

A rare case of Weil's disease in pregnancy

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Abstract

Weil's disease in pregnancy is an uncommon entity. It is a severe form of leptospirosis with the presence of jaundice and renal damage. Leptospirosis is a major zoonotic disease and human infection results from accidental contact with the environment contaminated with the urine of the carrier. The infection ranges from a mild flu like illness to a serious, sometimes fatal disease. Infection in pregnancy may be grave leading to maternal and fetal morbidity and mortality unless treated early. Moreover in pregnancy, the presentation may mimic other viral, bacterial and parasitic infections, Acute Fatty Liver in Pregnancy (AFLP), Pregnancy Induced Hypertension (PIH) and HELLP (Hemolysis, Elevated Liver Enzymes, Low Platelet) syndrome and owing to this unusual presentation, leptospirosis is often misdiagnosed and under-reported.

Keywords: Weil's disease, Pregnancy, Leptospirosis, Zoonotic disease, Jaundice, Renal damage, Icterus

Introduction

The incidence of leptospirosis with pregnancy is 5-10 per 100000 although the exact incidence is unknown. Leptospirosis, an endemic disease caused by *Leptospira* is a direct zoonotic disease transmitted commonly by rodents which act as carriers or vectors. It is most common in tropical and sub-tropical areas [1].

Man is the dead-end host [2]. The mean incubation period is around 10 days (2-26 days) [3]. Risk factors include occupational exposure like workers at dairy farm, butchers, hunters, and even house-hold exposure like presence of domestic animals, infestation of rodents [4]. Upon entering the body, wide spread haematogenous dissemination and penetration of tissue barriers occurs.

Infection leads to a wide range of symptoms like fever, headache, myalgia to hepato-renal failure. Infection in pregnancy can be fatal if undiagnosed. Fetal effects include spontaneous abortion, intrauterine fetal death, still birth, neonatal jaundice. Early diagnosis & treatment is therefore necessary to avoid maternal & perinatal morbidity and mortality.

In this article, we report a case of 20 year old primigravida with 36 weeks of gestational age with icterus and fever in active phase of labour, who was diagnosed with leptospirosis on serological testing. She delivered a healthy neonate with no evidence of congenital leptospirosis.

Case Report

A 20 year old primigravida with 36 weeks of gestation presented to ANC OPD of Dr. D.Y. Patil Hospital, Kolhapur, with chief complaints of pain in abdomen since 4-5 hours. She also gave history of fever and icterus since 5-6 days for which she received symptomatic treatment from a local health centre. There were no other localising symptoms of systemic infection or no symptoms of impending eclampsia like headache or blurring of vision. On examination, patient was febrile with temperature 100.8°F, pulse of 88/min and BP 110/80 mm of Hg. She was pale and icteric with a few sub conjunctival haemorrhages. There was generalised myalgia. Her respiratory and cardiovascular examination showed no

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abnormal findings. On abdominal examination, uterus was around 36 weeks size, fetal heart sound was regular, rhythmic with 144 beats per minute, head was 3/5th palpable and contractions were present. On vaginal examination, she was 4-5cm dilated, 50-60% effaced, station at 0, membranes bulging with vertex presentation. Continuous cardio-tocographic monitoring was started. Urine protein dipstick was negative. When the patient progressed to 7-8 cm dilatation, almost full effacement with presenting part at +2 station, artificial rupture of membrane was done and the liquor was meconium stained. Fetal heart rate was regular and rhythmic with 148/min and CTG was reactive. With the paediatrician and all the resuscitative measures ready, we delivered the patient vaginally after a liberal episiotomy. She delivered a female baby of 1.7kg who cried immediately after birth and was shifted to NICU by the paediatrician in view of preterm with low birth weight and meconium stained liquor. Patients' episiotomy was sutured after placental delivery and she was shifted to recovery and monitored for vitals. Based on the clinical presentation, our first impression was obstructive jaundice versus viral hepatitis. Her liver & renal function tests were sent along with the routine investigations where we found that the total and direct bilirubin was markedly increased with slightly raised liver enzymes, renal parameters were also increased, the coagulation profile was mildly deranged, mild anemia was present, leucocytosis seen and the platelet count was normal. Medical & gastroenterological consultations were done.

All viral markers were negative. The patient had direct type of hyperbilirubinemia with deranged renal markers, myalgia and subconjunctival haemorrhages; the classical features of leptospirosis– Weil's disease. Hence specific test for leptospirosis was sent- Micro-agglutination test (MAT) which takes 24hrs and came positive for IgM antibodies. She was then treated with third generation cephalosporins and other supportive treatment. Baby's test for Leptospirosis was negative. The patient improved gradually and on Day 8, her hepatorenal profile returned to normal. She was advised not to breast feed until the IgM antibody titres reduce in view of the risk of transmission of the organism through breast milk. Her baby was discharged from the NICU on day 7. She was counselled in detail about the prevention and control of Leptospirosis.

Discussion

Leptospirosis in pregnancy is not common but when acquired can be fatal unless diagnosed early and treated. As high as 90% of the symptomatic mothers have mild disease and recover fully [5]. It is a biphasic illness with the first phase consisting of symptoms like abrupt onset of fever, headache, chills with rapidly rising temperature, myalgia, abdominal pain, diarrhoea, anorexia, rash, lymphadenopathy, hepatosplenomegaly.

Conjunctival suffusion is characteristic and usually appears on the 3rd or 4th day [6,7]. The second phase is the immune phase with appearance of circulating IgM antibodies which leads to interstitial nephritis, hepatic failure, myocarditis, coronary arteritis, adrenal insufficiency, aseptic meningitis, pulmonary haemorrhage, acute pancreatitis and iridocyclitis [6,8]. The icteric leptospirosis, also known as the Weil's disease is characterised by liver, kidney and vascular dysfunction, has a fatality rate of 20-40% [8]. Anemia, thrombocytopenia and elevation in prothrombin time may occur. The pathology behind it is vasculitis of capillaries. Leptospirosis in pregnancy is not an indication for termination of pregnancy as it is highly treatable when diagnosed early with vigilant fetal monitoring. There is an increased rate of spontaneous abortion if the infection occurs in the first trimester. Even with mild infection in the mother, the infant may show congenital leptospirosis, especially if near term as

the infection is transmitted transplacentally. Following severe infection, intrauterine fetal death, stillbirth, and congenital leptospirosis may occur [5]. There can be placental ischemia and placentitis, which is resulting in fetal death. Intrauterine infection can result in hemorrhages, hepatorenal failure in the fetus, and may lead to mortality. Therefore close monitoring of the fetus is required with regular follow ups with cardiotocography as timely detection of fetal distress would aid in prompt delivery and ensure optimum maternal and fetal outcomes. Carles et al, in a case series, reported fetal death and abortion risk in more than 50% of pregnant women with leptospirosis [9].

Conversely, Shaked et al reported leptospirosis in a woman in the second trimester of pregnancy who delivered a healthy baby [10]. One study by Bolin and Koellner reported transmission via breast milk [11].

These authors presented a case of anicteric leptospirosis in both mother and infant, and concluded that the likely route of transmission was breastfeeding. In another study by Chung et al, leptospirosis organisms were isolated from human breast milk, amniotic fluid, placenta and cord blood [12]. Therefore women diagnosed with leptospirosis infection are advised to withhold breast feeding on account of risk of transmission to the fetus [6].

Case Report

Diagnosis is confirmed using cultures (from blood, urine or cerebro-spinal fluid) or Serology (microscopic agglutination test, ELISA) [3]. Laboratory abnormalities are nonspecific and include leucocytosis, thrombocytopenia with deranged liver and renal function tests [3]. Management includes supportive treatment for liver, renal and coagulation dysfunction along with antibiotic treatment with oral doxycycline or penicillins or cephalosporins for a duration of 5-7 days [3].

Conclusion

Thus, Leptospirosis may have an unusual and subtle presentation in a pregnant woman and an awareness of atypical presentation with high index of suspicion may lead to early identification of the disease.

The purpose of reporting this case is that clinical picture of leptospirosis may mimic hepatorenal failure following PIH, AFLP, HELLP, even other bacterial or viral infections. Nonetheless, it is a highly curable condition if detected early and managed with routinely available antibiotics. Hence in any pregnant/puerperial patient with hepatorenal disease, possibility of leptospirosis must be considered.

The basic principles of prevention such as source reduction, environmental sanitation, and good hygienic practices are recommended. More studies on the illness, especially during pregnancy, and its influence on the fetus, and studies on an effective vaccine are needed.

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