Case Report

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A Symptomatic Case of Leptospirosis in Pregnancy

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Abstract

Aim of the Study: The aim of the study is to present a case of leptospirosis in pregnancy with uncommon presentation. *Introduction:* Leptospirosis is a zoonotic disease and has varied manifestation with overlapping features of malaria, hepatitis, typhoid and dengue. Leptospirosis is uncommon and difficult to diagnose due to its non-specific clinical presentation. *Case description:* A 26-year-old multigravida with 28 weeks of gestation, presented to the obstetrics outpatient department of our hospital with the chief complaints of high grade fever associated with chills, myalgia, nausea and vomiting. She also complained of having giddiness. She gave history of having oliguria and passage of dark colored urine. Following investigations were carried out: blood glucose, Liver function tests included serum total and direct bilirubin, AST, ALT, total protein and albumin, renal function tests included BUN and creatinine and C- reactive protein as inflammatory marker. Laboratory findings included high serum AST, ALT, total and direct Bilirubin, BUN, S. Creatinine, C- reactive protein and leukocytosis. Hemoglobin, S. total protein, albumin and random blood sugar were reported low. Urine analysis was positive for proteinuria. Peripheral smear was negative for malaria. Serological tests were negative for typhoid, hepatitisand dengue. Serological test was positive for antibodies (IgM) to leptospira at titer of 1:1,000. Diagnosis of leptospirosis was confirmed and management was carried out for the same. *Conclusion:* Since leptospirosis often presents with symptoms which overlap with the clinical features of malaria, dengue, hepatitis, enteric fever, therefore these conditions can be considered in the differential diagnosis of leptospirosis in pre exposure cases associated with pregnancy. *Clinical Significance:* Due to its nonspecific presentation, its diagnosis can be overlooked. It is important to have a high index of suspicion, for early diagnosis of the disease and start treatment, so as to avoid complications especially in pregnant women.

Keywords: Hyperbilirubinemia, leptospirosis, pregnancy, proteinuria.

Introduction

Leptospirosis is a rare but an important infectious zoonotic disease caused by the bacteria spirochete of the genus, Leptospira. Infection in humans can occur either by direct contact with the urine or tissues of the infected animals especially rodents or indirectly through water, soil or vegetation, which is contaminated with the urine of the infected animal.[1] The bacteria can enter the body through damaged skin via cuts or abrasions, conjunctivae exposure andmucous membrane or via inhalation of microscopic droplets.[2]

The disease often presents with avaried manifestation with overlapping features of malaria, hepatitis, typhoid, dengue and others. It mimics other viral, bacterial and parasitic infections, acute fatty liver, pregnancy-induced hypertension, and

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HELLP syndrome. Due to its nonspecific clinical presentation its diagnosis is often tend to be overlooked.

We report a symptomatic case of leptospirosis in a pregnant woman herein, who presented in her third trimester of pregnancy and subsequently delivered a healthy baby.

Case Report

A 26-year-old multigravida with 28 weeks of gestation, presented to the obstetrics outpatient department of our hospital with the chief complaints of high grade fever associated with chills, myalgia, nausea and vomiting. She also complained of having giddiness. She gave history of having oliguria and passage of dark colored urine. She was pale, lethargic, disoriented and icteric. On examination: she was found to be febrile with a temperature of 100°F, was hypotensive with blood pressure of 96/72 mmHg, and a high pulse rate of 122/min.

Blood sample was collected for biochemical profile, hemogram and serological investigations. Blood glucose, Serum AST, ALT, BUN were analysed by enzymatic colorimetric method, Total and direct bilirubin by diazo method, kinetic assay of creatinine was carried out by Jaffe's method, total protein by Biuret method, serum albumin by BCG dye binding method and C- reactive protein by immunoturbidimetric method. All biochemical parameters were assayed on Cobas 6000 and Hemogram assay on Sysmex XN-1000. Urine routine was done by multi strip dipstick. Leptospira IgM antibody was detected using ELISA method.

The investigation reports were as follows, RBS was 73 mg/dL, BUN was 22 mg/dL, S. creatinine was 2.2 mg/dL, Total bilirubin was 11 mg/dL, direct bilirubin was 8 mg/dL. AST was 146 U/L, S. ALT was 137 U/L, S. total protein was 6 g/dL, S. albumin was 2.8 g/dL, C- Reactive protein was 110 mg/L. Hemoglobin was 9 g/dl and leukocytosis was present. Urine analysis showed proteinuria (++). Peripheral smear was negative for malaria. Widal agglutination test was negative for typhoid. Serological tests were negative for hepatitis and dengue. Blood and urine culture was negative. Subsequently, serological test was positive for antibodies (IgM) to leptospira at a titre of 1: 1,000.

She had features of hypoglycaemia associated with jaundice, altered levels of serum liver enzymes and decreased renal function

So, the patient was diagnosed to have leptospirosis and was admitted in the hospital where she was treated with intravenous ceftriaxone and adequate hydration was given. She was intensively monitored and her condition started improving gradually. She was discharged and came back for follow up after a week. A couple of weeks later, she delivered a healthy baby, with no signs of congenital leptospirosis.

Discussion

Leptospirosis in pregnancy has been reported sparsely in our country. Around 90% of the cases are mild and often present with non-specific symptoms. In the initial phase they present with features associated with fever, headache, chills, myalgia, abdominal pain, diarrhea, anorexia, vomiting. In the next phase present with lymphadenopathy, rash and hepatosplenomegaly associated with circulating IgM antibodies.[3] Whereas rest of the 5–10% of cases present with the more severe hemorrhagic form known asicteric leptospirosis/ Weil's disease, which includes involvement of vital organs such as liver, kidney and lungs, with a relatively high fatality rate 20–40%.[3]

Weil's disease is characterized by jaundice, pulmonary hemorrhage and renal dysfunction. Severe liver disease, i.e. Weil's disease has been linked with acute *leptospira* infection.[4–7] Leptospira infiltration of Disse space can detach the intercellular junctions, disruption of canaliculi causes leakage of bile predisposing to jaundice. Due to disruption of intercellular junction causes mild elevation of serum transaminases (AST/ALT). Due to increased protein catabolism with decreased protein synthesis due to liver inflammation associated with proteinuria can cause decrease in serum protein and albumin levels.[8,9] Diffuse tubulointerstitial inflammation can cause tubular necrosis and glomerular dysfunction can be due to infiltration with the inflammatory cells.[10] Myalgia in abdomen mimics as abdominal pain.

In this case, serum bilirubin is comparatively more elevated as compared to rise in liver enzymes. Hyperbilirubinemia can be either due to hepatocellular dysfunction, magnified by impairing bilirubin excretion from renal failure or from bilirubin over production from tissues haemorrhage.

Leptospirosis can also be transmitted through breast milk in case of neonatal leptospirosis.[3] Fetal implications of the disease in pregnancy

include healthy babies or can cause unforeseen outcomes including abortion, fetal death, still birth or congenital leptospirosis, depending upon the period of pregnancy.[11]

Conclusion

Since the disease often presents with symptoms which overlap with the clinical features of malaria, dengue, hepatitis, enteric fever, therefore these conditions can be considered in the differential diagnosis of leptospirosis. In the third trimester of pregnancy, abdominal pain associated with jaundice, hemolysis, raised transaminases and coagulation abnormalities, include HELLP syndrome and AFLP (acute fatty liver of pregnancy) as the likely differentials.

Clinical significance

Leptospirosis is an uncommon disease which often becomes difficult to diagnose due to its non-specific presentation. Therefore, it is important to have a high index of suspicion, in order to pick up the disease early and start treatment, so as to avoid complications specially in pregnant women.

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