Case Report

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Neonatal Scrub Typhus: Case Report

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Abstract

Scrub typhus (tsutsugamushi disease) is caused by orienta tsutsugamushi and transmitted by trombiculid mite. Approximately 1 million infections occur each year globally and it occurs mostly in Asia. It can affect all age groups however very rare case has been reported among neonates. Here we report a newborn with scrub typhus disease. Whenever a newborn present with clinical symptoms of the disease it should be suspected investigated and treated promptly to limit the morbidity and mortality.

Keywords: Scrub typhus; Neonates; Asia; Pediatrics; India; Infant

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Introduction

Scrub typhus is a vector born disease and has high morbidity and mortality if untreated. Transmission via bite of the larval stage (chigger) of trombculid mite (leptotrombidium) serves as both vector and reservoir. Transmission is most commonly trans-ovarial and regurgitation of infected saliva during feeding.

Case

A newborn male baby delivered at term gestation (weight 2.8 kg) by institutional vaginal delivery to a primigravida mother, who had history of fever two weeks prior to delivery, was not investigated but treated. Baby cried immediately after birth, and apparently well till day 16 of life then he developed high grade fever, decreased oral intake, drowsiness. Baby was being cared at a primary health center but as there was deterioration in condition, baby was referred to our hospital. On examination child was dull, febrile, having hepato-splenomegaly and a small papular lesion was noticed between inner canthus of right eye and nose. Later the lesion evolved as eschar which progressed and led to necrosis of the root of nose along with underlying bone involving the orbit of right eye.

We kept differentials of late onset sepsis and scrub typhus and investigated for the same. Baby was started on intravenous antibiotics and supportive treatment. IgM antibody for scrub typhus was found to be reactive, while blood culture was sterile. Baby was started on Azithromycin. At the same time baby developed respiratory failure and multi organ dysfunction needed mechanical ventilation and inotropes. However, the baby could not be saved and expired within 48 hours of admission. This case report emphasizes the need of early diagnosis and prompt treatment of babies who clinically presents with eschar and high grade fever (scrub typhus).

Discussion

Tsutugamushi disease is caused by orienta tsutsugamushi. Organisms enter human body, multiply locally then enter the bloodstream and reticulo-endothelial system. Vasculitis is the basic mechanism responsible for skin rash, micro vascular leakage, edema and tissue hypo perfusion and end-organ ischemic injury [1,2]. There is formation of thrombi leading to tissue infarction and hemorrhagic necrosis. Inflammation and vascular leakage causes interstitial pneumonitis, pulmonary edema, cerebral edema and meningoencephalitis and serositis. Infection of endothelial cells leads to procoagulant activity and coagulation factor consumption, platelet adhesion and leukocyte emigration producing disseminated intravascular coagulation showed in **Figure 1.**

Incubation period of the disease ranges between 1-30 days [2]. There are 3 possible route of infection in neonate's transplacental infection, perinatal blood-born transmission and postnatal infection. It has been well documented that an elevation of IgM

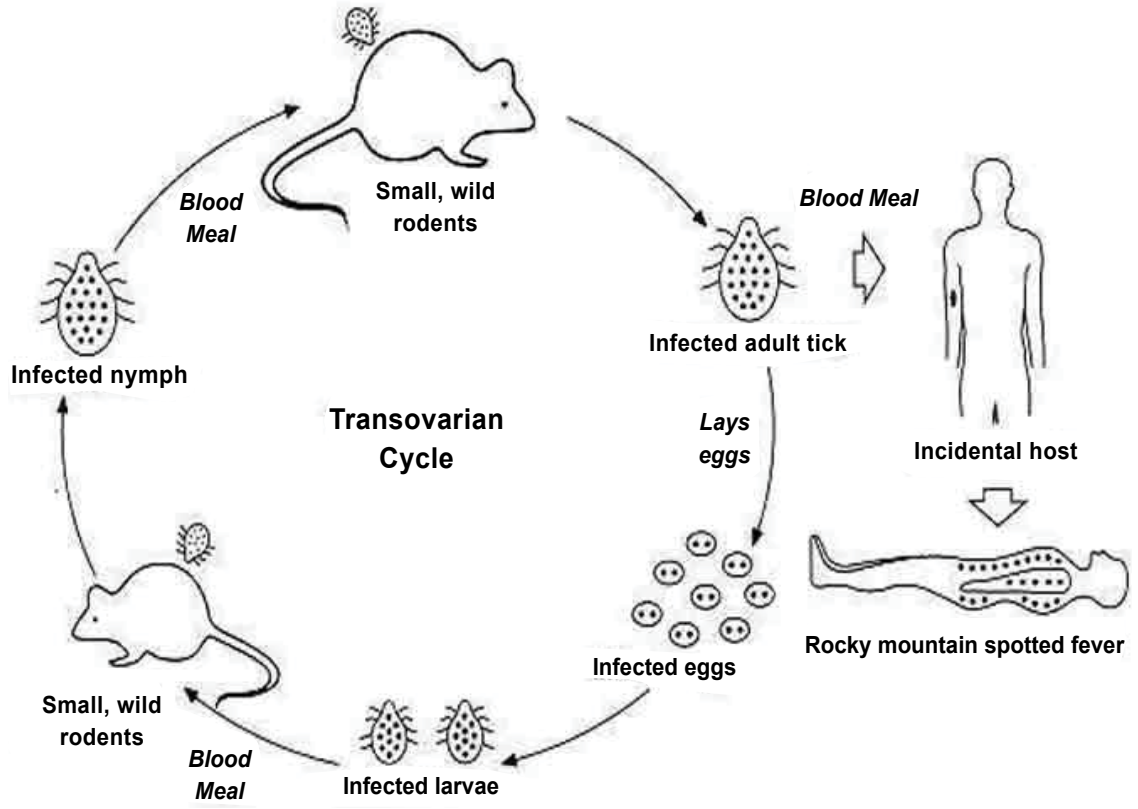

Figure 1 Life cycle of organism and the its transmission by vector.

antibodies during the neonatal stage indicates an intrauterine infection [3,4]. Most newborn present with respiratory distress, fever, decreased oral intake, abdominal distension, hepatosplenomegaly, seizure and lethargy mimicking neonatal septicemia as seen in our case and also in cases reported [5,6]. A painless eschar with an erythematous rim at site of chigger bite is seen in 7-68% of cases [3] as was seen in our case however [5,6] not reported eschar in their neonatal cases with scrub typhus, a maculopapoular rash is present in less than 30%. It affects almost all system. Neonates may develop complications such as shock, seizures, encephalopathy, pleural effusion, pneumonitis and respiratory failure.

On hemogram, total leukocyte and platelet count mostly normal although thrombocytopenia in one quarter to one third patients [2]. Thrombocytopenia was noted in our case and cases reported [5,6]. Hyponatremia, hypoalbuminemia, elevated hepatic transaminases and elevated blood urea are biochemical findings. Blood cultures are generally sterile as reported in our cases as well as other cases reported [5,6].

Diagnosis mostly based on history, clinical feature and serological marker [7,8]. Antibodies mediated test like Microimmunoflorescence, immunoperoxidase assay, latex agglutination, indirect hemagglutination, ELISA, dot blot immunoassay and Weil-Felix test. Other Investigation includes Immunohistochemistry, Isolation of organism, PCR: detects rickettsial DNA in whole blood, buffy coat fraction or tissue specimen.

Measles, dengue fever, malaria, meningococcemia, typhoid, leptospirosis, infectious mononucleosis, collagen vascular Kawasaki disease are important differentials. Treatment includes antibiotics like tetracyclines, chloramphenicol, macrolides and fluroquinolones. Doxycycline is the drug of choice. Long course of tetracycline to newborn and young children leads teeth related problems. Use of quinolones during neonatal period may cause problems related to cartilage ad bone However, short term use has not demonstrated such problems. Azithromycin is a safer alternative. As per DHR-ICMR guidelines for diagnosis and management of rickettsial disease in India recommendation include (a) Doxycycline in the dose of 4.5 mg/kg body weight/day in two divided doses for children below 45 kg or (b) Azithromycin in the dose of 10 mg/kg body weight for five days. Good supportive therapy is very important.

Conclusion

Scrub typhus may occur in newborns as well. So, it should be kept in differentials in newborns with fever and skin papules/eschar. Early diagnosis and prompt treatment is helpful in reducing morbidity and mortality.

Conflicts of Interest

None.

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