International Journal of Multidisciplinary and Current Research ISSN: 2321-3124
Research Article Available at: http://ijmcr.com

Rare Co-Infection with Zoonotic and Viral Disease in a Young Female

Kalirattiname, Vijesh Anand , Aarthi and Deyagarasan

Department of General Medicine, Mahatma Gandhi Medical College and Research Institute, Sree Balaji Vidhyapeeth University, Pillayarkuppam, Pondicherry, 607 402, India

Accepted 30 July 2016, Available online 05 Aug 2016, **Vol.4 (July/Aug 2016 issue)**

Abstract

We present an interesting and rare coinfection of Zoonotic disease and viral disease in a young girl of South Arcot district of Tamil Nadu such as Scrub Typhus and Dengue Fever and recovered from both diseases.

Keywords: *Scrub Typhus, Dengue virus, Zoonotic, Co-infection*

Introduction

In clinical scenario it is very difficult for a treating physician to address the young patients with non responding hyperpyrexia. Identifying cause of Pyrexia and treating the patient is a breathtaking exercise for a clinician, it is documented that20% cases of pyrexia empirically treated or subsided on its own where in the causative organism could not be established. However, with great difficulty, we could establish that this girl is suffering from two infectious diseases together, that is scrub typhus and Dengue fever. [1],[2].

Case Report

24 year old female patient was admitted for non remitting fever, ulcer over Right arm pit. This illness started with an episode of generalized body ache, cough, with a fever of 1 week duration. Fever was high grade and Biphasic in nature for which she approached a local hospital where she had taken treatment but fever continued for which she was admitted as an inpatient in our hospital. On examination: Febrile, Temperature-102F, PR-110/min(sinus tachycardia) BP-110/70 mm of Hg on sitting posture in right upper limb. She weighed around 45kgs. No generalised lymphadenopathy. No Jaundice. No evidence of petechial haemorrhages. Eschar present over Right upper arm pit. CVS- Normal. RS- Normal. P/A- No Organomegaly. CNS-Normal.

Provisional diagnosis of pyrexia of unknown origin was made. However, the presence of Eschar, a provisional diagnosis of Zoonotic disease of Scrub Typhus was made. Patient was subjected to investigation such as complete hemogram, which revealed platelet-89,000. Dengue serology was done to identify Dengue hemorrhagic fever. Serology (dengue) turned out to be positive for IgG and Scrub Typhus. For this a diagnosis of Dengue Hemorrhagic fever and Scrub Typhus was confirmed. Patient was treated with IV fluids , Tab.Doxycycline and antipyretics. She was also closely observed with the platelet count twice a day and any bleeding manifestations patient was discharged on the 6th day without any complications.

Discussion

In the clinical scenario, occurrence of two different etiological diseases is rare such as Dengue caused by Flavi virus transmitted by the bite of aedes mosquito may be caused by one of four serotypes widely distributed between the tropics of Capricorn and cancer. An estimated of 50-100 million of Dengue fever, several hundred thousands of Dengue hemorrhagic fever occurs every year as a consequence of climatic factor and urbanisation of cultivable lands. It is thus the most common vector borne disease of humans which has an IP of 3-15days when the virus is introduced in susceptible population usually by viraemic travellers. [3],

Epidemic attacks rate ranging from 50-70%. Sever epidemics of dengue hemorrhagic fever occurred over past 20 years in East Africa, Srilanka and Latin America. Dengue is the second most common cause of fever after Malaria among travellers returning from developed countries. It has three clinical presentations such as classic dengue fever, dengue hemorrhagic fever and dengue shock syndrome. It is also called as “Break bone fever”. This illness is more severe to begin within adults with an onset of high fever, chills, severe aching pain all over body associated with sore throat and malaise. Maculopapular rashes appear 3days after fever in 50% of cases. There is a cardiac involvement in 25% of cases also acute hepatitis in 5% of dengue fever. It usually affects young children living in endemic areas. A few days after illness, signs of haemorrhage such as ecchymosis, epistaxis, gastrointestinal bleeding occurs. Dengue haemorrhage fever patient presents with restlessness,

epistaxis and abdominal pain and GI complications of haemorrhage, ascites may need a intensive care treatment. [4]

A subset of patients more often girls than boys often with a secondary infection may progress to dengue shock syndrome in which acute fever hemorrhagic manifestation in which marked capillary leak are common as evidenced by pleural effusion and ascites. More often distinguishing between Dengue and other causes of febrile illness is difficult. Fever due to Dengue is associated with Neutropenia, thrombocytopenia, with severe myalgia and arthralgia. Dengue shock syndrome is associated with high mortality rate which needs intensive care with platelet transfusion volume expanders. However, this patient has recovered with blood transfusion and volume expanders. [5]

Scrub typhus is caused by orrientia tisusugamushi which is a principle of a parasite of Rodents which is transmitted by larval trombiculid mites. The disease is endemic in India, Korea and South East Asia." It is also called as tisusugamushi triangle". Transmission is often more common at higher altitudes. The mites' lice on vegetation but complete the life cycle by biting humans who come in contact with infested vegetation. Therefore the disease is more common rural areas occasionally vertical transfusion occurs and blood transfusion may transmit the pathogens as well. Clinically it presents with malaise, chills, severe headache, and backache after an incubation period of 1-3weeks. At the site of bite, papule develops into a flat black eschar, a finding which is usually helpful for diagnosis often associated with regional painful lymphadenitis. [6]

Fever rises gradually and after 1week macular rash occurs commonly over trunk area. This rash can last up to one week. Patient may become obtunded gastrointestinal symptoms include nausea, vomiting and diarrhoea nearly 2/3 of the patient corresponds to mucosal erosions and haemorrhage and GI tract both acalculous cholecysitis and acute abdomen attacks are reported. Severe complications such as pneumonitis, myocarditits and cardiac failure, encephalitis/meningitis, acute abdominal pain, DIC, granulomatous hepatitis, ARDS, hemophagocytosis or ARI may develop during 2^{nd} or 3^{rd} week. Single attack confirms prolonged immunity against homologous strains and transient immunity against heterology strains. [7]

Heterologous strains produce mild infections within year after the first episode. Lab findings reveal thrombocytopenia, elevation of liver enzymes, bilirubin and creatinin area common serologic testing with immunofluorescence or immune peroxidise assays or commercial dot blot ELISA dipstick test assays are convenient, conclusive. Diagnosis requires documentation and 4 fold increase between acute and convalescent phase of antibodies. Indirect immunofluorescense assay is the mainstay of serological diagnosis. PCR from the blood or Eschar may be the most sensitive diagnostic test, remain positive often initiation of treatment culture of the organism by(mask inoculation) from blood obtained from direct few days of illness is another diagnostic modality. [8]

Differential Diagnosis

Leptospirosis, Typhyoid, Dengue, Malaria, Malarial fever often Rickettsial disease. Headache may look like Trigeminal Neuralgia. Scrub typhus is a recognized cause of obscured tropical fever especially in children. [9]

Without treatment fever subsides spontaneously after two weeks, mortality rate may be 10 to 30%. Empirical treatment for 3days doxycycline 100mg twice daily/minocycline 100mg iv twice daily for 7days/ chloromphenicol 100mg iv twice daily for 7days. If the resistance for doxycycline/ chloromphenical treat with azithromycin or roxithromycin as drug of choice of children and pregnant women and also drug of choice for children and pregnant women and also drug of choice for resistant scrub typhus. Rifampicin may reduce fever one day along with doxycycline. Poor prognostic factor include case in ICU, high APACHE II score, Age over 60years, absence of Eschar, laboratory finding of leucocytosis and hypoalbuminemia can fit the diagnosis. HIV infection does not influence the severity of infection. [10]

Conclusion

Repeated application of miticides can make endemic area safe insect repellent on clotting , and skin as well as protective clothing are effecting preventive measures for short exposure chemoprophylaxis with doxycycline 200mg weekly can prevent the disease but permit infection overall there is no effective vaccines available.

References

[1]. Mahajan SK, Rolain JM, Kashyap R, Bakshi D, Sharma V, Prasher BS, *et al*. Scrub typhus in Himalayas. *Emerg Infect Dis* 2006; *12:* 1590–2.

[2]. Mittal V, Gupta N, Bhattacharya D, Kumar K, Ichhpujani RL, Singh S, *et al.* Serological evidence of rickettsial infections in Delhi. *Indian J Med Res* 2012; *135:* 538–41.

[3]. Chakravarti A, Arora R, Luxemburger C. Fifty years of dengue in India. *Trans R Soc Trop Med Hyg* 2012; *106:* 273–82.

[4]. Dash AP, Valecha N, Anvikar AR, Kumar A. Malaria in India: Challenges and opportunities. *J Biosci* 2008; *33* (4): 583–92.

[5]. Singhsilarak T, Phongtananant S, Jenjittikul M, Watt G, Tangpakdee N, Popak N, *et al.* Possible acute coinfections in Thai malaria patients. *Southeast Asian J Trop Med Public Health* 2006; *37:* 1–4.

[6]. Epelboin L, Hanf M, Dussart P, Ouar-Epelboin S, Djossou F, Nacher M, *et al*. Is dengue and malaria coinfection more severe than single infection? A retrospective matched study in French Guiana. *Malar J* 2012; *11:* 142.

[7]. Jindal SK, Aggarwal AN, Gupta D. Adult respiratory distress syndrome in the tropics. *Clin Chest Med* 2002; *23:* 445–55.

[8]. Dussart P, Petit L, Labeau B, Bremand L, Leduc A, Moua D, *et al*. Evaluation of two new commercial tests for the diagnosis of acute dengue virus infection using NS1 antigen detection in human serum. *PLoS Negl Trop Dis* 2008; *2* (8): e280.

[9]. Blacksell SD, Jarman RG, Gibbons RV, Tanganuchitcharnchai A, Mammen MP Jr, Nisalak A, *et al*. Comparison of seven commercial antigen and antibody enzyme-linked immunosorbent assays for detection of acute dengue infection. *Clin Vaccine Immunol* 2012; *19:* 804–10.

[10]. Anchinmane VT, Shedge RT. A review of malaria diagnostic tools: Microscopy and rapid diagnostic test (RDT). *Asian J Med Sci* 2010; *1:* 75–9.