



PANCREATIC INVOLVEMENT IN SCRUB TYPHUS

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ABSTRACT

BACKGROUND - Scrub typhus is transmitted by infected larva of trombiculid mite in areas of heavy scrub vegetation during rainy season. It is characterized by eschar at the site of the bite, fever, maculopapular rashes and local and/or generalized lymphadenopathy. Pancreatitis with scrub typhus has been described when it is complicated by pancreatic abscess, multiorgan failure with other confections.

METHOD - 26 adult scrub typhus patients were studied at Geetanjali Medical College and Hospital, Udaipur, Rajasthan. Scrub typhus was diagnosed by rapid immunochromatographic assay along with routine blood tests, serum amylase, lipase and ultrasonography of abdomen.

RESULTS - Among 26 scrub typhus positive patients, 16 were male and 10 were females with mean age of 50 years. Fever and abdominal pain were most commonly observed symptom, with mean duration of 7 days. 11 (42.3%) patients had raised serum lipase and 15 (57.6%) had raised serum amylase levels. On USG of abdomen 5 (19.2%) patients had evidence of pancreatitis out of which 4 had high serum lipase and amylase. 14 (53.8%) patients had multiorgan dysfunction of which 3 patients died.

CONCLUSION - This observation highlights the importance of pancreatitis as an uncommon & serious complication, where prompt diagnosis and early management can be lifesaving.

KEYWORDS : Pancreatitis, Scrub Typhus.**BACKGROUND**

Scrub typhus is an acute undifferentiated febrile illness and could be life threatening. Causative agent is *Orientia tsutsugamushi*, an obligate intracellular bacteria which is transmitted by larval trombiculid mite, which is the reservoir in vertebrate host.¹ Scrub typhus is prevalent in the south eastern Asia and the western pacific. Approximately one million cases are reported annually.² Scrub typhus often goes undiagnosed due to its varied clinical symptoms and lack of a definitive protocol for its diagnosis.³ It is considered a differential diagnosis in patients with acute febrile illness which is associated with hepatic dysfunction, thrombocytopenia, renal impairment, altered sensorium, pneumonitis or ARDS.⁴ It is characterized by eschar at the site of the bite, fever, headache, myalgia and gastrointestinal symptoms including nausea, vomiting and diarrhea. Gastrointestinal presentations such as acute acalculous cholecystitis, duodenal ulcer perforation, peritonitis and gastric ulceration can occur.⁵ Pancreatitis occurs in scrub typhus when it is complicated by pancreatic abscess or multiorgan failure and along with other confections. Scrub typhus cause widespread endothelial cell invasion leading to vasculitis and perivasculitis of small blood vessels leading to acute pancreatitis.⁶

AIM AND OBJECTIVES

- 1) To study involvement of pancreas in scrub typhus patients.
- 2) To study the relation between elevated serum amylase and lipase levels with the severity of scrub typhus.
- 3) To correlate evidence of pancreatitis in USG and elevated serum amylase and lipase levels in scrub typhus patients.

MATERIALS AND METHOD

This study was conducted from June 2018 to December 2018 in the Department of Medicine in Geetanjali Medical College and Hospital, Udaipur. Study consisted of 26 adult patients admitted with signs and symptoms suggestive of scrub typhus. A detailed clinical history and clinical examination was done. Scrub typhus was diagnosed by rapid immunochromatographic assay. All these patients were investigated for routine blood tests like complete blood counts with peripheral

smear, liver and renal function tests, serum amylase, lipase, urine routine and ultrasonography of abdomen. Patients having other illnesses like recent intrabdominal surgery, ERCP, gall stone disease, alcoholics, renal failure, carcinoma of lung or breast and patients on drugs such as sulfonamides, valproic acid, ART, estrogen were excluded. Pregnant females and patient having other co-infections like malaria, dengue, enteric fever, UTI and septicemia were also excluded.

RESULTS

Among 26 adult patients diagnosed as scrub typhus, 16 were males and 10 were female showing male preponderance. 8 out of 26 patients (30.7%) were of age group between 31 to 40 year. Out of various presenting symptoms, fever was present in 22 patients (84.6%) being the most common symptom. Other symptoms were abdominal pain in 18 patients (69.2%), vomiting in 16 patients (61.5%), diarrhea in 8 patients (30.8%), nausea in 14 patients (53.8%), bodyache in 17 patients (65.4%), jaundice in 13 patients (50.0%), altered sensorium in 2 patients (7.6%), diarrhea in 30.7% and bleeding manifestation in form of hematuria and blood in stool in 8 patients (30.8%). Mean duration of symptoms was 7 days. Raised serum amylase was seen in 15 patients (57.6%) and serum lipase in 11 patients (42.3%). On ultrasonographic examination of abdomen, bulky pancreas and presence of peripancreatic fluid was seen in 5 patients (19.2%). Out of these, 4 patients had high serum lipase and amylase. 14 (53.8%) patients had hepatic involvement in form of elevated serum SGOT, SGPT, Bilirubin (direct bilirubinemia), alkaline phosphatase and hepatomegaly on USG. There was elevated serum creatinine, urea and blood urea nitrogen along with decreased urine output in 5 (19.2%) patients suggesting renal involvement, in which 4 patients required hemodialysis support. 8 (30.8%) patients had hypotension and required vasopressor support to maintain blood pressure. There was pulmonary involvement in 4 patients (15.4%) in form of bilateral crackles, bilateral x-ray infiltrates, hypoxia and required mechanical ventilatory support. Out of 26 patients 4 (15.4%) had multiorgan dysfunction. Central nervous system (CNS) dysfunction was observed only in two patients.

Table 1: Symptoms at the time of presentation Symptoms

	Total (n=26)	Percentage (%)
Fever	22	84.6
Abdominal Pain	18	69.2
Vomiting	16	61.5
Diarrhea	8	30.8
Nausea	14	53.8
Body Ache	17	65.4
Jaundice	13	50.0
Bleeding Manifestation	8	30.8
Altered Sensorium	2	7.7

Table 2: Percentage of patients having elevated Serum Amylase and lipase

	No. of patients (n=26)	%
Normal S. Amylase	11	42.3
Normal S. Lipase	15	57.7
Elevated S. Amylase	15	57.7
Elevated S. Lipase	11	42.3
Elevated S. Amylase and S. Lipase	11	42.3

Table 3: Involvement of other systems

	No. of patients (n=26)	%
Renal failure	5	19.23
Hepatic failure	14	53.85
Cardiovascular failure	8	30.77
Acute respiratory distress syndrome	4	15.38
Central nervous system	2	7.7
Multi organ dysfunction	4	15.38

DISCUSSION

Orientia tsutsugamushi is the causative agent of scrub typhus, transmitted by infected larva of trombiculid mite or chiggers in mostly during rainy season. The incubation period is 6 to 21 days. The onset is characterized by fever, headache, myalgia, cough and gastrointestinal symptoms such as nausea, vomiting, abdominal pain, diarrhea which occurring in varying frequency. The most useful diagnostic clue is an eschar formation at the site bitten by the mite of size about 5 – 20mm. Abdomino pelvic involvement is characterized by splenomegaly and hepatomegaly. Pathological findings in the liver include hepatic congestion, periportal inflammation and peripheral necrosis. Gallbladder thickening may also be seen in patients with scrub typhus and could be due to acute vasculitis with perivasculitis similar to that seen in liver.

The diagnosis of scrub typhus depends on clinical suspicion and appropriate laboratory investigations. Although the disease is self-limiting, an early, accurate and prompt diagnosis is necessary to reduce the mortality and morbidity. Laboratory diagnosis of scrub typhus was previously by Weil-Felix agglutination reaction. Currently serological tests are indirect immunofluorescence, indirect immunoperoxidase and ELISA. Other rapid detection kits like rapid immunochromatography and dipsticks are also available.

Pancreatitis is mainly diagnosed by elevated serum amylase, lipase and imaging modalities. Serum lipase has a higher sensitivity and specificity up to 82%-100%. In addition, lipase levels peak early and last longer, returning to normal only after about six to eight days. Imaging modalities include ultrasonography which is a quick and easy-to-perform test on hemodynamically stable and unstable patients. Computer tomography (CT) scanning, although better at delineating pathology of acute pancreatitis.

Chrispal A. et. al. in their large-scale study of 398 patients of acute febrile illness, 189 were scrub typhus positive. Eschar was evident in 45.5% patients and primary presenting symptoms were headache, vomiting and myalgia. Out of these 13.8% presented with shock and hepatic transaminases were elevated in 95.2% of patients. Various complications were observed such as ARDS (29.7%), renal failure (29.7%), altered sensorium (24.4%), and shock (38.4%).¹² By Wang NC, et. al., Pancreatitis with scrub typhus has been described when there is pancreatic abscess with multiorgan involvement or with coinfection with leptospirosis.¹³ In a retrospective study of 623 patients with scrub typhus, the presenting manifestations were fever, headache, nausea and vomiting, shortness of breath and eschar formation. Myocarditis, pericarditis, meningoencephalitis, glomerulonephritis, acute kidney injury, acute respiratory distress syndrome and acute calculous cholecystitis, are some uncommon complications of scrub typhus reported in the literature.¹⁴ Atif Shaikh Iqbal Ahmed, et. al. in their case series of seven patients diagnosed as scrub typhus with acute pancreatitis, mean serum lipase and amylase levels were 1,509 U/L and 434 U/L respectively.¹⁵

CONCLUSION

Scrub typhus is a tropical disease, underdiagnosed mainly due to presentation as a nonspecific febrile illness. Pancreatitis is a serious and unusual complication of this disease. This observation highlights the importance of pancreatitis as an uncommon complication, where prompt diagnosis and early management can be lifesaving.

REFERENCES

1. Traub R, Wissemann CL Jr. The ecology of chigger-borne rickettsiosis (scrub typhus). *J Med Entomol* 1974; 11: 237-303
2. Wu KM, Wu ZW, Peng GQ, et al. Radiologic pulmonary findings, clinical manifestations and serious complications in scrub typhus. Experiences from a teaching hospital in Eastern Taiwan. *Int J Gerontol* 2009; 3:197-264.
3. Gavin C.K.W. Koh, Maudi RJ, Paris DH, Newton PN, Blacksell SD. Review: Diagnosis of scrub typhus. *Am J Trop Med Hyg* Mar 2010; 82(3):368 – 370
4. M. Vivekanandan, A. Mani, Y.S. Priya, AJ Singh, S Jayakumar, S. Purty. Outbreak of Scrub Typhus in Pondicherry, *IAPJ* Jan 2010; 58: 24 – 28.
5. Yang CH, Young TG, Peng MY, Hsu GJ. Unusual presentation of acute abdomen in scrub typhus: A report of two cases. *Zhonghua Yi Xue Za Zhi* 1995; 55:401-4.
6. Ahmed AS, Kundavaram AP, Sathyendra S, et al. Acute pancreatitis due to scrub typhus. *J Glob Infect Dis* 2014; 6: 31-34
7. Narendra Rathi, Akanshka Rathi. Rickettsial Infections: Indian perspective, *Indian pediatr* 2010; 47: 157 – 164.
8. Mathai E, Rolain JM, Verghese GM et al. Outbreak of scrub typhus in southern India during the cooler months. *Ann N Y Acad Sci* 2003; 990:359 – 364.
9. Rakendra Singh. Clinical manifestations and complications of Scrub Typhus. *Jkscience*. April – Jun 2010; 12 (2): 76 – 78.
10. Pradutkanchana J, Silpapojakul K, Paxton H, Pradutkanchana S, Kelly DJ, Strickman D. Comparative evaluation of four serodiagnostic tests for scrub typhus in Thailand. *T Roy Soc Trop Med H J* 1997; 91 (4): 425- 428
11. Gurung S, Pradhan J, Bhutia P Y. Outbreak of scrub typhus in the North East Himalayan region-Sikkim: an emerging threat. *Indian J Med Microbiol* 2013; 31:72-4.
12. Chrispal, A. Scrub typhus: an unrecognized threat in South India - clinical profile and predictors of mortality. *Tropical Doctor*. 2010; 44(3):
13. Wang NC, Ni YH, Peng MY, et al. Acute calculous cholecystitis and pancreatitis in a patient with concomitant leptospirosis and scrub typhus. *J Microbiol Immunol Infect* 2003; 36(4): 285-287.
14. Varghese GM, Trowbridge P, Janardhanan J, et al. Clinical profile and improving mortality trend of scrub typhus in South India. *Int J Infect Dis* 2014; 23:39-43.
15. Ahmed AI, Paul Prabhakar AK, Sathyendra S, Abraham OC. Acute pancreatitis due to scrub typhus. *J Global Infect Dis* 2014; 6:31-4