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Case Report

Lassa fever in pregnancy with a positive maternal and fetal outcome: A case report

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ABSTRACT

Background: The signs and symptoms of Lassa fever are initially indistinguishable from other febrile illnesses common in the tropics and complications of pregnancy. Surviving Lassa fever during pregnancy is rare. Only few cases have been documented. The antiviral drug of choice is ribavirin.
Case description: A 25-year-old multigravida farmer with fever who was initially thought to have malaria in pregnancy at 29 weeks gestation. Further changes in her clinical state and laboratory tests led to a confirmation of Lassa fever. The Liver enzymes were markedly deranged and the packed cell volume was 27%. She commenced on ribavirin and subsequently was delivered of a live male neonate who was RT PCR negative for Lassa fever virus. Her clinical state improved, repeat RT PCR on day 15 was negative and she made full recovery.
Discussion: The case reported had similar clinical features of fever and abdominal pain and resulted in the initial diagnoses of Malaria in pregnancy. When she failed to respond to antimalarial and antibiotics treatments, a strong suspicion of viral hemorrhagic fever was made. At this time the patient was in advanced stage of the disease with bleeding from vagina and puncture sites. On the third day of admission she was delivered of a live male neonate who remained negative after 2 consecutive RT PCR tests for Lassa fever virus. Lassa fever carries a high risk of death to the fetus throughout pregnancy and to the mother in the third trimester. Mothers with Lassa fever improved rapidly after evacuation of the uterus by spontaneous abortion, or normal delivery. She was clinically stable following delivery. Her laboratory investigations were essentially normal. Throughout her management transmission based precautions were observed. None of the six close contacts developed symptoms after been followed up for 21 days.
Conclusion: This report adds to the body of literature that individuals can survive Lassa fever during pregnancy with good maternal and fetal outcome.

Background

Lassa fever (LF) is an often fatal viral hemorrhagic disease caused by Lassa virus and is endemic in West Africa. It is transmitted to humans from contacts with food or household items contaminated with Mastomys natalensis and Mastomys

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erythroleucu rodents' faeces or urine. Hylomyscus pamfi might also play a role in disease transmission (Mari Saez et al., 2018). Person to person spread also occurs by inhalation or direct contact with body fluids contaminated with Lassa virus.

In this study, isolation of virus was detected by real time reverse transcriptase-PCR (RT-PCR) test on the isolate. Laboratory findings in Lassa fever include lymphopenia, thrombocytopenia and elevated aspartate aminotransferase (AST) level in the blood. Ribavirin, an antiviral drug, is recommended in the treatment of Lassa fever patients, however the efficacy is uncertain. (Eberhardt et al., 2019)

Over the years Lassa fever has been recurring in Ebonyi State. Until the establishment of the Virology Centre in Ebonyi state, management of Lassa fever was difficult with a high rate of nosocomial infection. The major challenges to health care providers were no rapid diagnostic tests, poor supply of personal protective equipment and limited availability of the only known drug treatment Ribavirin (Ajayi et al., 2013).

The disease has increased severity in pregnancy with mortality of about 80% and perinatal mortality of 90%. It may present with features suggestive of ectopic gestation. Case reports of LF mimicking ectopic pregnancy have been reported in Ebonyi state (Agboeze et al., 2011). The signs and symptoms are initially indistinguishable from other febrile illnesses and complications of pregnancy. Lassa virus has a high affinity for placenta and vascular tissues and harboring significantly higher viral load than in the non-pregnant population. The recurrent outbreaks of LF in Abakaliki made it pertinent to highlight the challenges of care and successful management for thes pregnant woman in our facility.

Case presentation

A 25-year old multigravida patient presented on March 2, 2019 at a gestational age of 29 weeks with a 2-week history of fever and a 1-week history of abdominal pain. History of travel or contact with positive Lassa fever patients was negative.

She was acutely ill looking, anicteric, not pale, febrile (temperature 38.5 °C) and not dehydrated. Pulse rate was 102 beats/minute, respiratory rate was 26 cycles/minute and the blood pressure was 90/50 mmHg.

Abdomen was gravidly enlarged with a symphisio-fundal height of 29 cm harboring a singleton fetus in longitudinal lie, cephalic presentation and fetal heart rate of 156 beats/minute.

A diagnosis of malaria in pregnancy was made. The temperature remained high despite antimalarial (artemesinin and lumefantrine), antibiotic (ceftriaxone) and antipyretic (paracetamol) treatments for two days and her condition was worsening. A suspicion of viral hemorrhagic fever was made and ribavirin was commenced with Irrua regimen.

The RT-PCR performed at the virology center Abakaliki for Lassa virus was positive, and there was proteinuria. Hepatitis B, C and human immunodeficiency virus (HIV) screening were negative. Obstetrics ultrasound was essentially normal for the gestational age. The packed cell volume was 27%.The liver enzymes were markedly deranged, while the renal function was normal (Table 1).

On day 2, she developed bleeding from the vagina and puncture sites and was transferred to the virology Centre. On day three she had preterm rupture of membranes and subsequently had a vaginal delivery of a live male baby weighing 1.4 kg with a APGAR scores of 5 in first minute and 8 in five minutes. She had primary postpartum hemorrhage and was effectively managed. The baby was stable and his RT-PCR results were consecutively negative. He was transferred to the newborn unit for further management.

Repeat laboratory investigation results on day 15 revealed essentially normal liver enzymes, no proteinuria and a positive RT-PCR for Lassa virus. She was subsequently discharge on oral ribavirin on day 16. She was advised to come for weekly follow up at the outpatient clinic of the infectious disease unit.

On day 23 the RT-PCR results were negative for Lassa virus, and ribavirin was discontinued. Necessary control and surveillance measures were ensured on the first-line contacts.

Discussion

The case reported had clinical features of fever and abdominal pain, and resulted in the initial diagnoses of Malaria in pregnancy. When she failed to respond to antimalarial and antibiotics treatments a strong suspicion of viral hemorrhagic fever was made. At this time the patient was in an advanced stage of the disease with bleeding from vagina and puncture sites and markedly raised liver enzymes.

A clinical diagnosis of viral hemorrhagic fever in a pregnant women is complicated because they may bleed for other reasons unrelated to VHF. In a Lassa fever endemic area like Ebonyi state, every pregnant woman with genital bleeding should be considered as a suspected case of VHF. On the third day of admission she was delivered of a live male neonate who remained negative after 2 consecutive RT PCR tests for Lassa fever virus. The favorable maternal outcome associated with admission with a live fetus is consistent with the report from the Irrua specialist hospital (Okogbenin et al., 2019).

The antiviral drug of choice, ribavirin, is effective in the treatment of Lassa fever, but only if administered early in the course of illness (Center for Disease Control and Prevention, 2014; Grove et al., 2011; McCormick et al., 1986). Lassa fever carries a high risk of death to the fetus throughout pregnancy and to the mother in the third trimester, with a documented maternal death rate of 20% (Price et al., 1988). The patient was in the third trimester. Mothers with Lassa fever improved rapidly after

Table 1
Laboratory investigation results.

Test results	Initial Value on admission	Values on day 15	Reference range
Liver function test			
Alkaline Phosphate	63	81	35–104 iu/L
Aspartate aminotranferase	1771	49	≤30 iu/L (female)
Alanine aminotransferase	445	40	≤35 iu/L (female)
Total Bilirubin	43.7	13.3	5–21 umol/L
Direct Bilirubin	18.9	11.1	≤8 umol/L
Serum Electrolytes Urea & Creatinine			
Urea	2.8	–	2.1–8.2 mmol/L
Creatinine	60	33	44–130 mmol/L
Sodium chloride	135	139	135–145 mmol/L
Potassium	2.9	3.0	3.5–5.1 mmol/L
Chlorine	113	106	98–107 mmol/L

evacuation of the uterus by spontaneous abortion or normal delivery (Price et al., 1988). The patient was clinically stable with a temperature of 36.2 °C and her laboratory investigations were essentially normal following delivery.

Throughout her management, transmission-based precautions were observed. None of the health workers who managed her contracted the virus. This was a clear deviation from our previous experiences where some health workers that managed patients with Lassa fever were infected with the virus. None of her six close contacts developed symptoms after being followed up for 21 days.

Conclusion

This case report emphasized the importance of a high index of suspicion by the health workers and early ribavirin treatment in pregnant women.

Ethical approval

Ethical approval was obtained from Ethics committee of Alex-Ekwueme University Teaching Hospital Abakaliki Ebonyi state.

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Authors' contribution

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Conflict of interest statement

No conflict of interest to declare.

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