CASE REPORT

Pancreatitis in scrub typhus: a rare complication

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SUMMARY

Scrub typhus is a zoonosis transmitted by a trombiculid mite which introduces bacteria of *Orientia tsutsugamushi* by its bite. The acute febrile illness is characterised by eschar at the site of the bite with maculopapular rashes and local and/or generalised lymphadenopathy. The disease is endemic in the tsutsugamushi triangle. Sikkim, a small Himalayan north-eastern state, is also not unaffected where outbreaks of the disease have been reported. The clinical spectrum of the disease ranges from mild to fatal depending on the virulence of the bacterial strain, susceptibility of the host and promptness of the treatment. In severe cases, there can be multiple organ involvement. Pancreatitis is a serious and unusual complication of this disease, which was seen in our presentation. A 22-year-old man, diagnosed to have scrub typhus, developed pancreatitis in the second week of the illness and responded well to medical treatment.

BACKGROUND

Scrub typhus is a common infectious disease and is prevalent in the rural south, south eastern Asia and the western pacific. Approximately one million cases are reported annually.¹ It is primarily seen in people whose job or behaviour brings them into contact with mite infected habitats such as forest clearings, rice fields, grassy lands or riverbanks.² It is one of the most commonly reported infectious diseases in India, but the true prevalence is not known. Outbreaks of the disease in Sikkim, a small Himalayan state of India, have been reported in the past couple of years.³ The disease is caused in humans by the bite of the larval stage of the trombiculid mite, known as chigger, and presents with acute febrile illness after an incubation period of about 6–21 days. Headache, myalgia, conjunctival congestion, gastrointestinal (GI) symptoms and cough are other associated features.⁴ It affects people of all ages, both the sexes and all ethnic groups. Eschar is usually present in the axilla, neck, groin, waist or inguinal area and its presence provides an important clue to the disease in endemic areas.¹ The presence of eschar in the axilla led to suspicion of this disease in our case. The disease can be mild with almost nil mortality if treated promptly.⁵ In its severe forms, there can be multi-organ involvement which usually manifests after the first week of illness. Our patient presented with pancreatitis, an unusual and rare complication of this infection. Involvement of other organs and systems are described in the literature but reports of this rare and serious complication are still lacking, so we thought it was worthwhile to report this rare complication.

CASE PRESENTATION

A 22-year-old Indian male patient was admitted to the emergency department with epigastric pain and vomiting, having not opened his bowels or passed flatus for 24 h. He worked as a farmer in a rural area of Sikkim. His detailed history revealed high-grade fever with chills and rigour, headache and myalgia for the past 10 days. On the fifth day of his illness, he was admitted to a local hospital where he was treated with cefotaxime which showed only partial improvement with persistence of fever. On the eighth day, he developed pain in the epigastric region with vomiting. This was associated with difficulty in breathing for which he was referred to our hospital for further management. On examination, he was conscious, oriented and febrile (102°F). His pulse was 120/min, blood pressure was 110/80 mm Hg and SpO₂ was 95% in room air. His physical examination revealed an eschar in the axilla (figure 1), which was present for the past 20 days. Bilateral horizontal and vertical series of cervical lymph nodes were enlarged along with focal lymphadenopathy in the left axilla but rashes were absent. Bilateral conjunctival congestion (figure 2) was present. There was diffuse tenderness over the abdomen with sluggish bowel sounds. Breath sounds were diminished over bilateral bases. Cardiovascular and central nervous system examination did not detect any abnormality. Probable diagnosis of scrub typhus with pleural effusion and pancreatitis was made and he was investigated further.

INVESTIGATIONS

Haematological and biochemical investigations revealed haemoglobin of 12 g%, total leucocyte count of 14 000/mm³ with neutrophils 86%,

Figure 1 Photograph showing an eschar over the axilla.

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Figure 2 Photograph showing bilateral conjunctival congestion.

lymphocytes 14%, monocytes 0%, platelets 140 million/mL, blood urea 60 mg/dL, creatinine 0.7 mg/dL with normal electrolytes. Total bilirubin was 5.2 mg/dL (direct 3.5 and indirect 1.7), aspartate transaminase (AST) 783 IU/L, alanine transaminase 281 IU/L and alkaline phosphatase (ALP) 572 IU/L with normal proteins. Serum amylase and lipase levels were more than three times the upper limit of normal (315 and 288 U/L, respectively). His bleeding, clotting and prothrombin time were normal with normal blood sugar levels. He tested negative for typhoid, malaria, dengue, syphilis, kala-azar, hepatitis A, B, C, E and leptospirosis. His blood culture and urine culture were sterile. The Weil-Felix test was positive in 1:320 titre. This led to a suspicion of scrub typhus, which was further confirmed by rapid immunochromatography and IgM ELISA. Chest X-ray showed left-sided pleural effusion (figure 3) and ultrasound of the abdomen revealed hepatosplenomegaly, pancreatitis, minimal ascites and bilateral pleural effusion. CT of the abdomen confirmed acute pancreatitis (figure 4). His ECG and echocardiography were normal.

DIFFERENTIAL DIAGNOSIS

Malaria, enteric fever, leptospirosis, dengue and hepatitis were some of the differential diagnoses which were excluded by relevant investigations.

TREATMENT

He was kept nil orally. Ceftriaxone 2 g injection was given intravenously twice daily and doxycycline 100 mg twice daily was given with other supportive treatments. He responded well. On the third day, he became afebrile. There was a decrease in pain over the epigastrium and a return of bowel sounds was noted.

Figure 3 Chest X-ray showing left-sided pleural effusion.

Figure 4 CT of the abdomen showing changes in acute pancreatitis.

He passed stool which tested positive for occult blood. On the fourth day, blood investigations were repeated which showed normal total counts with decrease in total bilirubin along with reduction in levels of AST and ALP (294 and 141 IU/L, respectively). Liver function test, serum amylase and lipase returned to normal levels by the 10th day.

OUTCOME AND FOLLOW-UP

The patient was discharged on the 10th day and was asymptomatic on 1-month follow-up.

DISCUSSION

After an incubation period of about 6–21 days, scrub typhus usually presents with typical clinical features. Gold standard serological tests for diagnosis of the disease are indirect immunofluorescence, indirect immunoperoxidase and ELISA. Weil-Felix test, though cheap and widely available, is not specific for the disease.⁶ Commercial rapid detection kits like rapid immunochromatography, dipsticks are also available. Various antibiotics with proven efficacy for the treatment of the disease include doxycycline or tetracycline and azithromycin.^{3 4} Rifampicin is used in cases of doxycycline resistance. Quinolones are shown to be effective to some extent.⁷ Chloramphenicol is also as effective as doxycycline as reported in various studies. Our patient responded well to doxycycline, which was continued for 7 days. A mild form of the disease with prompt treatment usually does not cause any mortality.⁵ A severe form of the disease is usually as a result of virulence of the strain, susceptibility of the host or delay in treatment. Serious complications usually take place after the first week of illness.^{8 9} There can be involvement of multiple organs in the form of meningoencephalitis, interstitial pneumonitis, acute respiratory distress syndrome, pleural effusion, myocarditis, GI bleeding, hepatic dysfunction or hepatosplenomegaly.^{1 10 11} It can also cause disseminated intravascular coagulation, thrombocytopenia, leucopenia or lymphocytosis and septic shock.¹² Our patient had pleural effusion, hepatosplenomegaly, GI bleeding and leucocytosis. Pathogenesis of multiorgan involvement is considered to be related to vasculitis or perivasculitis.¹³ Eschar is seen in around 3–7% to as high as 60% of cases; according to some studies, though it can be seen in few other conditions, its presence helps to diagnose the disease in endemic areas.¹ There was bilateral conjunctival congestion, and this can be seen in about 30% of cases as per various reports.¹⁴ Our patient had cervical lymphadenopathy along with focal axillary lymphadenopathy. Focal and/or generalised lymphadenopathy is seen in up to 51% of cases.¹⁵

Our patient had pancreatitis, pleural effusion, hepatosplenomegaly, GI bleeding and leucocytosis. This patient presented with pancreatitis, an unusual and rare complication of this infection. Its pathogenesis is not clear, but again it is thought to be related to vasculitis.¹ We found a case report of pancreatitis with abscess formation in a 75-year-old man suffering from scrub typhus and multiorgan failure.¹⁶ Coinfection of scrub typhus with leptospirosis presenting with acute acalculous cholecystitis, acute pancreatitis and acute renal failure has also been reported. This patient improved with ceftriaxone, doxycycline and other supportive treatments.¹⁷ Pancreatitis has been reported as a rare complication presenting in <3% of cases as per various case reports.¹ Pancreatitis in coinfection of scrub typhus and dengue is also reported.¹⁸ Hyperamylasaemia and hyperlipasaemia associated with multiorgan failure and lasting for around 10 months is also reported in a patient with scrub typhus.¹³

Learning points

- ▶ Scrub typhus should be suspected in the presence of eschar in endemic areas.
- ▶ This can be complicated by multiorgan involvement, and pancreatitis is an unusual complication of this disease.
- ▶ With prompt treatment, mortality related to this serious infection is almost nil.
- ▶ Simple and cost-effective antibiotics like doxycycline or azithromycin are very effective for treatment.

Competing interests None.

Patient consent Obtained.

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