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PRESENTATION OF SCRUB TYPHUS CLINICAL MANIFESTATIONS AND COMPLICATIONS IN A TERTIARY CARE GOVERNMENT GENERAL HOSPITAL.

Dr.G Manogna	House Surgeon, Rangaraya Medical College, Kakinada.
Dr. Indira Prabha*	Associate Professor Paediatrics, Department Of Pediatrics, Government Medical College, Srikakulam. *Corresponding Author
Dr. Singamsetty Srinithya	Final Year Post Graduate, Department Of Pediatrics, Government Medical College, Srikakulam.
Dr. Kotha Karishma Vardhani	Final Year Post Graduate, Department Of Pediatrics, Government Medical College, Srikakulam.

ABSTRACT **BACKGROUND:** Scrub typhus, which is typically triggered with the aid of Orientia tsutsugamushi, is the most usually suggested rickettsial contamination on the Indian subcontinent. Rickettsial infections, together with scrub typhus, are grossly under-identified in India due to their non-precise clinical presentation, confined consciousness about the disease, a low index of suspicion amongst clinicians, and a lack of diagnostic amenities **MATERIALS AND METHODS:** A prospective observational study was conducted in children from 1.3 years to age 12 years old who had a fever greater than five days without any notifiable infection admitted at a tertiary care government general hospital between June 2021 and November 2021 for six months. **RESULT:** A total of thirty children had been identified with scrub typhus recognized for the duration of find out above period. All cases were confirmed serologically. Patients' age ranged from 1.3 years to 12 years, with a mean age of six years. Children between five years to ten years of age accounted for 60% of all scrub typhus cases. In thirty cases we observed males (60%) and 12 females (40%). The biggest quantity of cases was diagnosed between August and November. Complications were seen in 22 patients. Thrombocytopenia presentation was the most frequent complication (83%). Other complications include Encephalopathy, Myocarditis, and Acute Kidney Injury. **CONCLUSION:** Strong index of doubt of Scrub Typhus in children presenting with acute febrile infection and diagnosing tropical fever. The early attention to problems such as shock, acute kidney injury, and myocarditis in patients, particularly children, with rickettsioses, including scrub typhus, is of paramount significance to make a positive outcome. A cautious seems to be for an eschar can assist in diagnosing rickettsial infection.

KEYWORDS : Pediatric, Rickettsial, Eschar

INTRODUCTION

Rickettsial infection, is a zoonotic acute febrile fever triggered through obligate intracellular, gram-negative microorganisms from the genera Rickettsia, Ehrlichia, Neorickettsia, Anaplasma, and Orientia, Rickettsiosis is unfolded by way of tick or mite bites[1—9]. Scrub typhus prompted using Orientia tsutsugamushi is the most many times said rickettsial contamination on the Indian subcontinent [3—6,10—12]. Rickettsial infections, together with scrub typhus, are under-diagnosed in India due to the fact of their non-specific medical manifestations, a lack of recognition of the disease, a low index of suspicion amongst clinicians, and a lack of definitive diagnostic amenities [10]. We performed a potential prospective observational study at a tertiary care government general hospital in Srikakulam, Andhra Pradesh, to study the clinical manifestations, treatment response, and complications of pediatric scrub typhus. The lookup goal used to be to decide the significance of scrub typhus as a differential diagnosis in children presenting with acute febrile disease.

MATERIALS AND METHODS

A prospective observational study was conducted in children from 1.3 years to age 12 years old who had a fever greater than five days without any notifiable infection admitted at a tertiary care government general hospital in between June 2021 and November 2021 for six months. . The objective observational study was to find out the clinical manifestation of children presented with scrub typhus.

DIAGNOSTIC CRITERIA FOR RICKETTSIAL FEVER

Rickettsial infection was one of the suspicions in sufferers who had a fever for greater than five days barring any notifiable infection and one or extra of the following medical features: edema, rash, lymphadenopathy, hepatosplenomegaly, an eschar, and a tick bite [13].

All children who had been clinically suspected of having rickettsial contamination due to the fact they had one or extra of the manifestations cited above and examined high quality by using Scrub Typhus IgM / IgG Rapid diagnostic check had been described as having scrub typhus[10]. A medical response in want to doxycycline remedy (defervescence inside forty-eight hours) was once viewed as extra proof of the disorder.

DATA OBTAINED

Clinical observational data, together with the length of the fever, different symptoms, critical signs, and the standard and systemic examination findings, had been recorded. A search for eschars was once carried out for all patients. All identified sufferers have been dealt with with a 7 to a 10-day path of oral doxycycline (5 mg/kg/day BD). The medical response to treatment and the complications was once noted. Collected records involving age, sex, residential area, exposure to farming, exposure to animals, and proximity to wooded area areas had been collected

Other most frequent infectious conditions that are clinically similar to scrub typhus were identified by performing the following tests: rapid diagnostic test, a peripheral smear for the malaria parasite, a Widal test, a Dengue IgM antibody test, leptospira serology, blood and urine cultures, a Mantoux test. Chest X-rays, Complete blood counts (CBC), tests for liver and renal function, analysis of the urine for proteinuria, and serum electrolyte quantifications, erythrocyte sedimentation rate (ESR), were performed at presentation for all cases and have been repeated if necessary. The cerebrospinal fluid analysis was evaluated for necessary cases with suspected meningitis. Electrocardiography (ECG) was performed in all cases to look for proof of Myocarditis in cases of congestive cardiac failure. CT scan and fundus examination were done in cases with encephalopathy presentation. Scrub Typhus IgM test was used as a diagnostic test in all cases.[10,11,12,1314].

Myocarditis used to be suspected when the following prerequisites have been observed:

(i) Cardiomegaly, Congestive cardiac failure
(ii) The hemodynamic impairment that required a vasopressor (≥5 µg/kg/min of dopamine or dobutamine),
(iii) ECG abnormalities with low voltage QRS complexes.

Hypotension becomes described as systolic blood stress underneath the fifth percentile for the appropriate age, sex, and height.

Hepatitis is used to describe when liver functioning tests transaminases were found to be elevated (>40 U/L)[2].

Acute kidney injury (AKI) used to be recognized in accordance with the RIFLE criteria [17]

Acute respiratory distress syndrome (ARDS) was once recognized in accordance with the American-European Consensus Conference on ARDS [18]. Thrombocytopenia was once described as a platelet count of below 150,000/mm3 [3]. Encephalopathy is defined as seizures or altered sensorium or focal neurological deficit in a child with acute febrile fever.

RESULTS

DEMOGRAPHIC AND CLINICAL DATA

All Thirty children have been identified with scrub typhus between June 2021 and November 2021. All cases had been serologically confirmed. All scrub typhus patients' age ranged from 1.3 to 12 years, with a mean age of six years. Children between the age group 5 and 12 years accounted for 60% of all cases. There had been 18 males (60%) and 12 females (40%). More wide variety of cases used to be determined between August and November. Clinical manifestations symptoms and signs at the time of presentation were provided in Tables 1 and 2. All scrub typhus sufferers were manifested with fever, and the majority (60%) had a fever for seven to fourteen days before presentation.

Table 1: Symptomatic pattern in scrub typhus

PRESENTING SYMPTOMS	NUMBER	%
FEVER - Less than seven days - More than seven days	30 22 8	100%
ESCHAR	22	73%
RASH	3	10%
MYALGIAS	18	60%
VOMITINGS	14	46%
ABDOMINAL DISTENSION	16	53%
ABDOMINAL PAIN	16	53%
COUGH/ DIFFICULTY IN BREATHING	11	36%
OLIGURIA	2	6%
BLEEDING MANIFESTATIONS	2	6%
ALTERED SENSORIUM	3	10%
SEIZURES	3	10%
HEADACHE/DIPLOPIA	1	3%

Table 2: Signs in scrub typhus

SIGNS	NUMBER	PERCENTAGE
LYMPHADENOPATHY	12	40%
TEMPERATURE > 101C	30	100&
TACHYCARDIA	22	73%
TACHYPNOEA	12	40%
HYPOTENSION	8	26%
PLEURAL EFFUSION	12	40%
HEPATOMEGALY	22	73%
SPLENOMEGALY	15	50%
SHOCK WITH LOW VOLUME PULSES	2	6%
HYPERTENSION	2	6%
ASCITES	6	20%
CRANIAL NERVE PALSIES	1	3%

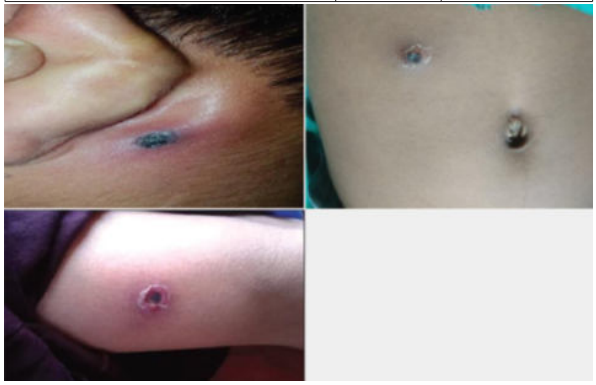

Figure 1: ESCHAR

Complications were seen in 25 patients. Thrombocytopenia was one of the most frequent complications (83%). Encephalopathy was seen in 3 children. Acute kidney injury was identified in 2 patients, and Cardiogenic shock at the time of admission was seen in 2 children. A female child aged ten years developed left lateral rectus palsy and diplopia after six days of fever. Her CT scan brain was normal, and the fundus we observed papilledema. Her lumbar puncture reports we observed CSF pleocytosis. Hepatitis with mild elevation of Liver transaminases up to 200 to 300 IU/L was seen in 8 children.

Laboratory parameters

The complete leukocyte count was elevation observed in 37% of the total diagnosed cases. Thrombocytopenia with platelet counts < 50000mm^3 was the most frequent finding seen in 30% of cases. An elevated serum creatinine level or a change in the serum creatinine level while admission more than 0.3 mg/dl, diagnostic of AKI, was identified in 10% of cases. In 20% of cases, Mild elevation of transaminases up to 200- 300 IU/L was present. CSF analysis is done in 3 children; one evaluation confirmed pleocytosis.

Doxycycline therapy response

Most of the pediatric sufferers (29 out of 30 patients) responded to doxycycline. Doxycycline was used for seven days in a dose of 5mg/kg/day in two divided cases. The period of defervescence ranged from 48 hrs to 72 hrs. Single patient, 3yrs female with Myocarditis with CCF and shock with inotrope support a landed in AKI and died.

DISCUSSION

This study describes the scrub typhus in a pediatric patient in a tertiary care government general hospital in Srikakulam. A positive laboratory test with Scrub Typhus IgM Rapid Diagnostic Test was considered to have the infection. The current study finds out about is one of the few potential observational research carried out on children from India. Scrub typhus has been observed more in male sufferers than female patients, and the male-to-female ratio was once 1.5:1, which is in all likelihood due to the greater occurrence of publicity to chiggers amongst boys, who like to play outdoors[2—5,14,16,19].

In the current study mean age at presentation had been six years, which is more similar to that reported by Huang et al. [2]. The majority of cases occurred between August and November, probably because of humid and cooler climates.

Most of the current study children presented with fever (100%) and hepatomegaly (91%). A maculopapular rash was observed in 20% of the cases in our study similar to the study done by Sittiwangkul R et al . [20] The incidences of Encephalopathy, Myocarditis, acute kidney injury, that was observed in the present study have diagnostic and therapeutic implications[20].

Many clinical manifestations including fever, edema, organomegaly, thrombocytopenia, hypotension, hepatitis, and coagulopathy, can also be caused by dengue infection, which same clinical presentation to scrub typhus is a diagnostic dilemma. 12 of the 30 sufferers in our study were started on a fluid regimen as per the dengue fever treatment protocol.

These sufferers were introduced to volume overload inside the subsequent few hours and required diuretics and inotropic support. The presence of different indications such as the persistence of fever, the absence of an expansion in the hematocrit, and the presence of an eschar helps distinguish rickettsial contamination from different hemorrhagic fevers, such as dengue.

The current study has a few limitations. First, the learn about was once carried out in a tertiary care hospital; therefore, the modern facts do no longer signify the complete community, and the proper incidence of rickettsiosis in our neighborhood may additionally be higher. Second, the Scrub Typhus IgM Rapid Diagnostic test alone was used to confirm the diagnosis because we don't have access to more sensitive tests. Tests, such as IgM immunofluorescence, could not be performed as they are not available in developing and resource-poor settings. More specific investigations to diagnose complications like CPK-MB and 2D ECHO cannot be performed in our setting. Despite these limitations, we consider that this finding out about might also expand the consciousness of this treatable scrub typhus disease, particularly amongst clinicians, and might also supply a higher perception of the medical facets and problems of scrub typhus, in children.

CONCLUSIONS

1. Strong suspicion of Scrub Typhus in children was presented with acute febrile infection and diagnosing tropical fever.
2. The early consciousness of problems such as shock, Myocarditis, and acute kidney harm in patients, especially children, with rickettsioses, inclusive of scrub typhus, is of paramount significance to make certain a high-quality outcome
3. A requisite search for an eschar can assist diagnose rickettsiosis

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