A RARE CLINICAL PRESENTATION OF LEPTOSPIRAL INFECTION PRESENTING AS SHOCK

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ABSTRACT
Leptospiral infections usually present as anicteric hepatitis or when severe, may present as weill’s disease with hepato renal failure. Shock is one of the rare presentation of leptospirosis. Negative blood culture for bacterial sepsis and a positive leptospiral serology confirms the rare complication. Such a case with hepatitis developed shock. He was managed in ICU. His blood culture was found to be negative for bacterial sepsis, but he had positive leptospiral serology. The patient improved after intensive management and discharged free of complication.

KEY WORDS: Leptospirosis, Hepato-Renal Syndrome, Weis disease, Shock.

INTRODUCTION
Leptospirosis is an emerging infectious zoonotic disease prevalent in india. It is seen mostly in warm, humid and tropical countries. It is caused by a spirochaete “leptospira” and is characterized by varied clinical manifestations which may range from in apparent infection to fulminant organic failures. Shock and ARDS are two rare presentation of leptospiral infection.
CASE REPORT
A 28 year old male civil contractor by profession was admitted with chief complaints of low grade fever off and on and muscle pain of both the lower limbs of 10 days duration followed by haemoptysis 2-3 times, pain in and distension of abdomen and breathlessness of one day duration. There was no suggestive history of any chronic illnesslike pulmonary tuberculosis, diabetes and hypertension. He was a non-smoker and non-alcoholic. He gave a history of repeated direct contact with sewage water because of his profession. At the time of admission, patient was ill looking, dyspnoec. On examination, body temperature was 98.4 degree F, respiratory rate was 40/min, abdomino-thoracic and regular. His pulse was not palpable and blood pressure was not recordable. There was no pallor, icterus, cyanosis, oedema, clubbing or lymphadenopathy. JVP was not raised, SpO2 was 90% in room air. On examination of respiratory system, breath sounds were vesicular. There were crackles over both the lower lobe regions.

On examination of abdomen, it was distended without hepatosplenomegaly. On auscultation bowel sounds were absent. Cardiovascular examination revealed no abnormalities. On examination of nervous system, patient was conscious, well oriented, pupils were normal in size and reacting to light. There was no cranial nerve deficit. Deep tendon reflexes were normal. Planter response was bilaterally flexor. There was no sensory deficit and there was no sign of meningeal irritation. On examination of musculo-skeletal system, there was severe tenderness of thigh and calf muscles. Routine blood examination on the day of admission showed; Haemoglobin 13.6g%, Leucocytosis (17,000/mm³ with N 71%, L 27%, E 1%, M 1%), TPC 1.45lakhs/mm³, RBS 180mg%, ESR-40mm/1st hr. MP- negative (by slide and QBC method), viral markers for hepatitis A,B,C,E were not detected and test for HIV was negative. Chest X-ray PA view showed bilateral lower zone haziness. Plain X-ray of abdomen in erect posture showed distended loops of bowel.

Biochemical parameters showed; blood urea 40mg%, serum creatinine 3.2 mg%, total bilirubin 2.5mg%, SGOT 1 I.U/ml, SGPT 20 I.U/ml, serum alkaline phosphatase 80 I.U/ml, serum protein 6gm%, serum albumin 3.5gm%, serum amylase 123 I.U/ml, serum sodium 133 m.eq./L, serum potassium 3.1m.eq./L, serum calcium 7mg/dl and INR was 1.16. Routine and microscopic examination of stool and urine samples revealed no abnormalities. Before starting treatment, blood, urine, tracheal secretion and stool samples were sent for culture and samples sent for immunological test for leptospiral infection and dengue fever.
COURSE AND TREATMENT
As the patient was in shock, he was shifted to ICU and broad-spectrum antibiotics, vasopressors, intravenous fluids and other life supportive measures were given. On the day 2nd day of admission, patient developed ARDS, for which patient was intubated. Then he developed bilateral conjunctival haemorrhage. So suspecting it could be a case of leptospirosis, intravenous ampicillin was given in a dose of 1gm, 6 hourly after skin test. On the very next day serological test for leptospirosis by ELISA showed a rising titre of IgM antibodies to leptospiral antigen (IgM -1.44 OD ratio i.e. more than 1.11). After 24-48 hours of incubation, all body samples sent earlier for culture were found to be sterile. So the patient was treated only with i.v. ampicillin and the broad spectrum antibiotics were withdrawn. In due course of time, gradually the life supportive measures were withdrawn. After 72 hours of treatment, his vitals parameters started showing improvement, renal functions improved, but LFT was still abnormal. The patient was extubated on the 4th day and shifted to ward on the 6th day of admission. Gradually the i.v. antibiotic was changed to oral one. On the 14th day of admission leptospiral antibody IgM in serum was 80.00U/ml (positive if more than 20.00 U/ml) and IgG level was 9.00U/ml (positive if more than 9.00U/ml). The patient was discharged in a stable condition on the 20th day of his admission after the biochemical parameters and complete blood counts returned to normal range.

DISCUSSION
Leptospira mediated injury causes vasculitis of capillaries and thrombocytopenia. [1,2,3,4,8] The common manifestations of leptospiral infection are anicteric hepatitis, febrile jaundice, acute renal failure, weil’s syndrome, bleeding into skin, mucous membranes and lungs and shock with multi-organ failure. [2,3,4,5,8] Other unusual manifestations of leptospirosis include alimentary manifestations like acalculous cholecystitis, cerebral vasculitis, stroke syndrome, myocarditis and DIC. [3,4,5,6,8] Out of the common manifestations, a state of shock at the time of admission, though rare, was reported in literature. [7] Hypodynamic studies of these causes showed that the shock is due to three different mechanisms which are often associated successively in the same patient. [7]

a. Septic shock with fall of systemic vascular resistance (SVR) and no widening of arteriovenous oxygen difference (AVDO$_2$).

b. Cardiogenic shock, probably due to specific myocarditis, with reduced left ventricular work and normal or pulmonary wedge pressure.

c. Hypovolaemic shock with increased SVR and widened AVDO$_2$.
Patients with shock, DIC and multi-organ failure carry a poor prognosis and high mortality. Our experience with shock at presentation in leptospirosis is limited. However reviewing the literature, four cases with leptospirosis were admitted to ICU in a state of shock. Haemodynamic studies showed that the shock was due to the mechanisms described above.[7] These data suggested that haemodynamic studies are required in patients with leptospirosis associated with shock in order to determine its mechanisms and to provide guidelines for its management.

CONCLUSION
Summarizing it, a 29 years young man having a history of sewage exposure with off & on fever for last 10 days with muscle pain over both the lower limbs, presenting with peripheral circulatory failure, on examination was found to have features of respiratory distress, subsequently bilateral conjunctival hemorrhages, deranged renal & hepatic functions with rising titers of IgMMontileptospiral antibodies, culture reports found to be sterile after 24-48 hours of incubation and improvement after specific treatment with ampicilline made us to believe that it was a case of leptospirosis who presented with shock later on complicated with ARDS.

CONFLICT OF INTEREST STATEMENT
The authors report no conflict of interest.

REFERENCES