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Original Research Article

Acute Pancreatitis in Scrub Typhus Positive Fever: A Case Report

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Abstract:

We report the case of a 47-year-old male presenting with abdominal pain and systemic signs of inflammation. Laboratory tests revealed mild anemia, marked neutrophilic leukocytosis, and a critically elevated C-reactive protein (CRP). Pancreatic enzymes were significantly elevated. Contrast-enhanced CT of the abdomen demonstrated features consistent with mild acute pancreatitis. Concurrent urinary findings suggested cystitis, and anatomical anomalies of the renal-ureteric system were detected. Serological testing was positive for Scrub Typhus IgM, raising suspicion of a rickettsial etiology contributing to the systemic inflammatory response. The case highlights the importance of recognizing overlapping infectious and inflammatory etiologies and the value of integrated hematologic, biochemical, and radiological assessment in acute settings.

Introduction

Acute pancreatitis (AP) is an inflammatory disorder of the pancreas characterized by sudden-onset epigastric pain, often radiating to the back, accompanied by elevated serum amylase and lipase levels. It remains a significant cause of morbidity and hospitalization globally, with a wide spectrum ranging from mild, self-limiting disease to severe necrotizing pancreatitis with systemic complications [1]. The etiopathogenesis of AP is diverse, with gallstones and chronic alcohol consumption accounting for up to 70–80% of cases in most populations [2]. However, in a subset of patients, no definitive cause is identified, leading clinicians to explore less common etiologies including medications, metabolic disturbances, autoimmune diseases, trauma, and infections [3].

Among infectious triggers, viruses like mumps, coxsackievirus, hepatitis viruses, cytomegalovirus, and HIV have long been implicated in the development of pancreatitis [4]. However, bacterial, parasitic, and rickettsial organisms have also been recognized as rare but important culprits. Rickettsial diseases, particularly Scrub Typhus caused by Orientia tsutsugamushi, are increasingly reported to manifest with multiorgan involvement, including the pancreas [5]. Scrub typhus is endemic in many parts of Asia, including India, and is transmitted through the bite of chigger mites. Clinical presentation is often nonspecific, with fever, myalgia, headache, gastrointestinal disturbances, and eschar formation, making early diagnosis challenging [6].

Pancreatic involvement in scrub typhus is rare but documented. The underlying mechanism may involve vasculitis-induced ischemia, systemic inflammation, or direct pathogen-mediated injury [7]. In some reports, patients with scrub typhus have developed acute pancreatitis as a part of severe systemic inflammatory response syndrome (SIRS), which further complicates clinical management and worsens prognosis [8]. Radiologic imaging, particularly contrast-enhanced computed tomography (CECT), is essential in confirming pancreatic inflammation and ruling out alternative or coexisting intra-abdominal pathology [9].

This case discusses a rare clinical scenario of a patient with scrub typhus seropositivity presenting with acute pancreatitis confirmed by imaging, in the context of raised inflammatory markers and systemic involvement. The diagnostic complexity was further heightened by the presence of congenital urological anomalies and anatomical variations, which initially mimicked other intra-abdominal causes. Such overlapping clinical features underscore the importance of maintaining a high index of suspicion for atypical infections like scrub typhus in endemic areas, especially when classical causes of pancreatitis are absent [10].

Case Presentation

Patient Details

- **Name:** Mr. Anup Kumar Manna
- **Age/Sex:** 47 years / Male

- **Presentation:** Acute abdominal pain, fever, malaise

Clinical Findings: On presentation, the patient exhibited low-grade fever, abdominal tenderness, and signs of systemic inflammation. No eschar was noted. Vital signs were stable but clinical suspicion of intra-abdominal pathology warranted urgent laboratory and radiological evaluation.

Laboratory Investigations: The hematological and biochemical profile of the patient reveals multiple abnormalities indicative of systemic inflammation and pancreatic involvement. Hemoglobin is mildly reduced at 11.3 g/dL, consistent with mild anemia, while the red blood cell (RBC) count and packed cell volume (PCV) are both decreased, further supporting this finding. Despite these reductions, red cell indices such as mean corpuscular volume (MCV) and mean corpuscular hemoglobin concentration (MCHC) remain within normal limits, suggesting a normocytic, normochromic anemia. A mild elevation in mean corpuscular hemoglobin (MCH) is noted, which may be attributed to a compensatory hematological response.

The total leukocyte count is within normal limits; however, differential count shows marked neutrophilia (92%) and relative lymphopenia (6%), pointing towards an ongoing acute bacterial or rickettsial infection. Most strikingly, the C-reactive protein (CRP) level is critically elevated at 330.80 mg/L, far exceeding the upper limit of normal, indicating a severe systemic inflammatory response. Pancreatic enzymes are significantly raised, with amylase at 413 U/L and lipase at 741.90 U/L, confirming the diagnosis of acute pancreatitis, with lipase levels more than 12 times the upper normal limit, reflecting pancreatic injury of high severity.

Additionally, Scrub Typhus IgM ELISA is reactive (39.120 Units), confirming seropositivity for Orientia tsutsugamushi. This, combined with the systemic inflammatory findings and pancreatic enzyme elevation, supports a diagnosis of scrub typhus-associated acute pancreatitis, a rare but recognized complication. Platelet count is within the normal range, and red cell distribution width (RDW) is also normal, indicating no significant anisocytosis. Collectively, this profile underscores a systemic infectious-inflammatory state with multisystem involvement, warranting urgent medical intervention and targeted antimicrobial therapy.

Radiological Findings (CT Whole Abdomen - Plain + Contrast)

- Pancreas: Bulky (28 mm head), heterogeneous enhancement – Mild Acute Pancreatitis (CTSI Score: 02/10)
- Liver: Enlarged (174 mm MCL) but normal in morphology and enhancement – Hepatomegaly
- Kidneys: Bilateral renal edema; left kidney with Bosniak I cortical cyst; right kidney with duplicated pelvicalyceal and ureteric system with fusion distally.
- Bladder: Wall thickening – Suggestive of cystitis
- Appendix: Normal
- Gallbladder, CBD, Spleen, Prostate, Adrenals: Normal
- Hernia: Small umbilical hernia (6 mm defect) with omental herniation

Diagnosis

1. Mild Acute Pancreatitis (Revised Atlanta Criteria + Radiological CTSI Score 2/10)
2. Systemic Inflammatory Response Syndrome (SIRS) – CRP > 300 mg/L, neutrophilia
3. Scrub Typhus – IgM ELISA Positive
4. Cystitis – Radiologic evidence with inflammatory correlation
5. Renal-ureteric anomaly – Right-sided duplication system
6. Small Umbilical Hernia with Omental Herniation
7. Mild Normocytic Normochromic Anemia

Discussion

This case exemplifies a rare but clinically significant instance of scrub typhus-associated acute pancreatitis, a phenomenon sporadically reported in literature yet likely underdiagnosed in endemic regions due to non-specific presentation and overlapping symptomatology. The diagnosis of acute pancreatitis was confirmed by elevated serum pancreatic enzymes, notably amylase and lipase, along with characteristic changes on contrast-enhanced computed tomography (CECT). Although a lipase-to-amylase ratio greater than 2 is frequently associated with alcoholic pancreatitis [11], the absence of alcohol consumption in this patient suggests a non-alcoholic etiology, drawing attention to alternative causes such as infectious triggers. Scrub typhus, caused by Orientia tsutsugamushi, is an endemic rickettsial infection in many parts of Asia including India. It often presents with fever, myalgia, and gastrointestinal disturbances, but can involve various organs via a vasculitis-mediated mechanism, particularly in severe cases [12]. In the context of our case, scrub typhus IgM positivity, in conjunction with systemic inflammatory features like neutrophilic leukocytosis and markedly raised C-reactive protein (CRP), supports the possibility of infection-induced pancreatitis, a rare but increasingly recognized extrapulmonary manifestation [13]. The pathophysiology is thought to involve microvascular injury and cytokine-induced pancreatic inflammation, consistent with the systemic nature of scrub typhus. The identification of congenital urological anomalies, notably a duplicated renal collecting system, though incidental,

adds further clinical depth. Such anomalies can predispose patients to recurrent urinary tract infections and may have contributed to the concurrent cystitis observed on imaging and urinalysis [14].

While these findings were not directly related to the pancreatic pathology, they illustrate the importance of holistic imaging and interdisciplinary assessment in acute care settings. Importantly, mild hepatomegaly, normal gallbladder and biliary ducts, and the absence of gallstones or biliary sludge help exclude biliary pancreatitis, another common etiology in this demographic.

Moreover, the presence of a small, reducible umbilical hernia without signs of incarceration or bowel compromise further supports that the abdominal findings were not mechanically induced, allowing clinicians to focus on infectious and inflammatory causes of the acute abdomen. Timely diagnosis and supportive treatment led to favorable outcomes, but this case underscores the diagnostic challenge in differentiating overlapping etiologies and the need to consider rickettsial infections in acute pancreatitis workup, especially in endemic zones with nonspecific febrile presentations [15].

Management

- **Initial Stabilization:** IV fluids, nil per os (NPO), electrolyte monitoring
- **Antibiotics:** Doxycycline initiated empirically for Scrub Typhus
- **Pain Control:** IV analgesics
- **Gastroenterology referral** for pancreatitis management
- **Urology consult** for structural renal anomalies and cystitis
- **Surgical opinion** for incidental umbilical hernia
- **Follow-up labs:** Pancreatic enzymes, CRP, renal function, CBC

Outcome and Follow-up

The patient responded well to doxycycline and supportive therapy. CRP and leukocyte levels trended downward over 72 hours. Abdominal symptoms improved. Serial monitoring of pancreatic enzymes was planned, and outpatient follow-up was advised with gastroenterology and urology for ongoing care.

Conclusion

This case underscores the need to consider infectious etiologies such as Scrub Typhus in the differential diagnosis of acute pancreatitis, particularly in endemic regions. It also highlights the role of multidisciplinary management in complex presentations involving infectious, inflammatory, and structural pathologies.

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