

EXPANDED DENGUE SYNDROME AND ATYPICAL MANIFESTATIONS

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ABSTRACT

Objective: Dengue fever, once seen as a classical febrile illness, has transformed into a global concern with the emergence of Expanded Dengue Syndrome (EDS). EDS is characterized by atypical and severe manifestations affecting multiple organ systems, including the central nervous system, liver, heart, and kidneys. This syndrome challenges the traditional understanding of dengue and necessitates heightened clinical awareness, timely intervention, and comprehensive research. Co-infections further complicate the clinical landscape, emphasizing the need for accurate diagnosis and targeted therapeutic strategies.

Methods: This prospective observational study was conducted at Yashoda Super Specialty Hospital, Malakpet, Hyderabad, from January 2018 to January 2021. The study aimed to identify and analyze atypical presentations of dengue fever in patients of all age groups. Inclusion criteria involved laboratory-confirmed dengue cases with atypical manifestations indicative of EDS. Data collection included comprehensive clinical, laboratory, and radiological information. Ethical considerations and statistical analysis were conducted using SPSS software.

Results: The study analyzed 150 cases of EDS, encompassing atypical manifestations such as encephalopathy, myocarditis, acute liver failure, and renal impairment. CNS involvement was the most common atypical manifestation (20%), followed by myocarditis (15%) and acute liver failure (10%). Renal impairment was observed in 5% of cases. Co-infections were identified in 25% of EDS cases, further complicating clinical management. The mortality rate among EDS patients was 5%, emphasizing the importance of early recognition and aggressive organ-specific interventions.

Conclusion: Expanded Dengue Syndrome challenges the conventional perception of dengue fever, highlighting atypical manifestations and co-infections. Heightened clinical awareness, a broad differential diagnosis, and aggressive management strategies are essential for addressing the multifaceted nature of EDS. Further research is needed to develop targeted interventions for this complex and evolving disease.

Keywords: Expanded dengue syndrome, Atypical manifestations, Dengue fever, Co-infections, Organ involvement

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INTRODUCTION

Dengue fever, characterized by its classical presentation, has evolved into a global concern with the emergence of Expanded Dengue Syndrome (EDS), marked by atypical and severe manifestations affecting various organ systems [1]. This syndrome challenges the conventional understanding of dengue as merely a febrile illness, unveiling its potential to precipitate severe organ involvement, including the central nervous system, liver, heart, and kidneys. The complexity of EDS is further compounded by the occurrence of co-infections, which can obscure diagnosis, complicate management, and worsen the prognosis [2].

The significance of EDS lies in its ability to mask under the guise of various differential diagnoses, making the clinical recognition and timely intervention critical to preventing morbidity and mortality [3]. This phenomenon underscores the need for heightened awareness and diagnostic acumen among healthcare providers, particularly in endemic regions where dengue prevalence is high. Understanding the pathophysiological mechanisms underlying these atypical manifestations is paramount to developing targeted therapeutic interventions and improving patient outcomes [4].

This manuscript aims to dissect the clinical spectrum of Expanded Dengue Syndrome, focusing on the atypical manifestations and severe organ involvements reported in recent literature. By elucidating the patterns of these manifestations, their management strategies, and the challenges posed by co-infections, this work seeks to provide a comprehensive overview of EDS [5]. Through detailed analysis and discussion, it aims to enrich the existing knowledge base, guide clinical practice in the management of complex dengue cases, and pave the way for future research on effective treatment modalities and preventive measures against this multifaceted disease [6].

MATERIALS AND METHODS

This independent prospective study was conducted to explore the incidence, clinical characteristics, and outcomes of Expanded Dengue Syndrome (EDS) among patients diagnosed with dengue fever. The study took place at Yashoda Super Specialty Hospital, Malakpet, Hyderabad, from January 2018 to January 2021, focusing on a broad age range of patients exhibiting atypical manifestations of dengue.

Study design

The design was a prospective observational study aiming to identify and analyze the atypical presentations of dengue fever, such as severe organ involvement and complications beyond the classical symptomatology defined by the WHO.

Population and sample size

The target population included patients admitted to the hospital with a confirmed diagnosis of dengue fever, as identified by positive NS1 antigen, IgM, and IgG ELISA tests. Patients across all age groups were considered, without restriction to pediatric cases alone, to encompass a wider spectrum of EDS manifestations. Based on preliminary data indicating the rare occurrence of EDS, all eligible patients during the study period who met the inclusion criteria were enrolled.

Inclusion criteria

- Patients with a laboratory-confirmed diagnosis of dengue fever.
- Patients presenting with atypical manifestations indicative of EDS, such as CNS involvement, myocarditis, acute liver failure, renal impairment, and other severe organ involvements.

Exclusion criteria

- Patients with negative serology for dengue virus.
- Patients who declined to participate or withdrew consent.

Data collection and management

Detailed clinical, laboratory, and radiological data were collected at admission and throughout the hospital stay, with specific attention to the identification of EDS manifestations. Information was recorded on a pre-designed proforma, ensuring comprehensive documentation of each case.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee of Yashoda Academy of Medical Education and Research. Informed consent was obtained from all participants or their legal guardians, with an emphasis on confidentiality and the right to withdraw at any time.

Statistical analysis

Data were analyzed using SPSS software (version 22.0). Descriptive statistics were used to summarize demographic data, clinical features, laboratory findings, and outcomes. The incidence of various atypical manifestations was calculated as percentages. Associations between EDS manifestations and clinical outcomes were examined using chi-square tests for categorical variables and t-tests for continuous variables, with a significance level set at $p < 0.05$.

RESULTS

The study reviewed 150 cases of Expanded Dengue Syndrome, detailing atypical presentations such as encephalopathy, myocarditis, acute liver failure, and renal impairment. Among the atypical manifestations, CNS involvement was the most common (20%), followed by myocarditis (15%) and acute liver failure (10%). Co-infections were identified in 25% of EDS cases, complicating the clinical management. The mortality rate among EDS patients was 5%, with early recognition and aggressive management of organ involvement being key to survival.

Table 1: Prevalence of atypical manifestations in eds patients

Atypical manifestation	Prevalence (%)
CNS Involvement	20
Myocarditis	15
Acute Liver Failure	10
Renal Impairment	5

DISCUSSION

Expanded Dengue Syndrome (EDS) represents a significant evolution in the understanding of dengue fever, challenging the traditional view of this disease as a febrile illness. EDS encompasses a spectrum of atypical manifestations affecting various organ systems, demanding heightened clinical awareness and diagnostic acumen. This discussion delves into the clinical spectrum of EDS, focusing on its atypical manifestations, management challenges, and the impact of co-infections [7].

The prevalence of atypical manifestations in EDS, as identified in our study, underscores the diversity of organ systems affected by dengue. Central Nervous System (CNS) involvement emerged as the most common atypical manifestation, with 20% of EDS cases exhibiting encephalopathy or neurological symptoms [8]. Myocarditis and acute liver failure followed, affecting 15% and 10% of patients, respectively. Renal impairment was observed in 5% of cases. These findings emphasize the multifaceted nature of EDS and the need for a broad differential diagnosis when evaluating dengue patients with atypical symptoms [9].

One of the foremost challenges in managing EDS is the difficulty in diagnosing these atypical manifestations, as they can mimic other medical conditions. CNS involvement, for instance, may present as encephalitis or meningitis, leading to misdiagnosis and delayed intervention. Timely recognition of these atypical manifestations is crucial, as it can significantly impact patient outcomes. Healthcare providers in endemic regions must be vigilant and consider dengue as a differential diagnosis in patients with relevant clinical features [10].

Co-infections, identified in 25% of EDS cases in our study, further complicate the clinical landscape. Concurrent infections with other pathogens can mask dengue symptoms, delay diagnosis, and worsen clinical outcomes [11]. The management of EDS should, therefore, include a comprehensive assessment of possible co-infections to guide appropriate treatment strategies. This highlights the importance of differential diagnosis and a thorough evaluation of patients presenting with suspected EDS [12].

The mortality rate of 5% among EDS patients in our study underscores the severity of these atypical manifestations. Early recognition and aggressive management of organ involvement are pivotal in improving patient outcomes. While there is no specific antiviral therapy for dengue, supportive care remains the cornerstone of treatment, with a focus on organ-specific interventions when atypical manifestations are

present. Collaborative efforts between healthcare providers, including specialists in neurology, cardiology, hepatology, and nephrology, may be necessary to manage the diverse clinical presentations of EDS effectively [13].

Expanded Dengue Syndrome challenges the conventional understanding of dengue fever, revealing its potential to manifest as atypical and severe organ involvement. The recognition of CNS involvement, myocarditis, acute liver failure, and renal impairment as common atypical manifestations highlights the need for broader diagnostic considerations in dengue-endemic regions [14]. Co-infections further complicate the clinical landscape, emphasizing the importance of a comprehensive evaluation. Timely recognition and aggressive management of EDS manifestations are paramount in improving patient outcomes [15]. This study contributes to the understanding of EDS, guiding clinical practice and highlighting the need for further research to develop targeted therapeutic interventions and preventive measures against this complex and evolving disease [16].

CONCLUSION

In conclusion, Expanded Dengue Syndrome (EDS) presents a paradigm shift in our understanding of dengue fever, with atypical manifestations affecting various organ systems. Early recognition of these manifestations and the impact of co-infections is crucial for improved outcomes. The study underscores the need for heightened clinical awareness, a broad differential diagnosis, and aggressive management strategies to address the multifaceted nature of EDS. Further research is warranted to enhance our understanding and develop targeted interventions for this complex disease.

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AUTHORS CONTRIBUTIONS

All authors have contributed equally

CONFLICT OF INTERESTS

Declared none

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