Case Report

# Abdominal Pain in Dengue Hemorrhagic Fever in children: What it May Indicate?

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**Background:**

Dengue fever (**DF**), a major public health concern globally, particularly in it's southern part of tropical and subtropical countries. DF caused by flavivirus- the most common mosquito borne viral infection.

There is a wide range of clinical presentation of dengue syndrome. It ranges from non-specific infections (influenza-like illness- as self-limiting diseases up to life threatening dengue hemorrhagic fever (**DHF**), dengue shock syndrome (**DSS**) and Expanded dengue syndrome (**EDS**). Due to increased spread of disease and 2nd or 3rd attack in same person may remain as the ground of atypical presentations. This may be potentially serious resulting in increased morbidities, often being life threatening. It is, therefore, crucial for a pediatrician to monitor a child with dengue (DEN) being aware of and alert to notice atypical manifestations, chiefly. Here, we report a case of DF presenting with severe acute abdominal pain due to acute pancreatitis, which is infrequently reported complication of DEN infection in children.

Though, abdominal pain is a commonly reported symptom in children with DF including hepatitis, acidulous cholecystitis and peptic ulcer disease, pancreatitis has not been reported in children so far (if not rarely) but is reported among adults[1] in the form of case reports.[2]

## The case

A 8 years old female child admitted at a tertiary care hospital with a history of high grade fever of about 104°F, headache, myalgia, nausea and vomiting for 5 days followed by diffused abdominal pain being more marked in the epigastrium region with abdominal tenderness.

On examination she was febrile with cold extremities and her appearance was toxic. Her pulse was 126/min, rapid and thready, blood pressure 60/40 mm of Hg with pulse pressure of 20mm/Hg and her respiratory rate was increased due to hypovolemic shock (28/min). Abdominal examination revealed diffuse tenderness without any point of definite area or region of tenderness, abdomen was soft and bowel sound was present. Findings of respiratory and central nervous system examination were unremarkable except tachycardia.

Laboratory investigations were performed just after arrival at the hospital before crystaloid infusion and which showed hemoglobin 12.2gm%, total leucocyte count 3600/cmm. polymorphs 64% and lymphocytes 36%, hematocrit 41% and platelet count 66000/cmm. Also blood was send for sepsis screening which showednegative result subsequently.

After sending the baseline investigations, we started I/V infusion of 0.9% NaCl at the rate of 20ml/kg over 30 minute as per DEN guideline and subsequent blood pressure was 90/60mm of Hg. Pulse 110/minute with good pulse volume. Then fluid had been continued at the rate of 7ml/kg/hr for the next 5-6 hours. Thereafter, 6 to 7 hours of admission, CBC was repeated where HCT showed 39% with a platelet count of 44,000/cmm. Platelet went on its nadir on 4th hospital day with gradual rise of HCT. But the child was very irritable for her abdominal pain. Ultra-sonogram of whole abdomen was done on the 2nd day of admission due to having severe abdominal pain, but revealed no evidence of intestinalperforation as free intraperitonial air.

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Liver was normal in size with edematous gall bladder. Head and body of her pancreas appeared normal, but it's tail appeared to be swollen with hypo echoic area measuring about 3.4 cm-which was suggestive of focal pancreatitis.

The biochemical parameters of liver enzymes were within normal limit, AST and ALT 40 and 21 IU/L. Blood glucose was 5.6mmol/ dl and calcium 8.2 mg/dl. Total protein was 6.3gm/dl. Serum electrolytes showed mild hypernatremia (Na 133 mmol/L).

Pancreatic enzyme determination disclosed an amylase level of 259U/L (normal 20-95) and lipase levels 280U/L (normal 3-40). Her CRP was 20mg/dl. D - dimer was 4.23µg/ml.

Her NS1 antigen for dengue was negative on 5th day of fever.

But her dengue serology (IgM using ELISA) was positive while viral markers for hepatitis were negative. However, due to COVID pandemic, RT-PCR was done but yielded negative, chest x-ray was normal.

The girl was managed as per national protocol of dengue syndrome and including using proton pump inhibitor, and she got improved without any other complication. Before discharge platelet count came to more that 100000/µl and hematocrit level came down to normal. Thus, she was discharged on 8th day after hospitalization.


**Fig 1:** *Ultra sonogram of the abdomen shows below yielded as acute pancreatitis.*

She was advised for follow up after 48 hours of her discharge with follow up report of serum amylase which came down to almost normal level. But serum lipase level took 2 weeks to become normal. So, this as a ease of DHF with acute pancreatitis. Finally we diagnosed this case as expended dengue syndrome.

## Discussion

In dengue fever, abdominal pain can be caused by hepatitis, acalculous cholecystitis, peptic ulcer disease or may be due to pancreatitis.[3,4]

Majority of the reported cases of pancreatitis in dengue fever were from Southeast Asian countries like India, Bangladesh, Taiwan and Indonesia as dengue is widely prevalent in these regions. Of these 17 cases, 11 were males (64.7%). The average age of the patients in these reports was 37.68 years, that is in the adult group. [5]

Acute pancreatitis is a rare complication of dengue fever that has been reported very infrequently. [5,6]

Further, some observational studies documented the occurrence of pancreatitis and lipase/amylase elevation in patients with underlying dengue fever and studies were from adults. [7,8,9,10,]

Acute pancreatitis may be under diagnosed because of diffuse abdominal pain, and we think about acidulous cholecystitis, peptic ulcer and the rarely we think about pancreatitis in children. Therefore, clinicians might not request serum amylase or lipase or suspect the diagnosis despite patient having abdominal pain or vomiting. In patients with dengue fever who develops abdominal pain, it is helpful to estimate and monitor serum lipase and amylase levels and to perform abdominal imaging to rule out acute pancreatitis.

The exact pathogenesis of pancreatic involvement in dengue infection is very rare.[2] It may be due to direct viral invasion, secondary to host immune reactivity or the result of hypotension that remains to be established.

But a study was done by the ultra-sinologists where included few children with dengue hemorrhagic fever and abdominal pain to assess the pancreatic involvement. The majority of patients with DHF and epigastric pain do not have enlarged pancreas.11 Serum levels of amylase and lipase were raised in patients with severe DHF. In our case both the pancreatic enzyme and sonographic evidence of focal pancreatitis were present.

## Conclusion

Dengue infection can have wide range of clinical presentations and multi system involvement which might remain unrecognized and unreported. Acute pancreatitis is uncommon in children and a life-threatening complication of dengue hemorrhagic fever. Meticulous observation of children during dengue illness, prompt diagnosis and management of dengue related complications including acute pancreatitis is necessary to avoid serious morbidity and reducing mortality.

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