

## Case Report

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# A rare confluence: Concurrent dengue and enteric fever presenting with acute pancreatitis and pleural effusion

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## Abstract

In many tropical areas, dengue fever and enteric fever are prevalent and can exhibit similar clinical manifestations. They rarely occur together, though, and complications such as pleural effusion and severe pancreatitis make treatment and prognosis even more difficult. We describe the case of a 25-years-old male patient, who arrived at the emergency room with acute back-radiating epigastric pain and a continuous high-grade fever. She had tested positive for the dengue NS1 antigen two weeks earlier. Suspicion of pancreatitis was prompted by the initial laboratory results, which showed thrombocytopenia, leukopenia, increased liver enzymes, and noticeably elevated blood amylase levels. Blood cultures were taken because of a strong clinical suspicion of enteric fever after her jaundice deteriorated despite conservative therapy and supportive care. Meropenem and azithromycin were used in an empirical antibiotic treatment. Salmonella typhi bacteremia was later confirmed by blood culture results. The development of a left-sided pleural effusion and increasing pancreatitis hampered the patient's clinical outcome. Her condition gradually stabilized with supportive measures and focused antibiotic medication. Acute pancreatitis and pleural effusion aggravate the uncommon co-occurrence of dengue fever and enteric fever, as demonstrated in this instance. It emphasizes how crucial it is to consider coexisting infections in endemic regions and identify unusual complications to direct efficient treatment and enhance patient outcomes.

## Introduction

A sickness with overlapping symptoms due to concurrent infection with two agents can present a diagnostic conundrum for the treating physician. Dengue typically manifests as flu-like symptoms, including high-grade fever, widespread body pain, nausea, vomiting, and maculopapular rashes. In regions where dengue is endemic, other illnesses such leptospirosis, influenza A, Salmonella Typhi, Japanese encephalitis, chikungunya, and malaria can also have symptoms that are like dengue. S. typhi is typically the cause of enteric fever/typhoid fever, with Salmonella Paratyphi and S. choleraesuis having a lesser impact. The symptoms appear gradually and take 10-14 days to develop.

there is an unremitting fever that causes temperature spikes without a return to normal (saddle back fever) [1]. A differential diagnosis may be aided by a few important signs. Retro-orbital discomfort and severe myalgia are common symptoms of dengue fever. Although chills can be a sign of a variety of feverish conditions, they are most common in bacterial infections, dengue, and malaria. Unexpected bleeding or bruises could indicate a viral hemorrhagic infection, like dengue hemorrhagic fever. When diarrhea and fever coexist, it is usually brought on by bacterial CASE SERIES infections, including Shigella, Salmonella, Campylobacter, and Escherichia coli. Both before to and during the beginning of diarrhea, these organisms have the potential

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to induce septicemia and high fevers. Thirty to fifty percent of typhoid fever patients complain of diarrhea [2-7]. Initial presentation as acute pancreatitis is an extremely rare manifestation of enteric fever/typhoid. When treating a case of fever with abdominal pain in an endemic area, it is important to keep in mind this unusual presentation, particularly if there are other recommendations. pleural effusion, hemoptysis, suppurative pneumonia, lung abscess, empyema, and bronchopleural fistula are among the pulmonary complications of enteric fever. Enteric fever presenting as acute pancreatitis is a rare entity. Typhoid fever-related pancreatic abnormalities might range from straightforward biochemical abnormalities such as hyperamylasemia to acute pancreatitis, pancreatic abscess, and chronic pancreatitis. Surgery is necessary for pancreatic abscess and pancreatic pseudocysts [3]. The clinical picture in this case is complicated by the overlap of symptoms, such as fever and abdominal pain, which makes prompt detection and treatment essential. Acute pancreatitis and pleural effusion exacerbate the rare and difficult presentation of co-infection with dengue and enteric fever described in this case report. The case highlights the importance of considering concurrent infections and recognizing atypical complications to optimize patient outcomes.

### Case presentation

#### Patient description

A 25 years-old male patient, presented to the Lady Reading Hospital's emergency department in Peshawar after being referred from a nearby facility in Bajaur, his main complaints were a persistent high-grade fever and excruciating epigastric pain that he characterized as radiating to her back and rated at a 7 out of 10. He had tested positive for the dengue NS1 antigen two weeks earlier. His symptoms had gotten worse over time despite receiving supportive care at first, thus advanced management was recommended.

#### History of presenting illness

Before being admitted, the patient's symptoms started about two weeks ago. He had persistent, intense epigastric pain after being diagnosed with dengue fever; this pain got worse with time and was not accompanied by nausea or vomiting. He denied having experienced similar pain or GIT issues in the past. His condition deteriorated and her fever persisted, therefore he was referred.

#### Physical examination

**General physical examination:** The patient's skin and sclera were yellowish-discolored, giving the impression that he was jaundiced. Dehydration was suggested by the dry mucous membranes. The patient was breathing easily on room air, according to the respiratory assessment, which revealed a clear airway. According to a neurological evaluation, he showed no symptoms of confusion or altered mental status and was attentive and completely oriented to time, place, and people.

**Abdominal examination:** Upon superficial palpation, the epigastric area showed marked tenderness.

The pain was assessed at a 7 out of 10 which was constant and radiating into the back. There were no palpable lumps, rebound tenderness, or guarding. There were no symptoms of or-

Blood serology				
Test	Result	Normal Range	Unit	Interpretation
Sodium (Na)	136	135-150	mmol/L	Normal
Potassium (K)	4.93	3.5-5.1	mmol/L	Normal
Chloride (C )	108	96-112	mmol/L	Normal
Blood Urea	61.48	18-45	mg/dl	Elevated
Glucose (Random)	63	70-140	mg/dl	Slightly Low
ALT/GPT	178	10-50	U/L	Elevated
Alkaline Phosphatase	188	40-129	U/L	Elevated
Amylase	324	<90	U/L	Elevated
Creatinine	1.68	0.64-1.2	mg/dl	Elevated

Serology test	Result	Patient rate	Cutoff rate	Interpretation
Anti HCV	Negative	0.28	1.00	Negative
Anti HIV	Negative	0.19	1.00	Negative

Complete blood profile			
Test	Normal Range	Result 1	Result 2
WBC	4-11x10 <sup>3</sup> /μL	6.25	11.4
RBC	4-6 x10 <sup>6</sup> /μL	5.01	5.17
HGB	11.5-17.5 g/dl	14	14.5
HCT	36-54%	43.1	45
MCV	76-96 fL	86.1	87.2
MCH	27-33 pg	28	28.1
MCHC	33-35 g/dl	32.5	32.3
PLT	150-450x10 <sup>3</sup> /μL	504	363
%Neut	40-75%	60	65
%LYMP	20-45%	30	30
%MONO	2-10%	8	3
%EOS	0-6%	2	2

Blood C/S
Specimen: Blood
Test: Culture and sensitivity
Culture report:
<i>Salmonella typhi</i> isolated after 72 hours
Sensitive to: Imipenem, Meropenem, Azithromycin
Resistant to: Ceftriaxone, Ciprofloxacin, Co-trimoxazole, Cefixime, Chloramphenicol, Ampicillin.

ganomegaly, and the abdomen was soft.

#### Laboratory investigations on admission

##### Renal Function Tests (RFTs):

Elevated serum creatinine: 1.68 mg/dL.

Significantly increased Blood Urea Nitrogen (BUN) of 61.48 mg/dL suggests renal impairment.

##### Liver function tests:

4.7 mg/dL of total bilirubin (significantly high)

186 U/L of alanine transaminase (ALT)

174 U/L of alkaline phosphatase (ALP)

#### **Pancreatic enzymes:**

Elevated serum amylase (324 U/L) indicates pancreatic inflammation.

C-Reactive Protein (CRP): 19.7 mg/dL (elevated)

#### **Complete blood count (CBC):**

Leukocyte count overall: 3000/ $\mu$ L (decreased)

46,400 platelets/ $\mu$ L (slightly reduced)

#### **Initial management**

Because acute pancreatitis was suspected, initially the patient was treated conservatively. He received intravenous fluids to maintain hydration and address electrolyte imbalances, and he was kept Nil By Mouth (NBM) to relax the pancreas. For careful observation and additional assessment, he was moved to the medical ward.

#### **Further investigations and hospital course**

Blood cultures were taken in order to rule out enteric fever due to the fever's duration and lack of clinical improvement. In order to address possible bacterial infections, such as *Salmonella typhi*, empirical antibiotic therapy was started using intravenous meropenem and azithromycin. His jaundice got worse while she was in the hospital, and her total bilirubin level rose to 5.9 mg/dL. ALP and ALT, on the other hand, displayed a downward tendency, reaching 149 and 172 U/L, respectively. At first, serum amylase dropped to 185 U/L, suggesting that pancreatic inflammation had somewhat improved. After the patient's platelet count dropped to a low of 17,000/ $\mu$ L, Four Units of Fresh Frozen Plasma (FFP) had to be transfused. Additionally, the patient developed a minor pleural effusion on the left side, which suggested intestinal pneumonia. When he started to tolerate oral intake, his diet was gradually resumed.

**Follow-up investigations:** Serum amylase levels rose to 419 U/L following four days of antibiotic treatment, indicating a worsening of pancreatic inflammation. Blood culture results supported the diagnosis of enteric fever in addition to dengue fever by confirming *Salmonella typhi* bacteremia, which is susceptible to meropenem, imipenem, and azithromycin.

**Outcome:** This case highlights a rare presentation of concurrent dengue fever and enteric fever, complicated by acute pancreatitis and pleural effusion due to enteric pneumonia. Pleural effusion and pancreatitis are rare side effects of enteric fever. The patient's laboratory indicators, such as serum amylase levels and liver and renal function tests, were stabilized and gradually returned to normal due to prompt intervention and focused antibiotic therapy.

## **Discussion**

A patient with a recent history of dengue fever arrived with symptoms and test results that were consistent with acute pancreatitis, jaundice, and leukopenia. This case exemplifies a rare clinical situation. When further testing revealed that *Salmonella typhi* was the underlying cause of enteric fever, which was not immediately apparent upon admission, the case got even more complicated. Diagnostic and treatment difficulties may arise when dengue and enteric fever combine. Even though dengue itself is known to temporarily reduce platelets and white blood cells, enteric fever complicates the clinical picture, particularly when accompanied by uncommon symptoms including pleural effusion and severe pancreatitis. With few examples documented in medical literature, severe pancreatitis and pleural effusion due to enteric pneumonia are acknowledged as uncommon consequences of enteric fever [3,2]. Although the exact pathophysiology of pancreatitis in enteric fever is unknown, it may be linked to either direct bacterial invasion or an overreaction by the immune system that causes inflammation of the pancreas. Similar to this, pleural effusion in enteric pneumonia can result from a systemic inflammatory response or from inflammation that spreads to the pleural spaces. It's critical to identify these issues since, if left untreated, they may affect clinical results [4-6]. In response to broad-spectrum antibiotics that target *Salmonella typhi*, this patient's pancreatic inflammation gradually subsided, liver function improved, and renal function stabilized. His clinical improvement demonstrated how crucial it is to treat enteric fever quickly and aggressively when it presents in uncommon or severe ways. In order to guide prompt response and improve prognosis, this case emphasizes the need for attention in febrile patients experiencing abdominal pain, especially in endemic regions. It also emphasizes the importance of considering even uncommon sequelae like pancreatitis and pleural effusion in enteric fever.

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