



Case Report

Unusual presentations of tuberculous meningitis in pregnancy

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ABSTRACT

Tuberculosis is major cause of maternal and fetal morbidity and mortality globally especially in high burden areas. Tuberculous meningitis may manifest in 5-6% of cases. It is most fatal form of extra pulmonary tuberculosis. Early diagnosis can save lives. We report two cases of unusual presentation of tuberculous meningitis in pregnancy. Case 1- Tuberculous meningitis mimicking hyperemesis gravidarum in early pregnancy. Patient hospitalized managed on line of hyperemesis gravidarum, she deteriorated with high grade fever, neck rigidity and became unconscious. Lumbar puncture was performed. Xanthochromic appearance of CSF (cerebro-spinal fluid) with lymphocytosis and high protein favored tuberculosis. She was started on ATT. Timely diagnosis and treatment lead to favorable pregnancy outcome. Case-2 Patient in obstructed labor with hand prolapse with septicemia was operated in emergency. She developed tuberculous meningitis with non- communicating hydrocephalous in post-operative period. On post-op day 3 she had high grade fever and started broad spectrum antibiotics. After showing initial improvement, her condition deteriorated. With severe headache, vomiting and neck stiffness she was unconscious. Her CSF cytology showed high lymphocytic concentration with low glucose. CT Brain reported non- communicating hydrocephalous. Even with medical and surgical intervention patient's condition deteriorated. In both cases usual presentation were related to symptoms of pregnancy. However, failure of improvement lead us to reevaluate our initial clinical diagnosis. The lack of suspicion might have contributed to delay in diagnosis of tuberculous meningitis. Detailed history and thorough examination should be performed so that more serious life threatening disorder like tuberculous meningitis is not missed.

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1. Introduction

Tuberculosis in pregnancy can be fatal for mother and fetus. It has high mortality and morbidity if left undiagnosed and untreated. India has nearly 21% of the global burden of TB among pregnant women and the estimated prevalence of TB stands at 2.3 per 1000 pregnant women.¹ It is about 44,500 patients annually.² Tuberculous meningitis may manifest in 5-6% of cases. Tuberculous meningitis is associated with significant neurological morbidity and mortality especially when diagnosis and treatment is delayed. The initial symptoms are often non-specific, thereby delaying the

diagnosis. Early initiation of antitubercular therapy and good compliance leads to favorable maternal and perinatal outcomes.³ In a study of pregnant women with tuberculosis in South –Asian Countries, a high incidence of extra pulmonary tuberculosis was noted. The most common cause for a delay in diagnosis were late presentation and non-specific symptoms.⁴

We report two cases of unusual presentations of tuberculous meningitis.

2. Case 1

A 20-year-old woman came to emergency with complaints of nausea, vomiting and headache. It was her first pregnancy,

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spontaneous conception at 10wks of period of gestation. She had c/o nausea and vomiting from beginning for which she had consultant obstetrician and was taking treatment. She had lost 7 kg since the beginning of pregnancy and now weighed 47kg. Rest of history was not specific. She was conscious, oriented and afebrile but very anxious. She was looking dehydrated. Her blood pressure was 100/60 mmHg, pulse rate 86/ minute. Her systemic examination was insignificant. On blood examination, there was electrolyte imbalance - electrolytes values: Na⁺ 130 mEq/L, K⁺ 3.2 mEq/L, Cr 77 mEq/L. Rest blood reports were normal but urine analysis showed ketonuria (++) and proteinuria (++) . Obstetric ultrasonography showed an intrauterine gestation sac with live fetus of 10wks+2 days. Upper abdominal scan was normal. On the basis of history and examination, patient was diagnosed as hyperemesis gravidarum and hospitalized after explaining her condition to her and relatives.

Following hospitalization, she was nil orally and started on normal saline with potassium chloride in fluid to correct electrolyte imbalance. Ringer lactate with multi vitamin infusion also given followed by dextrose. She was on Doxylamine 10 mg & Pyridoxine 10 mg & 2.5 mg Folic Acid combination and Phenergan was added to control symptoms. Her clinical condition improved, and she was better after 2 days of therapy. On day 3, her condition worsened, she was febrile 102°F. Her blood and urine sample were send again for analysis. She did not complaint of any specific symptoms. Internal medicine consultant started antibiotics and sought investigations on line of pyrexia and respiratory tract infection. With high grade fever, her headache and vomiting persisted. Next day she complained of pain in neck and became drowsy. Her conscious level deteriorated, examination revealed neck stiffness. Internal medicine and Critical care specialists' suspected bacterial meningitis.

A lumbar puncture was performed. The cerebrospinal fluid pressure was having high pressure, its appearance yellow (xanthochromic), findings were: protein 400 mg/dL, white blood cells 200/mm³ (predominantly lymphocytes), and glucose 100 mg/dL (blood glucose 123 mg/dL). Fluid was send for AFB culture. On the basis of course of event and spinal fluid cytology, a presumptive diagnosis of tubercular.

Tubercular meningitis was made. Antitubercular therapy comprising four drugs with isoniazid, rifampicin, ethambutol, and pyrazinamide was initiated along with other supportive treatment. She gradually started improving on 7th day of treatment. Her sensorium improved over the course of the next week. She became afebrile and regained full consciousness. She was mobilized and started on full oral nutrition subsequently. Her complaint of vomiting and headache improved. She was discharge after a hospital stay of one month with advice to follow up at regular intervals. Her ANC was uneventful with regular checkups and ATT

treatment. She was admitted in emergency at 37wks +4d with complaint of leaking per vaginum. Her emergency cesarean section was performed for transverse lie. She delivered healthy male baby 2.85kg. Her post-operative and post-partum was uneventful.

3. Case 2

28 yrs. second gravida was admitted in emergency at 37wk+2d in obstructed labor with hand prolapse. There was no previous history of regular ante natal visit. Patient gave h/o tetanus toxoid immunization, Iron and Calcium supplementation by anganwadi worker. There was history of enteric fever 40 days back for which she took treatment from local doctor but she complained of malaise, lethargy and decreased appetite following fever. She had normal vaginal delivery 3yrs back. Her post-partum was uneventful. Her rest history was not significant. On examination she was conscious, in labor. Her vitals were stable. Systemic and CNS examination were normal. Uterus enlarged at 34wks size with transverse lie of fetus. Fetal heart rate was 158/min on auscultation. On per vaginal examination hand prolapse with 3cm dilatation of cervix and ruptured membrane. Patient was immediately taken for cesarean section after consent in view of fetal morbidity. Routine blood and urine test were sent. Hematology report was Hemoglobin 09 gm/dl with TLC – 14000/mm³, P55 L35 M8 E2 B0 and raised ESR (68 mm/hour). Peripheral blood picture showed presence of toxic granules. Urine examination showed high pus cells. She was started on triple antibiotics (ceftriaxone, metronidazole and gentamycin).

On post op day 3 patient developed high grade fever 103°F despite on antibiotics. Internal medicine consultant started broad spectrum antibiotic (meropenem). After showing initial improvement patient condition deteriorated and with rising fever and neck stiffness on physical examination, she was reevaluated. Repeat blood test, and lumbar puncture (LP) was done. Her CT brain was advised. At LP, CSF pressure was high and it was straw yellow color. It was sent for cytology, AFB staining and AFB culture. CSF showed lymphocytic predominance. Total white cell count was 350cells/ μ L. High protein 250mg/dl with glucose 50mg/dl. AFB stain was negative and culture after 48hrs revealed no growth. CT brain revealed parenchymal enhancement with lateral ventricles enlargement suggestive of non-communicating hydrocephalus. With presumptive diagnosis of tuberculous meningitis, patient was started on ATT along with mannitol, furosemide and corticosteroids. Patient became unconscious in following days with no improvement in her conscious level after one week of ATT, though her fever subsided. Team of neurosurgery and critical care were consulted. Decision for shunt surgery taken, Relatives were informed about the procedure and poor condition of patient. High risk consent was taken. VA shunt (ventriculo-peritoneal) shunt was performed

successfully. However patient condition deteriorated and she expired on 3rd post op day.

4. Discussion

In 2018, 1.5 million people died from TB (including 251 000 people with HIV). Tuberculosis is in top 10 causes of death worldwide. It is leading cause of infectious disease and causes more death than HIV/AIDS. 87% of new tuberculosis cases were from 30 high burden countries. Eight countries account for two-thirds of the total, with India leading the count.

Poor general hygiene. Malnutrition, overcrowding, and lack of awareness lead to increase toll. Diagnosis of tuberculosis poses a challenge during pregnancy. It often is mistaken as symptoms or disease related to pregnancy.⁵ In our cases, it was unusual presentation of most fatal form of extra pulmonary tuberculosis. Tuberculous meningitis was missed at the initial presentation in both cases. Though there was remarkable weight loss in first case but, we attributed it to hyperemesis gravidarum in first trimester as she presented with persistent nausea and vomiting. The case was presented as E-Poster in RCOG 2016 (<https://www.eposteronline.com/rcog2016/node/7679>). Second case was taken as neglected obstructed labor with septicemia. Low grade fever, malaise, loss of appetite were attributed the recovery span of enteric fever and general state in third trimester of pregnancy. Obstructed labor, poor general condition and septicemia precipitated meningeal involvement. Surgery might have exacerbated her disease. CNS involvement with non-communicated hydrocephalus is quite rare and fatal complication of tuberculosis meningitis with high mortality rate.

In both case after initial improvement patient slowly developed signs of CNS involvement with severe headache, altered sensorium and neck rigidity. High index of suspicion the key for early diagnosis. A case of tuberculous meningitis with hyperemesis gravidarum and TBM in second trimester is reported in literature.^{6,7}

Treatment was started on high index of suspicion.⁸ On the basis of clinical features, CSF cytology without waiting for AFB culture report, treatment was initiated. With good compliance our first patient had uneventful antenatal period and favorable perinatal outcome. However in second case, even with diagnosis, medical and surgical intervention, patient could not be saved.

5. Conclusion

Tuberculous meningitis is rare but fatal complication in pregnancy. High index of suspicion is key to early diagnosis. Slow insidious history with nonspecific symptoms, can be misleading. CSF cytology, biochemical reports and radiological imaging with clinical features are useful findings to initiate treatment. Clinical improvement depends on stage of disease at which treatment was started.

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7. Conflict of Interest

None.

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