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Case Report

Acute Pancreatitis - A Rare Manifestation in Scrub Typhus

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I N F O

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A B S T R A C T

Background: Scrub typhus is an acute febrile illness caused by the bacteria - *Orientia tsutsugamushi*, transmitted through the bite of an infected chigger. This infection is endemic in tropical countries like India, Pakistan, and Bangladesh. It usually presents with fever, headache, myalgia, nausea, vomiting, abdominal pain, and tender lymphadenopathy. The presence of an eschar clinches the diagnosis clinically. Commonly encountered complications in scrub typhus include acute kidney injury (AKI), acute respiratory distress syndrome (ARDS), acute liver injury, and rarely acute pancreatitis.

Case Presentation: We report a case of a 70 year-old teetotaller male, who presented with acute febrile illness and respiratory distress during the peak period of the COVID -19 pandemic. During the course of illness, the patient developed acute pancreatitis as evidenced by elevated serum amylase and lipase as well as features of pancreatitis in the CT abdomen. Common causes of acute pancreatitis were ruled out with necessary investigations. He tested negative for malaria, dengue fever, enteric fever, and leptospirosis, but his IgM and IgG ELISA for scrub typhus were positive with high titres. He also had AKI, ARDS, and acute liver injury. The patient was treated symptomatically and with doxycycline. His condition improved gradually.

Conclusion: Even though acute pancreatitis is one of the rare manifestations of scrub typhus, it should be suspected early and treated promptly.

Keywords: Acute Pancreatitis, Scrub Typhus, Acute Febrile Illness, Cullen Sign, Multi Organ Failure

Introduction

Scrub typhus is an acute febrile illness caused by *Orientia tsutsugamushi*, a gram-negative bacteria. It is transmitted through the bite of an infected chigger. Wild rats serve as a natural reservoir for the chiggers.[1] The literature review confirmed that the majority of scrub typhus cases were reported in the "tsutsugamushi triangle" in the Asia-Pacific region. This disease is endemic in tropical countries like China, India, Pakistan, Bangladesh, Vietnam, Thailand, and

Japan.[2,3] It typically presents with fever, headache, myalgia, tender lymphadenopathy, and eschar as a diagnostic indicator. Diagnosis is established by polymerase chain reaction (PCR) assay, IgM and IgG antibodies by ELISA, and Weil-Felix OX-K strain agglutination reaction. Rarely do patients develop complications such as pneumonitis, encephalitis, acute renal failure, shock, and disseminated intravascular coagulation. It can result in severe multi-organ failure with a case fatality rate of up to 70% without appropriate treatment.[4] The main-stay of treatment includes tetracyclines like doxycycline and symptomatic management. Acute pancreatitis is reported very rarely in scrub typhus.[5,6] We present a case of severe scrub typhus with all possible complications like AKI, ARDS, and acute liver injury along with acute pancreatitis.

Case Report

A 70-year-old male patient on treatment for type 2 diabetes mellitus, bronchial asthma and coronary artery disease came with complaints of insidious onset high-grade fever for 10 days associated with chills. He also had diffuse abdominal pain, reduced urine output and dry cough for 3 days. He complained of breathlessness on exertion for 2 days associated with orthopnoea. There was no history of loose stools, chest pain, anosmia, vomiting, rashes, retro-orbital pain or bleeding manifestations. On presentation, the patient was tachypneic, drowsy, disoriented, and sweating profusely. His pulse rate was 120 beats per minute, blood pressure was 140/80 mm Hg, respiratory rate was 40 cycles per minute, and saturation was 65% at room air and 75% with 15 litres of oxygen through NRBM. An examination of the respiratory system revealed bilateral coarse crepitations and there was diffuse tenderness on abdominal examination. The rest of the examination was unremarkable. The patient was shifted to ICU in view of acute respiratory distress syndrome and was started on NIV (CPAP) with 100% FiO2. The saturation gradually improved to 90%. Patient's respiratory distress reduced after 4 hours on NIV. Investigations revealed multisystem involvement with AKI, direct hyper-bilirubinaemia with hypoalbuminaemia and isolated thrombocytopaenia. Other reports have been shown in Table 1. The patient's COVID-19 nasopharyngeal swab was negative for 2 times done 3 days apart. As the patient had persistent fever spikes, he was thoroughly investigated for tropical diseases causing febrile illness. He was started on doxycycline along with piperacillin-tazobactam. On the fifth day after admission, the patient developed a large purple patch over the abdomen, especially around the umbilicus (Figure 1). As the patient had persistent abdominal pain, serum amylase and lipase were sent and were found to be elevated. CT abdomen revealed features of acute pancreatitis.

Table 1. Investigations

Parameters	Reference Interval	Day 1	Day-2	Day-6
Total leucocyte count (cells/cm)	4000-10000	6900	-	-
Neutrophils (%)	40-80	77	-	-
Lymphocytes (%)	20-40	20	-	-
Monocytes (%)	2-10	3	-	-
Haemoglobin (g/dl)	13-17	13.4	-	-
Platelets (lac/cm)	1.5-4.0	1.01	-	-
Total protein (g/dl)	6.4-8.2	6.2	-	6.2
Albumin (g/dl)	3.5-5	2.2	-	2.0
Globulin (g/dl)	2.3-3.5	4	-	4.2
Total bilirubin (mg/dl)	< 1.0	3.81	-	2.26
Direct bilirubin (mg/dl)	< 0.25	2.98	-	1.02
AST (U/L)	0-46	75	-	86
ALT (U/L)	0-49	40	-	65
ALP (U/L)	60-170	134	-	215
GGT (U/L)	15-85	98	-	329
BUN (mg/dl)	7-18	77	62	18
Serum creatinine (mg/dl)	0.7-1.3	3.47	2.10	0.5
Sodium (mEq/L)	135-145	130	140	145
Potassium (mEq/L)	3.5-5	3.8	3.4	3.8
INR	-	1.23	-	-
C-reactive protein (mg/dl)	-	Reactive > 200	-	-
Amylase (U/L)	-	-	-	435
Lipase (U/L)	-	-	-	1018
D-dimer (ng/ml)	< 250	1028	-	-
Ferritin (ng/ml)	30-300	348	-	-
IL-6 (pg/ml)	< 5	6.7	-	-
HCV, HBV and HIV (Elisa)	Negative	-	-	-
Blood culture	No growth	-	-	-
Urine culture	No growth	-	-	-

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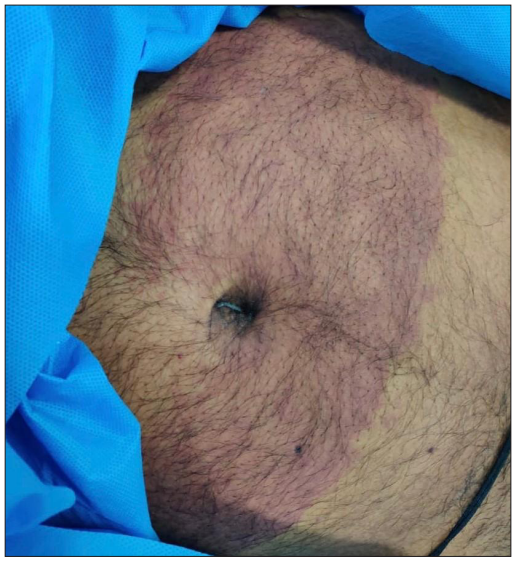

Figure 1.A Purple Rash around Umbilicus suggesting Cullen Sign of Acute Pancreatitis

Investigations for common tropical illnesses like malaria and dengue were found to be negative. But IgM and IgG ELISA antibodies for scrub typhus were found to be positive in high titres. His condition improved gradually over 12 days and was then discharged without any post-infectious sequelae. On follow-up at 3 months, he was doing well with normal renal and liver function tests.

Discussion

Scrub typhus is endemic in southern Asian tropical countries like India, Pakistan, and Bangladesh. This is more commonly seen in the rural background, especially in Tamil Nadu, a southern state in India.[7] As shown in previous studies, more than 50% of acute febrile illness in South Indian states, especially in Tamil Nadu, accounts for scrub typhus. It usually presents with acute febrile illness and common complications noticed in this disease include ARDS, AKI, acute liver injury, and septic shock. Evidence of eschar highly favours the diagnosis.[8] The disease should be aggressively treated as early as possible because late recognition and treatment are associated with multiple complications and high mortality. Acute pancreatitis itself is a very rare complication encountered in scrub typhus and earlier studies have shown high mortality associated with it.[3] This patient, an elderly gentleman, presented with acute febrile illness and respiratory distress during the ongoing COVID-19 pandemic. The patient was admitted to ICU in view of impending respiratory failure and the need of NIV. Investigations revealed multisystem involvement with AKI, acute liver injury, and HRCT showing features of ARDS. Initially, COVID-19 infection was kept as a working diagnosis and two samples of nasopharyngeal swab were sent which came negative. Then workup for other tropical illnesses was started which showed IgM and IgG antibodies positive for scrub typhus. Later on the 5th day of the stay, the patient developed a large purple-coloured patch around the umbilicus suggestive of Cullen's sign. Acute pancreatitis was diagnosed based on the elevated amylase and lipase levels and CT abdomen showing features of acute pancreatitis. He also showed remarkable improvement with doxycycline which is the treatment of choice in scrub typhus.

Conclusion

Any patient presenting with febrile illness in a tropical country should be thoroughly evaluated as most of the illnesses are associated with multi-system involvement with overlapping clinical manifestations. Supportive measures along with specific treatment initiated early will prevent untoward complications in most patients. Acute pancreatitis is a very rare complication in scrub typhus and is rarely reported in the literature. We present this patient with an unusual manifestation of scrub typhus, which is acute pancreatitis.

Conflict of Interest: None

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