

An Uncommon Presentation: Acute Necrotizing Pancreatitis as an Initial Manifestation of Dengue Hemorrhagic Fever in a Pediatric Patient

Mahaveer Singh Lakra*

Senior resident, Department of Pediatrics, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, India

***Correspondence:** Mahaveer Singh Lakra, Senior resident, Department of Pediatrics, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, India. E-mail: lakra.mahaveer@gmail.com

©2022 Lakra MS. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License.

Received: March 11, 2022;

Accepted: March 27, 2022;

Published: April 05, 2022

Citation: Lakra MS. An Uncommon Presentation: Acute Necrotizing Pancreatitis as an Initial Manifestation of Dengue Hemorrhagic Fever in a Pediatric Patient. *J Pediatr Res Neonatal Care.* (2022);1(1): 1-3

Key words: Necrotizing pancreatitis; Dengue fever; Ascites; Serum Amylase; Octreotide

Abstract

Background: Dengue fever, a prevalent acute viral infection in developing countries, exhibits a spectrum of presentations in children, ranging from mild cases to severe complications. Acute necrotizing pancreatitis, an uncommon and serious form of pancreatitis, is rarely observed in pediatric cases. This article presents a unique case involving the unusual presentation of acute necrotizing pancreatitis as the initial manifestation of dengue fever.

Case Details: A 15-year-old male child presented with abdominal pain, distension, and vomiting, along with a month-long history of intermittent fever. Abdominal examination revealed ascites and hepatomegaly. Positive results for Dengue NS1 antigen and dengue serology IgM were obtained. Serum amylase and lipase levels were elevated at 1540 U/L and 960 U/L, respectively. Contrast-enhanced CT scan and MRCP demonstrated a voluminous pancreas with decreased enhancement and the presence of ascites. The patient received conservative management, including intravenous fluids, antibiotics, and octreotide, leading to a successful discharge. To the best of my knowledge, the presentation of acute necrotizing pancreatitis as an initial feature of dengue fever in children has not been previously reported.

Conclusion: Dengue fever can manifest with diverse clinical presentations, and when a patient presents with abdominal pain, vomiting, and fever, clinicians should consider the possibility of acute pancreatitis. Maintaining a high clinical suspicion is crucial, and timely intervention can contribute to complete recovery and favorable outcomes.

Keywords: Necrotizing pancreatitis; Dengue fever; Ascites; Serum Amylase; Octreotide.

1. Introduction

Dengue fever, an acute viral infection prevalent in developing countries, imposes a substantial burden on healthcare systems. Over the last few decades, global dengue fever cases have witnessed a significant surge [1]. Acute pancreatitis is a rare condition in children, with reported

incidences ranging from 3.6 to 13% per 100,000 cases, and the occurrence of acute necrotizing pancreatitis may be less than 1% of all cases [2]. Unlike in adults, the etiology in children encompasses autoimmune factors, viral and parasitic infections, trauma, drugs, metabolic abnormalities, gallstones, and post-surgical causes. Early complications of acute pancreatitis encompass a spectrum from septicemia, spontaneous bacterial peritonitis, metabolic abnormalities, ascites, pleural effusion to shock [3,4]. Diagnosis involves clinical presentation, laboratory investigations, pancreatic enzyme levels, and imaging studies. In resource-limited settings, ultrasonography serves as a valuable non-invasive modality for early detection. However, contrast-enhanced CT and MRCP are preferred for assessing the extent of damage and necrosis [5]. While acute necrotizing pancreatitis has been reported as a complication of dengue hemorrhagic fever in adults, it remains exceedingly rare in children. This article presents a rare case of acute necrotizing pancreatitis as an initial feature of dengue hemorrhagic fever in a pediatric patient.

2. Case Details

A 15-year-old male child presented to the emergency department with complaints of severe abdominal pain, distension, vomiting, and lethargy persisting for 5 days. The patient had a notable history of intermittent fever over the past month. Initial laboratory parameters revealed positive Dengue NS1 antigen, IgM-positive serology, thrombocytopenia, and a positive tourniquet test. There was no history of drug intake, jaundice, abdominal pain, joint pain, or trauma.

On examination, the child appeared lethargic, with a heart rate of 120 beats/minute, respiratory rate of 28 beats/minute, and blood pressure of 84/60 mmHg, accompanied by significant pallor. General physical examination revealed no cyanosis, lymphadenopathy, jaundice, pedal edema, or acute bleeding. Abdominal examination indicated generalized tenderness with guarding, rigidity, and a positive fluid thrill. The liver was palpable 2 cm below the costal margin, and the spleen was just palpable. Laboratory parameters showed a hemoglobin level of 10.4 g/dL, total leukocyte count of 18,600, CRP of 85, and normal renal parameters and transaminase levels. Sodium was 128 meq/L, potassium 3.5 meq/L, and serum lactate level 2.8. Tests for other viral infections were negative. Serum calcium, triglycerides, and total cholesterol were 9.8 mg, 316 mg/dL, and 85 mg/dL, respectively. Due to a high clinical suspicion, serum amylase and lipase levels were sent, revealing significantly elevated values of 1540 U/L and 960 U/L, respectively.



Figure 1: Arrow showing bulky pancreas with parenchymal pancreatic necrosis.

Urgent ultrasound demonstrated paralytic ileus and an enlarged inflamed pancreas with ascites. Chest X-ray revealed right-sided pleural effusion. Contrast-enhanced CT of the abdomen indicated decreased enhancement with evidence of acute parenchymal necrotizing pancreatitis, including intraparenchymal walled-off necrosis, with a modified CT severity index score of 8 and ascites (Figure 1). MRCP confirmed similar findings.

The patient was effectively managed with intravenous fluids, inotropes, and octreotide, normalizing serial serum amylase and lipase levels over time. The child fully recovered and was successfully discharged. Conservative management resolved pleural effusion and ascites over a week. Complications observed in this case included acute pancreatic necrosis, ascites, pleural effusion, hyponatremia, and hypertriglyceridemia.

3. Discussion

Dengue fever, characterized by acute febrile viral illness, can range from a self-limiting condition to severe complicating dengue illness.¹ While acute pancreatitis is uncommon in children, its incidence has increased significantly, especially in the last decade [2,3].

The presentation of dengue fever varies in children, and the occurrence of acute necrotizing pancreatitis as a presenting feature is a rare finding. Children with acute pancreatitis may exhibit mild symptoms or present with severe manifestations such as acute abdominal pain, persistent vomiting, and complications like pulmonary effusion, ascites, severe sepsis, shock, and perforation peritonitis. Diagnosis involves a combination of history, clinical features, and laboratory parameters. Severity scores based on CT findings aid in

classifying and assessing the outcome of the disease [6]. In our case, the severity CT score was 8, indicating significant severity.

While serum amylase and lipase serve as valuable diagnostic markers, their levels may not correlate with the severity of infection. The enzymes cannot differentiate between acute pancreatitis and necrotizing pancreatitis. Serum lipase, with its longer half-life, is more sensitive than serum amylase in diagnosing acute pancreatitis [5,7]. Diagnostic modalities such as contrast-enhanced CT and magnetic resonance cholangiopancreatography (MRCP) provide valuable insights.

A retrospective analysis by Aileen Raizner et al. on the spectrum of children with acute necrotizing pancreatitis highlighted the diagnostic utility of CT scans in assessing severity. Similar cases have been reported, such as that by Jansen L. et al., where abdominal pain and vomiting were presenting features. Octreotide, a somatostatin analog, is employed in acute pancreatitis management due to its cytoprotective and anti-inflammatory effects, reducing pancreatic enzyme secretion and preventing further damage [8].

The concurrent prevalence of COVID-19 and infectious dengue has strained healthcare systems globally. The year 2019 witnessed a peak in reported dengue fever cases, prompting the World Health Organization (WHO) to advocate knowledge dissemination, awareness, prevention strategies, healthcare worker training, and global support. The goal is to reduce severe dengue mortality to less than 1% in all countries through medical and nursing training globally. Atypical manifestations and complications of dengue fever, such as myocarditis, dengue hemorrhagic shock syndrome, Guillain-Barré syndrome, encephalitis, hemophagocytic syndrome, acute pancreatitis, liver, and kidney injury, have been reported.

A similar case of dengue hemorrhagic fever presenting as acute pancreatitis was reported by Jain Vishakha et al. in adults. In our case, acute necrotizing pancreatitis in dengue hemorrhagic fever was presented as a rare initial feature. The exact pathology of pancreatic involvement in dengue is unclear, with direct viral invasion, inflammation, necrosis, hypotension, or autoimmune responses being potential contributors.

Complications such as pleural effusion, pancreatic fistula, and ascites can arise from acute necrotizing pancreatitis due to fistula development between the pleura and pancreas. Pleural effusions may manifest unilaterally or bilaterally, minimally, massively, or hemorrhagically [9]. In our

patient, ascites was significant, while effusion was minimal and resolved completely with conservative management. In summary, any patient presenting with persistent fever, severe abdominal pain, and vomiting should be evaluated for dengue fever and acute necrotizing pancreatitis, receiving appropriate treatment.

4. Conclusion

Acute necrotizing pancreatitis, although rare in children, can be a complication of dengue fever. Dengue fever may exhibit unusual and atypical clinical presentations. Awareness of this entity is crucial for practicing physicians to ensure prompt and accurate diagnosis. Key management steps for acute necrotizing pancreatitis involve fluid therapy, monitoring, and using octreotide. Timely suspicion and diagnosis can prevent complications and mortality associated with acute necrotizing pancreatitis.

5. Consent Statement

Notwithstanding, this case report does not necessitate consent as it does not constitute a research study. Furthermore, no patient identities have been disclosed, and no patient photographs have been included in the report.

6. References

1. Randall MM, McDaniels S, Kyle K. Pancreatitis in pre-adolescent children: a 10 year experience in the pediatric emergency department. *BMC Emerg Med.* 2019;19(1):71.
2. Raizner A, Phatak UP, Baker K. Acute necrotizing pancreatitis in children. *J Pediatr.* 2013;162(4):788-792.
3. Agarwal N, Pitchumoni CS, Sivaprasad AV. Evaluating tests for acute pancreatitis. *Am J Gastroenterol.* 1990;85:356-366.
4. Vishakha Jain, OP Gupta, Tarun Rao. Acute Pancreatitis Complicating Severe Dengue. *J Glob Infect Dis.* 2014;6(2):76-78.
5. Banks PA, Freeman ML the Practice Parameters Committee of the American College of Gastroenterology. Practice guidelines in acute pancreatitis. *Am J Gastroenterol.* 2006;101:2379-2400.
6. Jansen L, Colleran G, Okafor I. A rare case of acute necrotising pancreatitis in a paediatric patient. *J Adv Pediatr Child Health.* 2020;3:061-063.
7. Paran H, Mayo A, Paran D. Octreotide treatment in patients with severe acute pancreatitis. *Dig Dis Sci.* 2000;45(11):2247-2251.
8. Dengue and severe dengue WHO/World health organisation, 2022.
9. Pothapregada S, Kamalakannan B, Thulasingham M. Clinical Profile of Atypical Manifestations of Dengue Fever. *Indian J Pediatr.* 2016;83(6):493-499.