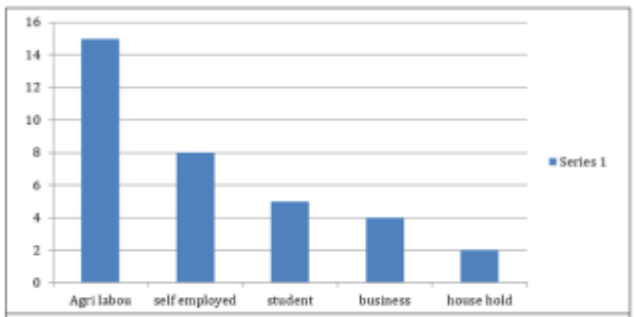

Figure 3. Occupation

DISCUSSION

Scrub Typhus, or tsutsugamushi disease is a febrile illness caused by bacteria of the family Rickettsiaceae and named Orientia tsutsugamushi.[5]

Scrub typhus distribution is limited to a triangle called TSUTSUGAMUSHI TRIANGLE extending between Northern Japan, Western Australia and Central Russia that includes Indian subcontinent, Eastern Russia, China.[6] It is an important military disease, many thousands of cases having occurred in the Far East area during World War II. In India it has been documented both in Southern and Northern India. More cases of scrub typhus were diagnosed during the rainy months of June to November. As during these months, after the rain scrub vegetations grow which harbour the vectors. Majority (64%) of our patients are from Chittoor district of Andhra Pradesh. The average time between the onset of symptoms and hospitalization was 9 days. Humans are the accidental hosts, normally the larvae feeds on small mammals or ground feeding birds. Both nymph and adult are free living in the soil. Transmitted by bite of infected larvae of trombiculid mite Leptotrombidium deliense. As our studies was conducted at a Tertiary care center, non-specific nature of symptoms were reflected. 64.2% of our cases were engaged in farm work at the time of infection, suggesting the influence of these activities on transmission of infection from mite. Farm work and related activities were noted in 64% of the cases by Ogawa et al.[7] 70% of the affected population are in the age group of 25-50yrs. 65% of the patients are males. Ogawa et al[7] did not note any sex influence on the distribution of cases.

Epidemiological studies are required for further elaboration of this point.

The fever is the common symptoms and is present in almost all the patients of scrub typhus as evident from reviewing the literature. In various studies, Eschar is reported to occur in variable proportions of patients which is highly suggestive of scrub typhus. Its presence confirms and is pathognomonic of the disease but the absence of eschar does not exclude the possibility of scrub typhus.

In our study, eschar was seen in 85% of the cases. Indian studies by Mathai et al[3,7]

Vivekanandan et al[8] Mahajan et al[2,9] reported an incidence of eschar as 4%; 46% and in 10% of cases respectively.

Like the presenting symptoms, the clinical signs, namely fever, lymphadenopathy, hepatomegaly, splenomegaly, hyperemia of the conjunctivae and rash, are similarly nonspecific. A dark, scab like region at the site of the chigger bite known as Eschar.

Eschar, present in 85% of our patients, is a very useful sign in making the diagnosis. They were found in moist intertriginous areas, such as the genitalia, thigh, chest and the perineum. Lymphadenopathy was found in 25% of the cases in our cases and this is consistent with observations in other studies. In a study from china, lymphadenopathy was detected in 52% of the patients. Acute respiratory distress disorder is seen in 8% almost equal as compared with other data; 8% as reported by Vivekanandan et al.[8] Neurological complications like cerebillitis[10] and meningoencphelatis[10] were also reported.

An interesting finding opsoclonus[11] is seen in one case. This is a rare feature of scrub typhus and third case to be reported from South India. One patient presented with hypotension, oliguria and bilateral pneumonia on examination eschar was found diagnosed as MODS. Patient died with in 24hrs. Majority of our cases, responded well to doxycycline. Recently from other parts of country many cases of scrub typhus were poorly responsive to Doxycycline and Chloramphenicol. One recent randomized clinical trial had shown that rifampicin might be useful in treating this poorly responsive case. One patient did not respond to doxycycline but responded to azithromycin. We reported scrub typhus in a pregnant female who responded to azithromycin.

Most of the patients with fever with chills and rigors, myalgia, profuse sweating were tested negative for MP (QBC), but responded to well for Artesunate therapy. Uncomplicated cases were mostly caused by species by P.falciparum. Complicated malaria symptoms like seizures, hypoglycaemia, spontaneous bleeding and features like cerebral malaria (unrousable coma), pulmonary oedema, renal failure etc. were mostly caused by P. vivax. These patients are also well responded to Artesunate.

CONCLUSION

Recurrence of scrub typhus in Andhra Pradesh confirms that scrub typhus prevalence is high in the state which requires high degree of clinical suspicion, knowledge about clinical manifestations of various diseases and use of rapid immunological test in suspected cases to allow early diagnosis. This helps in initiating appropriate treatment with antibiotics. This study highlights the need for further research on epidemiology of scrub typhus and also highlights active preventive measures that have to be taken before it transforms into an endemic disease. We also recommend physicians to consider scrub typhus in their differential diagnosis of fever with altered sensorium as its presentation can vary widely.

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