

Uncommon Presentations of Viral Infections in Children

Zuzanna Edward*

Department of Internal Medicine, Section of Infectious Diseases, Yale University School of Medicine, New Haven, CT, USA

Introduction

Viral infections in children are common and typically present with a range of well-established symptoms such as fever, cough and gastrointestinal distress. However, some viral infections can manifest in rare or atypical ways, complicating diagnosis and treatment. Uncommon presentations of viral infections in pediatric populations may involve unusual symptoms, atypical disease progression, or non-specific signs that can lead to misdiagnosis or delays in appropriate treatment. These cases can be particularly challenging for clinicians, requiring heightened awareness and a thorough understanding of emerging viruses and atypical presentations of more familiar pathogens. In recent years, several viral infections that were once considered rare or unusual have become more prevalent due to factors such as global travel, changes in vaccination rates and evolving viral mutations. For instance, respiratory viruses like influenza or Respiratory Syncytial Virus (RSV) may present in children with atypical neurological symptoms or gastrointestinal issues, raising concerns about underlying viral encephalitis or multi-organ involvement. Similarly, enteroviruses, often associated with mild respiratory or gastrointestinal illness, can occasionally cause severe conditions like viral myocarditis, aseptic meningitis, or hand-foot-and-mouth disease with extensive or unusual rashes. Additionally, newly emerging viruses, including those responsible for outbreaks like Zika virus or monkeypox, have introduced unique challenges in identifying viral infections with atypical symptoms. These viruses can cause atypical manifestations such as microcephaly, skin lesions, or neurological impairments, prompting a need for prompt recognition and management to prevent complications [1,2]

Description

This clinical case report focuses on unusual presentations of viral infections in children, highlighting the diagnostic challenges faced by healthcare providers, the need for advanced laboratory investigations and the importance of an updated understanding of viral epidemiology. By examining these rare or atypical cases, the report aims to shed light on the importance of clinical vigilance and early recognition in improving patient outcomes and preventing long-term sequelae. Viral infections are a leading cause of morbidity in children, with many viruses producing typical symptoms such as fever, cough, runny nose and mild gastrointestinal upset. For the most part, these infections are self-limiting and respond well to supportive care. However, there exists a subset of viral infections that manifest in unusual, less common ways, creating diagnostic challenges for pediatricians and healthcare providers. Presentations of rare viral infections

in children can involve atypical symptoms, rare complications, or unusual routes of transmission, making it difficult to immediately recognize the underlying etiology. These atypical manifestations can lead to delays in diagnosis and treatment, potentially causing unnecessary tests, treatments and hospitalizations [3].

Uncommon presentations of viral infections may include atypical symptoms such as unexplained rashes, neurological manifestations, multi-organ involvement, or severe systemic reactions. For example, a child who presents with a fever and a rash may have a viral infection like measles, which is often recognized by its characteristic "Koplik spots" and the progression of the rash. However, when the rash is atypical or not in line with the classic patterns, the diagnosis might initially be missed, resulting in delayed isolation and increased risk of transmission. Similarly, respiratory viruses such as influenza or Respiratory Syncytial Virus (RSV) typically present with upper respiratory symptoms, but in rare cases, they can cause more severe manifestations like viral pneumonia, Acute Respiratory Distress Syndrome (ARDS), or neurological symptoms like encephalitis and seizures, making diagnosis more complicated. Additionally, several enteroviruses, which are commonly associated with mild illness such as hand-foot-and-mouth disease or viral gastroenteritis, can rarely cause severe conditions like viral myocarditis, aseptic meningitis, or sudden-onset neurological disorders. These rare complications are difficult to predict, as the viral infection might initially present with symptoms that mimic a more common illness, such as a mild cold or stomach upset, before the child suddenly develops more severe and potentially life-threatening symptoms [4].

The rise of emerging viruses in recent years has further contributed to the challenge of diagnosing viral infections with uncommon presentations. For example, the Zika virus, a mosquito-borne illness, can present in children with atypical neurological symptoms, including microcephaly, as well as skin rashes and joint pain, especially in cases involving congenital infection. Similarly, the resurgence of viruses like monkeypox, which can cause flu-like symptoms, fever, swollen lymph nodes and a characteristic skin rash, may lead to confusion with other viral diseases that also cause similar systemic signs. These emerging viruses often result in atypical presentations that may not be immediately recognized, further emphasizing the need for a comprehensive approach to diagnosis. A particularly important aspect of diagnosing uncommon viral infections is the role of advanced laboratory techniques, including Polymerase Chain Reaction (PCR) testing, viral cultures and serological assays. These diagnostic tools are critical for detecting uncommon pathogens and distinguishing between multiple possible viral etiologies, especially in children who present with mixed or unclear symptoms. This is particularly important for ruling out co-infections or for confirming the viral cause of a syndrome with overlapping clinical features, such as a fever with rash, which could be due to a variety of viruses, including enterovirus, measles, or rubella. Despite the challenges, identifying uncommon viral infections in children is essential for initiating appropriate management. Many viral infections can cause severe complications if not recognized early. For example, respiratory viral infections that progress to pneumonia or ARDS may require intensive care management, while enteroviral infections that lead to meningitis may necessitate prompt antiviral therapy or even hospitalization. Furthermore,

***Address for Correspondence:** Zuzanna Edward, Department of Internal Medicine, Section of Infectious Diseases, Yale University School of Medicine, New Haven, CT, USA, E-mail: edward.zuu@medicine.yale.edu

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recognizing atypical presentations of viral infections can prevent unnecessary treatments, such as inappropriate use of antibiotics, which can contribute to the growing problem of antibiotic resistance [5].

Conclusion

This clinical case report aims to explore the diagnostic dilemmas and clinical management of uncommon viral infections in children. It will focus on specific case examples where viral infections presented with atypical symptoms, leading to challenges in early identification and treatment. Through these cases, the report will highlight the importance of maintaining a broad differential diagnosis, utilizing advanced diagnostic tools and being vigilant to emerging infectious diseases. By increasing awareness of these uncommon presentations, the report seeks to improve the accuracy and speed of diagnosis, which can ultimately enhance patient outcomes and reduce the risks of complications and mismanagement.

Acknowledgment

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Conflict of Interest

None.

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