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A RARE CASE OF PULMONARY HAEMORRHAGE- SEEN IN LEPTOSPIROSIS

Priyadharshini V

ABSTRACT

Pulmonary hemorrhage is a very rare and a serious complication of leptospirosis. It is the leading cause of death in leptospirosis.Leptospirosis is a worldwide zoonotic disease caused by genus Leptospira, has been reported in India since 1931.[1] the incidence in southern India being 25.6%.[2]

We herein report an uncommon case of severe pulmonary hemorrhage and multiple organ failure due to leptospirosis in an elderlysouth Indian farmer, who was previously healthy. Giving history of working in paddy field barefooted and came in contact with rat feces,contaminated water. Complaints of fever with myalgia and hemoptysis brought the patient to the hospital. Patient developed severe respiratory distress, requiring mechanical ventilation. Prompt diagnosis of leptospirosis as a rare differential for pulmonary hemorrhage, appropriate antibiotics, escalated the patient recovery, extubated, and was discharged on the 8th day of admission.

CASE REPORT

A 75 year, old male farmer, presented to the hospital with a 5 day history of fever, with chills and rigors, myalgia, fatigue, conjunctival congestion, fatigue. History of 4 episodes of hemoptysis brought the patient to our emergency department. He had no known comorbidities, or any history of past illness. Upon arrival, patient was conscious oriented,dyspneic, febrile with temperature of 39°C, pulse rate of 110 beats/minute, respiratory rate of 34 breaths/ minute, blood pressure of 100/60 mmHg, Spo2 of 92% at room air. Laboratory examination showed thrombocytopenia, platelet count of 27 x 10^9 /L (125- 350 X 10^9/L), neutrophilic leukocytosis 14x 10^9/L (4.5-11x10^9/L), C- reactive protein level of 171mg/L (0-10 mg/L), liver dysfunction as shown by raised aspartate aminotransferase level of 75 U/L (10-37 U/L), alanine aminotransferase level of 84 U/L (10-40 U/L). Renal impairment, Urea 10mmol/L (2.1 to 8.5 mmol/L), creatinine 126 mmol/L (65.4 to 119.3 mmol/l) .Urine analysis revealed mild proteinuria. ABG analysis revealed metabolic alkalosis. In view of persistent tachycardia, tachypnoea, patient was shifted to the intensive care unit with O_2 support, where he deteriorated further,patient was in sepsis with multiple organ dysfunction syndrome- in the form of liver failure, renal dysfunction, requiring mechanical ventilation. A computed tomography scan (FIGURE 1)- revealed diffuse ground glass opacities, with interlobular septal thickening with crazy paving appearance and pulmonary infiltrates noted in upper and lower lobes of bilateral lung fields, suggestive of pulmonary hemorrhage. In the intensive care unit patient was treated with intravenous fluids, broad spectrum antibiotics (intravenous cefaperazone sulbactam and doxycycline). As a part of fever work up, dengue, leptospirosis, and scrub typhus profile were also sent. Specialist opinions in view of renal impairment was obtained, adequate hydration and avoidance of nephrotoxic drugs were advised. Patient continued to receive the same line of management.Cardiologist opinion was obtained, and stable cardiac status was conveyed. On the following day patient's, renal and liver parameters were showing improvement. Platelet count was raising. Patient had tested positive for leptospirosis IgM antibodies (ELISA method), suggesting recent infection. However, the choice of antibiotic and the line of management dint differ. Patient was hemodynamically improving, was extubated on the 4th day of admission, shifted to ward, and discharged on the 8th day.

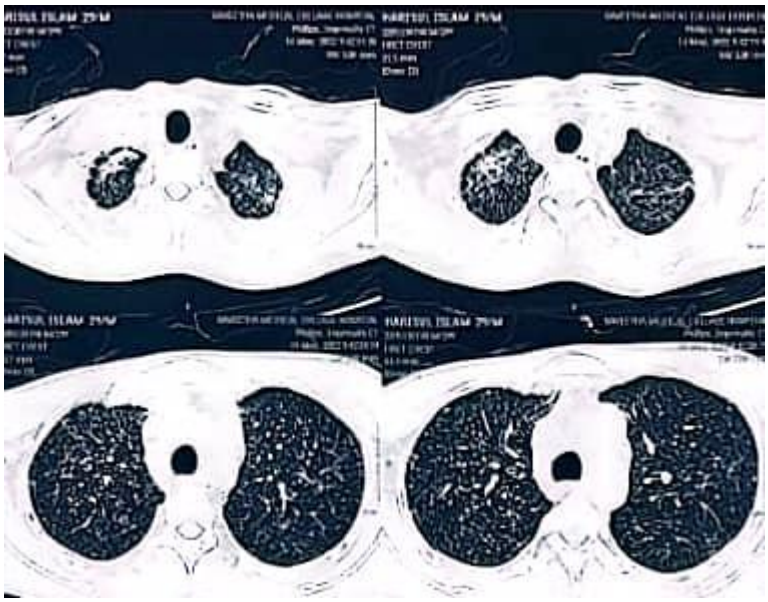

FIGURE 1- Diffuse ground glass opacities, with interlobular septal thickening with crazy paving appearance and pulmonary infiltrates noted in upper and lower lobes of bilateral lung fields.

TREATMENT

Treatment is mainly supportive, efficacy of antibiotics remain unclear. The first line of antibiotics used for the treatment of leptospirosis is penicillin group of drugs, followed by macrolides like doxycycline and azithromycin, which are given orally in mild, and intravenously in severe forms of the infection. Literature suggests, streptomycin to have bactericidal action against leptospires.

DISCUSSION

Transmission of leptospirosis usually occurs through contact with the urine or tissue of the infected rodents and contaminated water, soil, and vegetation.[3] In the recent years its incidence has been widely reported from southern, central, eastern and western parts of India due to heavy monsoon, animal rearing practices and urbanization.[4] There is a wide spectrum of presentation of leptospirosis. Most of them, present with mild fever or flu like symptoms, jaundice, and renal failure secondary to leptospirosis is termed as Weil's disease. It is a biphasic illness with an acute febrile leptospiremic phase lasting for a week, followed by and immune leptospiruric phase characterized by antibody production during which most of the complications occur, with an average incubation period being 10days. Diffuse alveolar hemorrhage (DAH) is seen in approximately 3.7% of leptospirosis cases and is a major cause of death, with mortality rate exceeding 70%.[5]In leptospirosis, pulmonary hemorrhage has been the presenting sign, preceding other clinical features.[6] Radiologically, non specific diffuse infiltrative opacification in the chest Xray and ground glass opacities in CT chest are observed in pulmonary hemorrhage.[7] it carries a wide range of differentials such as vasculitis, acute respiratory distress syndrome, infection, heart failure.[8]

Diagnosis is made using serology kit such as IgM enzyme linked immunosorbent assay (ELISA). Culture techniques are also available but, requirement of special media and observation for the growth for over a week, is cumbersome. The mortality rate for anicteric patients is very low. Neurologic

complication can be seen as aseptic meningitis with lymphocytic predominance. Jaundice is not associated with hepatic necrosis and liver dysfunction returns to normalcy. Similarly, renal impairment tends to be non-oliguric and recovery is generally complete. Literature suggests use ECMO support widely in patients with pulmonary hemorhage.[9]ECMO is useful as an adjunct therapy until alveolar bleeding stops and respiratory condition is worsened.ECMO therapy should be considered early in case of difficulty in maintaining adequate oxygenation by conventional mechanical ventilation because respiratory distress is the most common cause of death in these patients.

CONCLUSION

Leptospirosis is a rare but an important differential to be considered in diffuse alveolar haemorrhage presenting to the intensive care unit with acute respiratory distress syndrome. Thorough occupational and recreational history is essential to think of these differentials. Leptospirosis should be taken up as a part of fever work up in endemic regions, as in our case. Which is routinely done, along with addition of doxycycline to the treatment regimen, which speeded up the recovery process. Most patients recover spontaneously except for complications like barotrauma in patients with DAH on mechanical ventilation, necessitating ECMO support.

This is the first case of the many leptospirosis cases that we have seen, presenting with pulmonary haemorrhage. From the similar cases presented in the literature, very rare cases have been reported to have survived and not requiring ECMO support.

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