

Case Report

An interesting presentation of leptospirosis

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ABSTRACT

Leptospirosis is a zoonotic infection more common in south India. Most of the cases are asymptomatic but rarely patient can develop complications like renal failure, acute liver failure, pancreatitis, ARDS and bleeding diathesis. Haemorrhage has been reported in multiple sites, of which the most common is pulmonary haemorrhage. Here we report a case of 53-year-old male presenting with acute febrile illness and seizures. CT brain revealed subdural hemorrhage (SDH). He also had thrombocytopenia with elevated liver and renal parameters and elevated Lipase levels. CT abdomen revealed features of acute pancreatitis. Here we encounter a rare case of leptospirosis presenting with subdural haemorrhage and pancreatitis.

Keywords: Leptospirosis, Haemorrhage, SDH, Thrombocytopenia

INTRODUCTION

Leptospirosis is a potentially fatal zoonotic infection that is endemic in many tropical regions and it causes large epidemics mostly after heavy rainfall and flooding. Infection spreads from exposure to infected reservoir host animals directly or indirectly. The host animals carry the pathogen in their renal tubules and shed pathogenic bacteria in their urine. Many wild and domestic animals can act as reservoir hosts but the brown rat (*Rattus norvegicus*) is the most important and common source of human infections. Individuals who live in urban slum environments which has inadequate sanitation and poor housing facilities are at high risk of rat exposure and leptospirosis.¹ Based on global data collected by international leptospirosis Society surveys, the incidence was estimated to be 350,000-500,000 severe leptospirosis cases annually.² When high levels of leptospiremia occur during infection, innate immune mechanisms eventually trigger tissue-based and systemic responses to infection that lead to severe outcomes such as a sepsis-like syndrome or organ failure. Patients with severe leptospirosis have higher levels of IL-6, TNF-alpha, and a number of other cytokines than patients with mild disease

and is known to cause cytokine storm.³ Liver is a major target organ in leptospirosis. Pathology reports from autopsy specimens from fatal cases of leptospirosis have found sinusoidal congestion and distention of the space of Disse which is located between the sinusoids and hepatocytes.⁴ Modified Faine's criteria is a useful clinical tool in diagnosing leptospirosis and availability of simple diagnostic tests should help in the diagnosis of milder forms of leptospirosis.⁵

CASE REPORT

A 53-year male patient presented with myalgia, high grade fever associated with chills and rigors for 7 days, He also had abdominal pain and vomiting (3 episodes) with blood for 1 day. He developed yellowish discoloration of his eyes and passed high coloured urine. He had one episode of generalised tonic clonic seizures, 15 minutes prior to arrival to the hospital. His postictal state recovered within 10 minutes. General examination revealed pallor and icterus. Systemic examination revealed tender hepatomegaly. Blood pressure was 80/60 mmHg, pulse rate- 120/min, SpO₂-78% in room air, temperature- 100°F. Arterial blood gas revealed type 1 respiratory failure with PaO₂/FiO₂ of 90% suggestive of severe ARDS.

Investigations revealed WBC-14,000 cells/cumm, Hb-12 g/dl, platelets- 30,000 cells/cumm; urea- 142 mg/dl, creatinine- 3.6 mg/dl, total bilirubin-6.54 mg/dl, direct bilirubin- 4.25 mg/dl, SGOT-73 IU/l, SGPT-33 IU/l, ALP-113 IU/l, amylase 600 IU/l, lipase-1400 IU/l. Coagulation profile was within normal limits. In view of seizures, CT brain was taken which revealed B/L SDH adjacent to frontoparietal region.

In view of malena, UGI endoscopy was done which showed features of bleeding ulcer. CT chest revealed diffuse infiltrates in both lung fields suggestive of ARDS. CT abdomen revealed edematous head of pancreas with hepatomegaly. Malarial parasite quantitative buffy coat, Scrub IgM and dengue serology reports were negative. Patient tested positive for leptospirosis IgM with high titres. Modified Faine's criteria was 30. Patient was intubated and connected to mechanical ventilator in view of severe ARDS. Intravenous Ceftriaxone, Doxycycline and other supportive measures including antiepileptics were started. Inotropes were started in view of hypotension. Slow low efficiency dialysis was done in view of decreased urine output. Platelet and packed RBC transfusions were done. Unfortunately, his condition deteriorated despite treatment and succumbed to death on day 12.

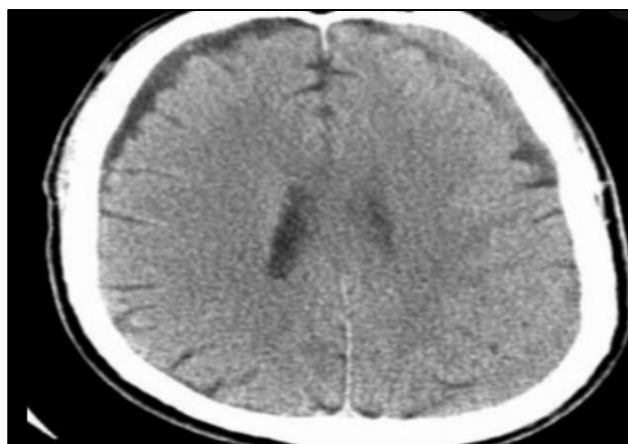


Figure 1: CT brain of SDH adjacent to fronto-parital region.

DISCUSSION

A retrospective study was done by Holla et al which included 202 leptospirosis patients. This study showed majority of those patients presented with fever (92.1%). The most common complication encountered in those patients was renal failure (79.2%). These patients had a case fatality rate of 3.5%.⁶ In a retrospective study of 160 patients by Becirovic et al the following findings were reported: thrombocytopenia (88%), leukocytosis (50.6%), neutrophilia (64.4%) and lymphopenia (80%), elevated Aspartate aminotransferase (88%) and alanine aminotransferase (81.3%), elevated total bilirubin (65.6%) and direct bilirubin (66.9%), elevated urea (64.4%) and

creatinine (61.3%).⁷ The immunological gold standard for diagnosing leptospirosis is considered to be MAT, but this study shows that MAT has poor sensitivity when performed early and when samples in acute and convalescent phases were taken and analysed, the sensitivity of MAT increases as a test to diagnose leptospirosis as demonstrated in a study of 919 patients by Niloofa et al in which positivity for MAT, IgM-ELISA and Leptocheck-WB were obtained in 39.8%, 45.8% and 38.7% respectively in the acute phase of infection.⁸ MAT in the acute phase had a specificity and sensitivity of 95.7% and 55.3% respectively, in comparison to overall positive reaction to MAT. IgM-ELISA and Leptocheck-WB testing in these patients showed similar sensitivity for diagnosing leptospirosis when compared with acute-phase MAT as the gold standard. In this study IgM-ELISA showed higher specificity (84.5%) than Leptocheck-WB (73.3%). IgM-ELISA and Leptocheck-WB had similar sensitivities (86.0% and 87.4%), whereas acute-phase MAT had the lowest sensitivity (77.4%). However, acute-phase MAT had high specificity (97.6%), while IgM-ELISA and Leptocheck-WB showed similar but lower specificity (84.5% and 82.9%).

In a case series by Alian et al 43.7% of the patients had complications of icterohaemorrhagic phase.⁹ Among those 2 patients had subarachnoid haemorrhage. Thrombocytopenia causing intracranial hemorrhage and its incidence is unknown and there is a wide range of estimates from the literature from 0.5% to 6.9%.¹⁰ The exact mechanism of leptospirosis causing acute pancreatitis is not fully understood and described in literature. Toll like receptor (TLR) 2 activation is described recently as one of the immune mediated mechanisms for development of pancreatitis. Pathologic finding in leptospirosis which were consistently obtained is inflammation of capillaries which is manifested by oedema of endothelium, necrosis and infiltration of lymphocytes. Activation of proteolytic enzymes and auto-digestion by vasculitis of small vessels and ischemia is one of the possible mechanisms¹¹.

In our case there was worsening thrombocytopenia and complications of icterohaemorrhagic syndrome including UGI bleeding, subdural haemorrhage, pancreatitis and ARDS. Incidence of intracranial haemorrhage in leptospirosis is rare. Hence, we report such rare presentation.

CONCLUSION

Intracranial hemorrhage in leptospirosis is rare but a reported complication and is accompanied by thrombocytopenia. Hence the presence of thrombocytopenia should be considered as an important prognostic marker as it is associated with worse outcomes.

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