Journal of Microbiology and Infectious Diseases / JMID
2014; Special Issue 1: S62-S64
doi: 10.5799/ahinjs.02.2014.S1.0144

CASE REPORT

Dengue fever with co-infections: A case series in children

Ramesh Bhat Y, Chaitanya Varma, Sonia Bhatt

Department of Paediatrics, Kasturba Medical College, Manipal University, Manipal-576104, Karnataka, India

ABSTRACT

Dengue fever with co-infections especially in children is scarce. The clinical presentations of dengue overlap with that of infections like malaria and hepatitis A which may lead to misdiagnosis. In febrile children from dengue endemic area co-infections should be suspected and if the suspicion is strong patients should be investigated further apart from dengue so that the morbidity can be minimised. Authors report two children with concurrent dengue and vivax malaria and another rare co-infection of dengue with Hepatitis A. All three children recovered completely from their illness. *J Microbiol Infect Dis 2014; Special Issue 1: S62-S64*

Key words: Children, Co-infections, Dengue, Hepatitis A, Malaria.

Eşlik eden enfeksiyonlarla birlikte "Deng Humması": Bir Çocuk Olgu Serisi

ÖZET

Ko-enfeksiyonlarla birlikte seyreden Deng ateşi özellikle çocuk yaş grubunda nadir olarak görülür. Deng ateşine ait bir takım klinik prezentasyonlar sıtma ve hepatit A gibi diğer bir takım enfeksiyonlarla karışabilir ve yanlış tanılara sebep olabilir. Deng ateşinin endemik olduğu bölgelerde ateşli çocuklarda koenfeksiyonlardan şüphelenilmelidir ve yeterli şüphe varlığında da ko-enfeksiyonlara yönelik ileri araştırmalar da yapılmalıdır. Bu makalede yazarlar iki adet Vivax sıtması ve bir adet de hepatit A'nın eşlik ettiği olmak üzere üç adet Dengue ateşi ko-enfeksiyonu bildirmektedirler. Her üç olgunun tümü şifa ile sonlanmıştır.

Anahtar kelimeler: Çocuk, Ko-enfeksiyon, Deng Ateşi, Hepatit A, Sıtma.

INTRODUCTION

Dengue fever, caused by a flavivirus is the most prevalent arboviral disease in tropical and subtropical regions of Asia, the Pacific and Caribbean islands, and Central and South America.[1] The clinical manifestations range from mild flu-like symptoms to Dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). In the initial febrile phase the symptoms may mimic with various other diseases. The overlapping clinical presentations of dengue, malaria, hepatitis A and many other diseases may lead to substantial misdiagnosis.[1-4] Such misdiagnosis may add to significant morbidity. High index of suspicion, careful attention to clinical course and early serological tests are necessary to identify the concurrent illnesses with dengue infections so that the morbidity can be minimised. We report concurrent illness of dengue with malaria and hepatitis A in children.

CASE REPORT

Case 1

A 15-year old boy presented with history fever with chills and rigors since 3 weeks, and yellowish discoloration of the eyes since the previous one week. He was suspected of enteric fever by previous physician contacts. On examination, he was febrile, had icterus and a firm splenomegaly of 3 cm. Blood investigations revealed haemoglobin of 10 gm%, total leucocyte count (TLC) of 2000/mm^3 and platelets of 14,000/mm^3. Renal and liver function tests (bilirubin-1.2 mg/dL) and serum electrolytes were normal. Blood culture and widal tests were negative. Schizonts of *Plasmodium vivax* (*P. vivax*) were seen in the smear and by quantitative buffy coat (QBC) test. IgM (ELISA) test for dengue infection was positive. There was no history of dengue-like illness in the preceding four months. He was treated with

Correspondence: Ramesh Bhat Y, Professor, Department of Paediatrics, Kasturba Medical College, Manipal University, Manipal, Karnataka, India Email: docrameshbhat@yahoo.co.in
Received: 18 January 2014, Accepted: 15 April .2014

platelet transfusion, chloroquine and primaquine. Repeat smear by 48 hours showed clearance of malarial parasites. He became afebrile and the TLC and platelets gradually improved over the next one week. Because of persistent left hypochondriac pain, ultrasonography of abdomen was carried out which showed splenic infarct. He was asymptomatic on follow up at two weeks.

Case 2

A 9-year old male child was admitted with fever, headache and multiple petechiae of one week duration. He was febrile and had pallor, icterus, diffuse petechiae and hepatosplenomegaly. Investigations revealed anaemia (Hb, 8.3g/dL), thrombocytopenia (43,000/mm^3) and prolonged activated partial thromboplastin time (aPTT) of 58.2sec. QBC test was positive for *P. vivax*. Peripheral smear showed ring forms and schizonts of *P. vivax*. IgM (ELISA) test for dengue infection was positive. Past history did not reveal any dengue-like illness in the preceding 4 months. Following antimalarial and supportive treatment the child improved symptomatically, smear was cleared of malarial parasites and the hepatosplenomegaly regressed over one week.

Case 3

High grade fever with chills of one week duration, decreased appetite, vomiting and yellowish discoloration of the eyes of 3 days duration was complained of in a 16-year old boy. On examination, he had fever, icterus and hepatomegaly of 3 cm. His complete blood picture was normal except elevated haematocrit 48% and low platelets (86,000/mm^3). Blood culture remained sterile. Liver function test showed AST of 4519 U/L, ALT of 6214 U/L, ALP of 218 U/L, bilirubin of 3.5 mg/dL, prothrombin time of 24 sec, INR of 1.7 and prolonged APTT of 52.9 sec. IgM-ELISA for dengue infections and Anti-HAV IgM antibody test were positive. He has not received immunization against hepatitis A. There was no history of dengue-like illness in the past 4 months. Serum bilirubin level rose to 5.4mg/dL by next 3 days. He was started on supportive treatment. He became asymptomatic with normalising liver function tests and platelet counts over a week.

DISCUSSION

An estimated 50 to 100 million dengue infections are reported annually and around 2.5 billion people are at a risk of acquiring the infection worldwide.[1] But dengue with co-infections especially in childhood have been rarely reported in medical literature. Studies have shown that the incidence of dengue with malaria is 1% of total cases in French Guyana and 1.5% in India.[2,3] Endemicity, mosquitoes as vectors and similar seasonal spread would help in both the infections occurring concurrently. Both dengue and malaria present with similar clinical picture and differentiating one from the other would be difficult. Diagnosing co-infection of dengue with malaria requires epidemiological data, clinical expertise and laboratory assistance. All three cases in our series were from dengue endemic area. All of them strongly denied any history of dengue-like illness in the preceding 4 months. In the first case, the boy had typical clinical manifestations of dengue haemorrhagic fever, low platelet count and positive IgM ELISA for dengue infection. In the second case the boy had typical clinical features of dengue haemorrhagic fever, anaemia, thrombocytopenia and deranged liver function tests. In both cases, the co-infection, malaria was diagnosed with positive smear findings and with prompt antimalarial therapy smears showed parasitological clearance.

Dengue with hepatitis A infection in children is very rare and their coexistence can present a diagnostic dilemma for a treating paediatrician.[4] The present report is second such coexistence to be reported from our country. Both dengue and hepatitis A infections can present with fever and jaundice. Clinical presentation of this 16-year old boy with thrombocytopenia, elevated haematocrit and positive dengue IgM test suggested dengue haemorrhagic fever. Very high liver enzymes and elevated prothrombin time indicated the possibility of infective hepatitis. Although hepatic involvement is commonly seen in dengue fever severe hepatic derangement is rare. Serum aminotransferase levels are usually elevated 2-3 times the normal.[5] In contrast, aminotransferase levels in acute hepatitis A infection are elevated 8-10 times the normal or even higher. Hemoconcentration and thrombocytopenia as observed in this boy are common features of acute dengue infections. In all three cases, because of absence of dengue infections in the recent past, further confirmatory tests for dengue infections such as RT-PCR tests were not performed.

In conclusion, this case series highlight the importance of the need of awareness of the treating pediatricians of dengue co-infections in endemic areas. The possibility of concurrent dengue and malaria infections should always be kept in mind in febrile children from endemic areas for early diagnosis and prompt and effective treatment so that the serious complications are minimised or avoided.

High serum aminotransferase levels and coagulation profile abnormalities should lead to the suspicion of hepatitis A co-infection.

REFERENCES

1. World Health Organization. Dengue haemorrhagic fever: diagnosis, treatment and control. 2nd ed. Geneva: WHO, 1997.
2. Carme B, Matheus S, Donutil G, Raulin O, Nacher M, Morvan J. Concurrent dengue and malaria in Cayenne Hospital, French Guiana. Emerg Infect Dis 2009;15:668-671.
3. Hati AK, Bhattacharjee I, Mukherjee H, et al. Concurrent dengue and malaria in an area in Kolkata. Asian Pac J Trop Med. 2012;5:315-317.
4. Zaki SA, Lad V. Concurrent infection of dengue fever and hepatitis A infection: A case report. Indian J Crit Care Med. 2011;15:238-240.
5. Trung DT, Thao le TT, Hien TT, et al. Liver involvement associated with dengue infection in adults in Vietnam. Am J Trop Med Hyg 2010;83:774-780.