

Listeriosis in pregnancy: an important cause of febrile illness

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ABSTRACT

Food borne listeria infection is common in pregnancy compared to the general population because of the reduced immune defense mechanism in pregnancy. It may cause maternal morbidity and fetal mortality if not treated on time. Precooked meat and milk products are the main source of listeria. The diagnosis is confirmed by blood culture, and the infection is cured with ampicillin. This case report is of a patient presenting with febrile illness in the second trimester of pregnancy. She gets promptly investigated for possible differential diagnosis, bacterial, viral, and protozoal. Maternal complication increased till definitive management is offered.

KEYWORDS: Listeriosis, Pregnancy, Febrile illness.

INTRODUCTION

Food borne listeria infection is caused by gram positive bacteria, listeria monocytogenes. Although rare but pregnant women, neonates, immunocompromised and elderly are at increased risk due to reduced cell mediated immunity. The median incubation period of infection is 24 hours to 70 days. The bacteria can grow in low temperature of refrigerators. Infection with listeria does not confer any immunity and reinfection with a different serotype of listeria is possible. The reported risk in pregnancy is 16-18-fold higher as compared to the general population [1]. Ready to eat food, meat, and soft cheese are mostly contaminated. Most women are asymptomatic, others present with febrile illness that may complicate.

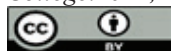
Vertical transmission in fetus is common, resulting in miscarriage, preterm labor, fetal death, neonatal meningitis, and sepsis [2,3].

To reduce such high fetal mortality and maternal complications, preemptively treatment should be initiated and therefore, listeria infection should be considered high in the list of differential diagnosis in pregnant women presenting with febrile illness. Fever with raised white cell counts inflammatory markers should alert the clinician before blood culture confirms the diagnosis [4,5].

The drug of choice is injectable ampicillin, 6 g/ day for 14 days, FDA category B in pregnancy.

This case report is of a patient who presented with febrile illness in early pregnancy resulting in maternal morbidity and fetal demise, before definitive diagnosis and treatment.

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CASE REPORT

A 30 year old lady, resident of Punjab, presented in her third pregnancy at 11+3 weeks of gestation with fever, flu like symptoms, and body aches for 2 days. This was a planned pregnancy with confirmed dates by obstetrical dating ultrasound. She reported of fever upto 100 degree Fahrenheit, intermittent associated with body aches. The fever was responding to tab paracetamol. She had mild flu like symptoms with a blocked nose. She had no bowel or urinary complaints, but complained of mild nausea for past 3 weeks, responding to oral medication. Her baseline antenatal laboratory test were satisfactory. She had received a vaccine

against SAR-Co-V2, before this pregnancy. Her previous two pregnancies were uncomplicated, and she delivered by lower segment caesarean section at term. She had cholecystectomy 4 years back. She belongs to upper middle socioeconomic class and enjoy dining out frequently. She gave the history of travelling, by road, within Punjab in last 3 weeks. There was no significant family history and no contact history with any febrile person in past 8 weeks. She gave history of allergy to erythromycin.

On general and physical examination, she was a healthy looking young lady. Physical examination of head, eyes, ears, nose, throat and mouth was normal, no skin rash, and no palpable lymph nodes were present. Abdominal examination

was unremarkable, and alive 11+ week's fetus was seen on ultrasound examination. Her initial laboratory test showed total leucocyte count to be 5,900 per microliter, 84% neutrophils, hemoglobin was 10.6 gm% with microcytosis and hypochromia. Her urine detailed report was normal, and she was negative for SAR-Co-V2. She was prescribed oral third generation cephalosporin.

In the next 24 hours she spiked to 102 degree Fahrenheit with shivering. She also developed brownish vaginal discharge. Infectious disease department was consulted, and further investigations were done. She was switched on injectable third generation cephalosporin, 1 gram 12 hourly with keeping the suspicion of urinary tract infection. Her urine dipstick test came positive for infection, blood culture and urine culture samples were collected. Her C-reactive protein came as 126 milligram per liter, and the High-Resolution Computed Tomography of the chest came normal. Ultrasound showed a viable 11+ week fetus. Her repeat SAR-Co-V2 test was negative.

In the next 48 hours, she remained febrile with high spikes with shivering and developed headache and severe vomiting. Her repeat C-reactive protein came as 167 milligram per liter. All other test were normal, including liver, renal function tests, and ultrasound whole abdomen and pelvis. Supportive treatment and injectable cephalosporin were continued. Her fever remained unsettled. Next day the patient developed heavy fresh per vaginal bleeding and fetal demise. Her hemoglobin dropped to 8.6 gm%, and she underwent surgical evacuation with 2 units of blood transfusion. Blood cultures came positive for listeria infection after 72 hours, she was switched to intravenous injection Meronem 2 gram, 8 hourly for 2 week, this was her day seven since febrile. Her condition recovered over the next few days. She faced oral thrush and transient leukopenia during her recovery period.

DISCUSSION

Healthy pregnant women are predisposed to listeria infection. Most asymptomatic first and second trimester infections are missed, as products of conception are not routinely cultured to find the cause. Anti listeriolysin antibodies may be positive in asymptomatic women. The presence of antibodies does not confer any immunity as reinfection with other serotype of listeria monocytogenes is possible [6].

In symptomatic women, fever is the most common presenting symptom, seen in 65% of women, flu like symptoms in 32%, backache in 21% of symptomatic women, followed by muscular aches and gastrointestinal upset. If left untreated septicemia and encephalitis can complicate the pregnant women. In a study, the median time of appearance of symptoms to complication like listeria endophthalmitis is reported as 8 days [7,8].

According to a case series and review of 222 cases, 1 in 5 pregnancies complicated by listeria infection results in spontaneous miscarriage and still birth, and about two third of surviving neonates develop clinical neonatal listeria infection [9]. Studies also report neonatal listeria infection

to be the commonest cause of neonatal meningitis. The reported overall neonatal fatality rate is 57.1%, 100% in second trimester and 14.3% in third trimester [2,3].

Confirmation of infection is done by positive body fluid, blood or tissue culture, like placenta [10]. It is easy to mistreat, as early initiation of broad spectrum antimicrobials may reduce the pathogen detection on blood cultures and common antimicrobial used in pregnancy, cephalosporin, do not cure listeriosis. It is observed in clinical practice that not only does the infection go under diagnosed, it is also lists low in the differential diagnosis by clinicians, the commoner differentials being urinary tract infection, upper respiratory tract infection including SAR-Co-V2 (severe acute respiratory syndrome corona virus 2), dengue, malaria and so. This results in delay in the management. All undiagnosed febrile illnesses in pregnancy with raised white cell count and inflammatory marker like C-reactive protein, should alert the clinician about suspicion of listeria infection. To reduce maternal morbidity and fetal mortality preemptive treatment should be initiated early with intravenous Ampicillin, six gram per day for 14 days [9]. Women allergic to penicillin may receive erythromycin. All pregnant women should be warned during initial antenatal teachings about the risk of listeria infection in pregnancy and caution with precooked and unhygienic food.

CONCLUSION

All women presenting with febrile illness in pregnancy, suspicion of listeriosis should be kept high as early management can reduce maternal morbidity and improve fetal outcome. Teachings about food hygiene and risks associated with precooked meat and cheese products should be detailed during initial antenatal visit.

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The views expressed in this case report are corresponding author's (Rubab Riaz) opinion and not official by institution.

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Author's Contribution:

Rubab Riaz: Substantial contributions to the conception or design of the work, acquisition, analysis, and interpretation of data for the work.

Rubina Shaheen: Drafting the work or revising it critically for important intellectual content.

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