

How to Cite:

Chaitra, C., Badakali, A., Sowndarya, T. A., & Pattar, M. (2022). Clinical profile of atypical manifestations of dengue fever in children. *International Journal of Health Sciences*, 6(S6), 1785–1791. <https://doi.org/10.53730/ijhs.v6nS6.9918>

Clinical profile of atypical manifestations of dengue fever in children

Dr. Chaitra

Consultant Pediatrician

Dr. Ashok Badakali

Prof and HOD, Dept of Pediatrics, S.Nijalingappa Medical College & H.S.K Hospital and Research Hospital – Bagalkot

Dr. Sowndarya T. A.

Assistant Professor, Dept of Community Medicine, Shridevi Institute of Medical Sciences and Research Hospital – Tumkur

Dr. Mounesh Pattar

Associate Professor, Dept of Pediatrics, Shridevi Institute of Medical Sciences and Research Hospital – Tumkur

*Corresponding author email: mouneshvp2@gmail.com

Abstract---Objectives: The objective of the study is to study the clinical profile and outcome of atypical manifestations of dengue fever in children. Methods: A case series study design was conducted in S.Nijalingappa Medical College & H.S.K Hospital, Bagalkot. A detailed history was compiled, as well as the current complaints. The study subjects clinical progress was tracked until they were discharged. In all of the cases, basic tests such as a full Haemogram, Dengue serology and Daily Platelet count and Hematocrit were performed. Other tests such as LFT, USG Abdomen, Chest X-ray, ECG, 2D-ECHO and MRI brain are performed as needed in cases of Severe Dengue / Atypical symptoms. Results: The study covered 100 instances, with males accounting for 52 percent and females for 48 percent. Dengue fever, dengue fever without warning signs, and severe dengue were found in 29 percent, 43 percent, and 28 percent of the cases, respectively, in this study. Atypical signs were seen in more than half of the cases (59%) out of 100. We had 8 cases of severe dengue with SGPT/SGOT above 1000 IU in our study and two of them had Fulminant Hepatic Failure with the highest SGPT value of 6500 IU. Conclusion: We would like to conclude that atypical dengue fever signs become more common as the disease becomes more severe and the disease load rises. Early detection of unusual symptoms leads to

better outcomes and management, lowering dengue infection mortality and morbidity.

Keywords---dengue fever, platelet count, atypical manifestation, hepatitis.

Introduction

Dengue fever is the world's fastest-spreading mosquito-borne viral disease. Incidence has increased 30-fold in the previous 50 years, owing to significant geographic growth into new countries and more recently, from urban to rural settings. India alone is responsible for over a third of the world's dengue fever cases¹. Dengue fever is a febrile sickness caused by five Flavivirus serotypes that are closely related. Dengue virus is a single-stranded RNA virus with five serotypes: 1, 2, 3, 4, and 5, which were recently found ². The disease is spread through the bite of an infected female *Aedes Egypti* mosquito³. Fever, Headache, Retro orbital discomfort, Myalgia, Nausea, Vomiting, and Rash are all symptoms of classic dengue fever. Fever decreases, haemorrhagic signs, haemo concentration, severe stomach pain, persistent vomiting, hypotension, and shock are all symptoms of a more severe type of dengue³.

Dengue fever infects an estimated 50-100 million individuals each year, with 2.5 billion people living in dengue-endemic countries. Case fatality rates range from 1% to 5%, although with proper treatment, they can be as low as 1%¹. It appears clinically as dengue with warning signs and severe dengue in its most severe form. In recent years, unusual clinical symptoms of dengue fever have become more common. Dengue fever has a wide range of symptoms and can affect several organ systems. Atypical symptoms are on the rise as illness burden rises, yet they are under-reported and frequently ignored due to a lack of awareness among health care professionals. Expanded dengue syndrome / uncommon or atypical signs of dengue fever, as defined by the revised 2011 dengue fever guidelines, includes neurological, hepatic, renal, cardiovascular and other isolated organ involvement and is typically life threatening with a high case fatality rate¹.

Lymphadenopathy, biphasic fever, hepatitis, febrile diarrhoea, refractory shock, and decreased cognition are the most prevalent unusual signs of dengue fever. Portal hypertension, acalculous cholecystitis, acute respiratory distress syndrome, myocarditis, Acute kidney Injury, neurological symptoms and others are some of the other unusual signs^{4,5}. Encephalitis, myelitis, myositis, postinfectious immunemediated acute disseminated encephalomyelitis, G B syndrome, and opsoclonus myoclonus syndrome are some of the neurological symptoms⁶. Dengue fever has a wide spectrum of clinical symptoms, and its clinical presentation is typically unpredictable. Atypical symptoms are more common than is commonly acknowledged. However, there is a dearth of awareness among health-care workers, particularly at basic health-care institutions, where these cases are frequently referred. As a result, this study was conducted to examine the wide range of clinical presentations of dengue fever in a resource-constrained country like India, as well as the need to educate health-care professionals and the general public about various atypical manifestations of

dengue fever so that early detection and appropriate intervention can improve children's outcomes. Therefore the objective of the study is to study the clinical profile and outcome of atypical manifestations of dengue fever in children.

Methods

A case series study design was conducted in S.Nijalingappa Medical College & H.S.K Hospital and Research Centre, Bagalkot. The survey was conducted around one and half year during January 2018 to June 2019. The age group of 0-14 years children admitted in S.Nijalingappa Medical College and HSK Hospital and Research Hospital, presenting with fever and serologically confirmed cases of dengue fever (NS1 antigen/IgM/ELISA positive) included in the study. A total of 100 cases of serologically confirmed dengue infection included in the study. Institutional Ethical committee clearance was obtained to conduct the study in our Hospital.

Written and informed consent are taken from parents or guardians. Detailed history, the presenting complaints were noted. Clinical course of the study subjects were observed till the discharge. Basic investigations like complete haemogram, dengue serology and daily platelet and PCV was done in all the cases. In case of severe dengue/ atypical manifestations other investigations like LFT, USG abdomen, chest x-ray, ECG and 2D-echo, MRI brain is done as and when required.

Statistical Analysis

Data were entered in MS-Excel and analyzed in SPSS V21. Descriptive statistics were represented with percentages. Chi-square test was applied to find significance. $P < 0.05$ was considered as statistically significant.

Results

Table 1
Demographic details of the patients

Sex (n=100)	Frequency	Percent
Male	52	52.0
Female	48	48.0
Age in years		
0-1	14	14.0
1-5	18	18.0
6-10	36	36.0
11-14	32	32.0
Total	100	100.0

Total 100 cases were included in the study, of which Male were 52% and female were 48%. In the present study, we had 14 case less than 1 year old, most common age group seen was 6-10 years (36%) followed by 11-14 years (32%).

Table 2
Case Classification

Classification	Frequency	Percent
Dengue	29	29.0
Dengue with warning signs	43	43.0
Severe dengue	28	28.0
Total	100	100.0

In this study out of 100 case we had dengue fever, dengue fever without warning signs and severe dengue; 29%, 43% and 28% respectively.

Table 3
Atypical Manifestations

Total Number of Cases N = 100		
Atypical manifestations	Frequency	Percent
Total	59	59.0
Seizures	7	7.0
Encephalopathy	4	4.0
Meningitis	1	1.0
Hepatitis	18	18.0
Acalculus Cholecystitis	1	1.0
Reactive Arthritis	1	1.0
Myocarditis	1	1.0
Pleural Effusion	17	17.0
Ascites	17	17.0

Out of 100 cases more than half, 59% presented with atypical manifestations. Biphasic fever was present in 21(21.0%) cases followed by hepatitis was present in 18(18.0%), pleural effusion was present in 17 (17.0%), Ascites was present in 17 (17.0%), Seizures was present in 7(7.0%) and so on (Table 3).

Table 4
Lab Parameters in Dengue fever

Lab parameters	Frequency	Percent
Anemia (Hb <10gm/dl)	42	42.0
Leucopenia(TLC<4000/mm ³)	67	67.0
Platelet Count (<10 thousand/mm ³)	11	11.0
Platelet Count (10-20 thousand/ mm ³)	24	24.0
Platelet Count (20-50 thousand/mm ³)	34	34.0
Platelet Ccount (50-150 thousand/mm ³)	31	31.0
Hematocrit >36	31	31.0
Deranged Prothrombin Time	9	9.0
Deranged Activated Partial Thromboplastin Time	7	7.0
INR (>1)	6	6.0
SGOT/SGPT (150-500)	5	5.0

SGOT/SGPT (500-1000)	4	4.0
SGOT/SGPT (>1000)	8	8.0
Creatinine >1	2	2.0
Gallbladder Edema on Ultrasound	14	14.0

In our study we had 8 cases of severe dengue having SGPT/SGOT above 1000 IU and in that 2 cases had fulminant hepatic failure with highest value being SGPT 6500 IU.

Table 5
Correlation between Platelet counts and Bleeding

Bleeding Manifestations	Platelet counts							
	<10		10--20		20-50		50-150	
	Count	%	Count	%	Count	%	Count	%
Absent	5	45.5%	15	62.5%	30	88.2%	31	100.0%
Present	6	54.5%	9	37.5%	4	11.8%	0	0.0%
Total	11	100.0%	24	100.0%	34	100.0%	31	100.0%
P<0.001								

In our study platelet transfusion was done in 11 cases in all where platelet counts were less than 20 thousand and with significant bleeding.

Table 6
Atypical Manifestations presenting with warning signs

Atypical Manifestations (N = 59)		
Warning Signs	Frequency	Percent
Pain Abdomen	21	35.6
Vomiting	22	37.3
Lethargy	8	13.6
Clinical Fluid Accumulation	24	40.7
Hepatomegaly	13	22.0
Mucosal Bleed	16	27.1
Raising Hematocrit	24	40.7

The most common warning signs in dengue associated with atypical manifestations are clinical fluid accumulation followed by pain abdomen and vomiting.

Discussion

Dengue has a broad range of clinical manifestations & often with unpredictable clinical presentation. Atypical manifestations are more common than actually reported. With rising disease burden atypical manifestations are also on the rise. A total of 100 cases of dengue fever studied, & classified based on 2009 WHO classification. We had dengue fever, dengue with warning signs and severe dengue in 29%, 43% and 28% respectively. In our study most common warning signs were persistent vomiting and pain abdomen. The most common symptom of

dengue fever is abdominal pain. As a clinician, you must be aware of symptoms such as abdominal pain and vomiting, as these are early warning indications before the disease progresses to severe dengue. General practitioners may misdiagnose the condition as hepatitis, whilst surgeons may consider it an acute abdomen. Most dengue complications can be avoided if they are detected and treated early. Any patient with abdominal pain should be investigated for dengue fever if additional signs are indicative of viral fever, especially in dengue-endemic areas⁷.

We had more than half of the cases i.e 59% cases presenting with atypical manifestations which was comparable to studies by Pothapregada S et al⁴ and Nimmagadda S et al⁷. Hepatitis was present in 18 % of cases, all of whom had greater than a three-fold elevation of hepatic transaminases and among them two children developed fulminant hepatic failure as comparable with the study by Pothapregada S et al⁴ and Kamath S R et al⁵. In this study, febrile diarrhea was seen in 6.3 % cases with severe dengue as comparable with the study by Pothapregada S et al⁴ which is unusual and very few cases have been reported.

Hematological measures revealed anaemia in 42% of cases, leukopenia in 67%, and thrombocytopenia in 100% of cases. In 43 patients (35%), severe thrombocytopenia was observed, hemoconcentration in 31% of the cases. In 86 percent of cases, the NS1 antigen was positive, and in 51 percent of cases the dengue IgG antibody was positive. In 9 children, abnormal coagulation (prolonged prothrombin and/or activated partial thromboplastin time) was seen. In 17% of the cases, abnormal liver enzymes were discovered. Spontaneous bleeding occurred in 19% of the children. Children with platelet counts of 20,000 and 20,000–50,000/mm³ had bleeding manifestation in 54.5 percent and 37.5 percent of cases, respectively. There was bleeding in 11% of instances with a platelet count of 50,000 to 15,000, but no platelet transfusion was required. Only 11 children (6.7%) required platelet transfusions, with 45 percent having platelet counts below 10,000/mm³ and 25% having platelet counts between 20,000 and 50,000/mm³.

The majority of the bleeding symptoms (petechiae, gum bleeding, malena) were modest and not life-threatening. Platelet count did not correlate well with the type/severity of bleeding, indicating that causes other than thrombocytopenia, such as platelet dysfunction, consumption coagulopathy, and endothelial dysfunction, could be contributing factors. Platelet transfusions were required only in children who had a substantial spontaneous bleed or shock, or who had severe thrombocytopenia.

Conclusion

Dengue fever is a multisystem infection with various degrees of severity. It has a wide range of symptoms, from benign self-limiting disease to MODS with varying mortality. Since a few years, atypical symptoms and unusual clinical patterns of presentation have become more common. Our research intends to look at the numerous atypical forms of dengue fever in order to better understand how to recognise and treat dengue infection in children. In our research, we discovered that 59 percent of dengue cases exhibited atypical symptoms, meaning that more

than half of the cases had one or more abnormal symptoms. We would like to conclude that atypical dengue fever signs become more common as the disease becomes more severe and the disease load rises. Early detection of unusual symptoms leads to better outcomes and management, lowering dengue infection mortality and morbidity.

References

1. World Health Organization, Regional Office for South-East Asia. Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Haemorrhagic Fever. Revised and expanded edition. WHO-SEARO 2011. (SEARO Technical Publication Series No. 60).
2. Normile D. "Tropical medicine. Surprising new dengue virus throws a spanner indisease control efforts". Science 2013; 342(6157):415.
3. Piyushgupta, Aashima dabas.dengue.PG textbook of paediatrics. 2(31.6): 1203- 1210.
4. Pothapregada S, Kamalakannan B, Thulasisingam M. Cinical Profile Of Atypical Manifestations of Dengue Fever. Indian J Pediatr 2016 Jun; 83(6):493-9.
5. Kamath SR, Ranjit S. Clinical features complications and atypical manifestationsof fever in south India. Indian J Pediatr. 2006; 73: 889-95.
6. Verma R, Sharma P, Garg RK, Atam V, Singh MK, Mehrotra HS. Neurological complications of dengue fever: experience from a tertiary centre of north India. Ann Indian Acad Neurol. 2011; 14: 272-8.
7. Nimmagadda S,Mahabala S ,Boolor C et al . Atypical manifestation of dengue fever where do we stand today. Journal of clinical and diagnostic research. 2014; 8(1):71-73.
8. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Get vaccinated when it is your turn and follow the local guidelines. *International Journal of Health Sciences*, 5(3), x-xv. <https://doi.org/10.53730/ijhs.v5n3.2938>
9. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Health and treatment of diabetes mellitus. *International Journal of Health Sciences*, 5(1), i-v. <https://doi.org/10.53730/ijhs.v5n1.2864>
10. Fattakhov, N., Normatova, S., Madaminov, S., Tilyakhodzhaeva, G., & Abdulkhakimov, A. (2021). Hirudotherapy as an effective method for treatment of migraine - a disease of unknown etiology. *International Journal of Health & Medical Sciences*, 4(2), 232-237. <https://doi.org/10.31295/ijhms.v4n2.1714>