CASE REPORT

https://doi.org/10.3329/jmcwh.v21i2.83578

AN UNUSUAL PROLONGED DURATION OF ILLNESS OF DENGUE IN A CHILD - A CASE REPORT

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ABSTRACT

Dengue is one of the most important human virus transmitted by arthropod. It is the leading cause of viral disease that is transmitted by arthropod globally. The virus enters into host through the skin following an infected mosquito bite. The illness progresses as it involves all immune responses including innate, cellular and humoral immunity. When the virus is cleared rapidly from the host, there occurs severe clinical signs of the illness. The term break bone fever has been used to describe the symptom suffered by dengue patients as there is severe joint pain and muscle spasm. There exists a wide range of manifestations clinically for dengue patients including severe dengue (SD) that is dengue shock syndrome (DSS), dengue hemorrhagic fever (DHS) but some patients may show no symptoms that is they remain asymptomatic to dengue fever (DF).Even though most of the cases remain without any symptoms, some patients develop severe form of dengue and may even die. Since specific treatment like antiviral agent or preventive measure such as vaccines for dengue remain undiscovered, the only option is to manage the patients as per symptoms. The infection manifests with broad clinical spectrum, sometimes with unusual manifestation. Here a case is being reported about a boy of 4 years age with unusually prolonged duration of illness, who presented with features of dengue shock (hypotension, narrow pulse pressure and prolonged Capillary Refill Time).

Keywords: Dengue shock syndrome, Thrombocytopenia, Children.

Cite this article: Nusrat N, Paul N, Wadia N.An Unusual Prolonged Duration of Illness of Dengue in A Child- A Case Report.J Med Coll Women Hosp. 2025;21(2):144-149.

INTRODUCTION

Dengue is one of the most important human virus transmitted by arthropod. It is the leading cause of viral disease that is transmitted by arthropod globally. The term break bone fever has been used to describe the symptom suffered by dengue patients as there is severe joint pain and muscle spasm. Even though most of the cases remain without any symptoms, some patients develop severe form of dengue and may even die. The virus is transmitted by the mosquito known as Aedes which is commonly found in the subtropical and tropical regions of the earth. There has been a dramatic rise in the dengue incidence in the recent decades. In certain regions globally the disease has become endemic. Certain individuals (who have once been infected by a subspecies of dengue virus) become prone to develop DHF with severe permeability of capillary and bleeding when they become infected by subspecies other than the one they where previously infected by[1,2,3].

Since the beginning of 2025, and as of March, over 1.4 million dengue cases and over 400 dengue-related demises have been noted from 53 countries/territories in the World Health Organization (WHO) Regions of the Americas (Pan American Health Organization), South-East Asia and West Pacific Regions (South East Asia Regional Office and Western Pacific Regional Office of WHO, respectively), in the Eastern Mediterranean WHO Region (Eastern Mediterranean Regional Office) and in Africa[4].

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In 2023, dengue cases were recorded in highest number, affecting over 80 countries in all regions of WHO. The WHO Region of the Americas reported 4.5 million cases and 2300 deaths. A high number of cases were reported in Asia: Bangladesh (321, 000), Malaysia (111, 400), Thailand (150, 000), and Vietnam (369,000)[5].

Bangladesh witnessed the deadliest DF outbreak in 2023 ever since the first outbreak in 2000[6,7]. Directorate General of Health Services (DGHS) has reported 231,204 hospitalizations and 1,122 deaths in the 2023 outbreak year[8]. Death toll from Bangladesh's dengue outbreak in 2024 was 415 as of November 2018, with 80,000 infected, according to the official data of Bangladesh's DGHS[9]. DENV-2 variant of dengue was particularly prevalent and lethal, contributing to a raised death toll in Bangladesh. In June 2023, the Institute of Epidemiology, Disease Control and Research (IEDCR) observed that individuals were affected with the DENV-2 and DENV-3 variants with the highest rates of infections and death[10]. In 2022 and 2021, DENV-4 and DENV-3 were found for the first time, respectively[11,12]. The dengue virus (member of the *Flavivirus* genus of the family Flaviviridae) has four different serotypes (DEN-1, DEN-2, DEN-3, and DEN-4)13,14.

The virus enters through the skin into the host when a mosquito carrying the virus bites the individual. The illness progresses as it involves all immune responses including innate, cellular and humoral immunity. When the virus is cleared rapidly from the host, there occurs severe clinical signs of the illness. Therefore, correlation is not observed between high load of the virus and the most severe clinical manifestations[15]. The dengue pathogenesis involves a complex inter action between virus and host factors, and immunesystemplaysaa important rolein disease pathogenesis. Various mechanisms of severe form of the disease have been suggested, including: antibody-dependent enhancement or ADE, T-cell mediated immunopathology, complement activation by virus-antibody complexes and cytokine abundance[16].

There exists a wide range of manifestations clinically for dengue patients including severe dengue (SD) that is dengue shock syndrome (DSS), dengue hemorrhagic fever (DHS) but some patients may show no symptoms that is they remain asymptomatic to dengue fever (DF).Since specific treatment like antiviral agent or preventive measure such as vaccines for dengue remain undiscovered, the only option is to manage the patients as per symptoms. Generally, those suffering from dengue in the mild form are recommended hydration and adequate bed rest. WHO recommends intravenous colloids and crystalloids solutions administration for those suffering DSS[17].

The control of vector is at the core of dengue prevention. In India the measures taken include insecticide use, cleaning places were these mosquitoes thrive and awareness development campaigns but still have failed to causes substantial impact on the control of spread of dengue. There exist several impediments including resistance of insecticide, expense and delivery difficulties, safety for the environment and sustainability issues. The effective implementation of the Integrated Vector Management (IVM) Strategy which is recommended by the National Vector Borne Diseases Control Program (NVBDCP) and WHO also faces many hurdles[18].

CASE REPORT

A 4 years 3 months old boy, weighing 15 Kg, hailing from Paikpara, Mirpur-1, Dhaka was admitted in Delta Medical College and Hospital on 18th August, 2023 at midnight with diagnosis of dengue fever. He came from lower middle-class family, was second issue of non-consanguineous parents and had no co- morbidities. On

admission, he was hypotensive (blood pressure-60/40 mm of Hg) and his capillary refill time (CRT) was >3 seconds. He was managed immediately with crystalloid solution according to national guideline. Fever started on 4th August which was high grade associated with headache, vomiting, abdominal pain and mild cough. Dengue NS1 test was positive on 6th August. The child became afebrile on 9th August (5thday of illness). Regular complete blood count (CBC) was done which showed reduced platelet count (PC). It was 1,09,000/cmm on 12th August (8th day of illness) gradually decreasing to 19000/cmm on 18th August (14th day of illness). After admission another sample of CBC was sent showing further reduction of PC (14000/cmm). On 19th August (15th day of illness) PC was 11000/cmm and at that time the patient had bleeding manifestation in the form of mild epistaxis. He was managed with platelet transfusion. After transfusion, PC mildly raised to 16000/cmm on 20th August. After one day PC again decreased to critical level which was 6000/cmm. Another episode of platelet transfusion was given. After that PC gradually increased to 34000/cmm. All samples of CBC showed mild leukocytosis rather than leukopenia with neutrophil predominance. Fever reappeared at 18th day of illness. All investigations including C-Reactive Protein (CRP) , Blood for culture and sensitivity test, Chest X-ray, Urine Routine Microscopic Examination and culture and sensitivity, Ultrasound of abdomen were done to exclude infection which was normal except CRP which was raised (17.7mg/l). Antibiotic Cefixime was started. After 2 days, fever subsided and PC was 1,04000/cmm. We discharged the patient on 27th August (23th day of illness) with advice for follow up. On follow up after 3 days, the patient was clinically well and CBC showed hemoglobin, hematocrit, white blood cell count (WBC) and PC were in normal range.

DISCUSSION

The patient presented with features of dengue shock (hypotension, narrow pulse pressure and prolonged CRT), although shock is more commonly observed in female and in age group of 6 to 10 years[19]. Shock was present in 41.1% of under 5 children in a study[20]. Hypotension was noted in 56% of paediatric population in a study and it was 11.9% in another study[20,21]. In association with fever he had headache, abdominal pain and vomiting which is consistent with other study[20,21,22]. The boy presented with features of dengue shock syndrome on 14th day of illness which was quite unusual as patient with dengue enter into critical phase usually after 3 to 4 days of onset of fever[16] and complication occurs mostly on 6th to 7th day of illness[23]. He developed severe thrombocytopenia on 14th to 17th day of illness which was also unusual. Thrombocytopenia is an usual finding in dengue fever[19,20,22] but severe thrombocytopenia was found in 20.2% of patients in a study[22].Leukocytosis was present rather than leukopenia with neutrophil predominance. An Indian study showed leukocytosis in 16% of patients and WBC was normal in 62% of patients[24].Our patient had bleeding manifestation in the form of epistaxis. Bleeding manifestations were present in 44.3% of patients, among them epistaxis was 3% in a study[25].The patient suffered from unusually prolonged period of illness that was inconsistent with that of other dengue patients but prolonged fever was not observed. According to a research work , saddleback fever was associated with SD and DHF while fever of prolonged nature had relationship with SD,DHF, and DSS. Thus, immediate extensive evaluation to note any dengue complications is required whenever a patient has prolonged fever or fever which is saddleback patterned. During evaluation the threat of nosocromial infection development also needs to be excluded[26].Patients with dengue may as

well show unusual manifestation like diabetic ketoacidosis (DKA) in children 27, acutehaemorrhagicleukoencephalitis[28], psoas hematoma[29].

CONCLUSION

Dengue can rarely manifest with atypical presentations in children. Patient should be closely monitored both clinically and haematological for prolonged period which will be helpful for timely treatment and prevention of complication.

CONFLICT OF INTEREST

There is no conflict of interest.

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