

CASE REPORT

Postpartum Typhoid Intestinal Perforation: A Case Report

Dare Julius¹, *Lawal Abdulwahab^{1,2}, Olabinjo Hafeezoh¹, Balogun Olayinka¹, Aremu Ishaq³, Adenuga Adedire⁴

¹*Department of Obstetrics and Gynaecology, University of Ilorin Teaching Hospital, Ilorin. Nigeria.*

²*MCON Institute of Medical Research*

³*Department of Surgery, University of Ilorin Teaching Hospital, Ilorin. Nigeria.*

⁴*Department of Surgery, Cedarcrest Hospitals Abuja. Nigeria.*

ABSTRACT

Typhoid fever remains a highly contagious and multi-systemic infection caused by salmonellae typhi, and like other gastro-enteric infection, it poses a higher risk of morbidity and mortality during pregnancy as a result of the physiological changes associated with pregnancy as well as concerns of antibiotic safety in pregnancy. The occurrence of typhoid perforation in pregnancy may be easily confused for other causes of acute abdomen in pregnancy.

We report the presentation, management and outcome of a 25 year old postpartum woman who presented with typhoid intestinal perforation in a resource limited environment. She had an emergency exploratory laparotomy and was managed post operatively in the ICU but clinically deteriorated and subsequently died on the third post-operative day secondary to multiple organ failure from severe sepsis.

Typhoid perforation in pregnancy is a rare presentation, a high index of suspicion, and early intervention, would reduce the incidence of morbidity and mortality associated with this disease condition.

INTRODUCTION

Typhoid fever is a potentially fatal and highly contagious, multi-systemic infection with salmonellae typhi: a human specific gram negative bacillus¹. It is mainly spread through the ingestion of food or water contaminated with the pathogen. Intravenous and trans-placental transmissions have also been documented²

The incubation period usually ranges between 7-14 days and an inoculum of about 1000 organisms or more is required for active infection to occur², however pregnant women may develop the disease earlier than 7 days with a lower bacterial load, due to reduced peristalsis, biliary stasis and the immunomodulation that occurs with pregnancy which is aimed at increasing the pregnant woman's tolerance for the foetal graft^{3,4}. Bowel perforation is a

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*Corresponding author:

Lawal Abdulwahab Oluwatomisin

Email address: abdulwahablawal007@gmail.com

Telephone: +234 7087027114

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grave complication of typhoid enteritis and the management poses significant challenge to surgeons in developing countries owing to late presentation, lack of availability of appropriate diagnostic amenities and emergence of virulent strains of the causative organism.

The diagnosis of typhoid fever is largely uncommon in pregnancy and more often late³. This could be due to underdiagnosis as the condition may mimic common febrile illnesses such as malaria in pregnancy. Nausea and vomiting may be attributed to the pregnancy symptoms and the associated abdominal pain may be dismissed as labour pain at or near term⁷, in which the disease entity itself may be a precipitant to preterm labour.⁷

The occurrence of typhoid perforation in pregnancy is also rare and may be easily confused for other causes of acute abdomen in pregnancy, such as degenerating uterine fibroids, ovarian accidents or acute appendicitis⁸

Blood picture may not show leucocytosis due to pregnancy and malnutrition⁷. In addition, radiographs and computed tomography are usually avoided in pregnancy due to fear of exposure of the unborn newborn to ionizing radiation⁷. Many patients also present late as a result of multiple initial home care therapies, attribution of the pain to being normal for the pregnant status and delay in diagnosis at health centres. This results in presentation of such patient in a poor clinical state. All of these contribute to the poor prognosis associated with this disease condition.⁹

CASE REPORT

A 25-year-old, P3⁰ (3 alive) woman presenting 5 days postpartum following preterm vaginal delivery of a live male neonate at estimated gestational age of 34 weeks in a peripheral hospital. She presented with severe abdominal pain of eight days duration with associated high-grade fever. There was associated history of multiple episodes of bilious vomiting, abdominal distension and constipation, with reduction in urine output. She had gone into preterm

labour 3 days after the onset of symptoms, and had since been managed at the peripheral hospital prior presentation to our facility. Baby was alive and well at the time of presentation.

Examination at presentation revealed an acutely ill looking woman, pale, febrile: 39.6°C, in respiratory distress, with a respiratory rate of 50 cycles per minute and a SPO₂ of 97% in room air. Pulse rate was 128 beats per minute and blood pressure was of 90/70 mm/hg. Her abdomen was distended with generalised tenderness and guarding.

Complete blood count showed a packed cell volume of 32% and white blood cell count of 21x10⁹/L with 82% neutrophilia. Thick and thin films for malaria parasite were positive. She had elevated urea and creatinine of 17.7mmol/L and 139mmol/L respectively, but liver function parameters were essentially normal. Abdominal and chest radiograph showed free peritoneal air.

She was resuscitated with intravenous fluids, analgesics and antibiotics. She was placed on nasogastric tube and urethral catheter with hourly monitoring of urine output. She had an emergency laparotomy done with intraoperative finding of multiple (five) typhoid perforations at the terminal ileum with associated massive faecal soilage. She had resection of the diseased segment and a divided ileostomy done.

She was managed post-operatively in the ICU but clinically deteriorated, developing severe sepsis with septic shock, and subsequently died on the third post-operative day secondary to multiple organ failure.

DISCUSSION

About 0.6-4.9% of enteric fever cases have been complicated by intestinal perforation.¹⁰ A higher rate of 10-33% have been reported in West Africa which has been linked to the high virulence of the salmonella typhi strains in West Africa and the heightened hypersensitivity reaction in the Peyer's Patches of individuals in this subregion.^{9,10}

Initial infection is characterised by malaise, vague abdominal pain, erythematous rash (rose spots), myalgia and rising fever.^{3,4} In peripartum women, these symptoms may be initially mistaken for viral febrile illnesses; malaria fever, urinary tract infection, chorioamnionitis or puerperal sepsis.² Failure to receive prompt treatment may result in altered sensorium, intestinal haemorrhage and bowel perforation^{2,9}. This patient presented initially at a peripheral hospital where she was commenced on oral antibiotics for a probable bacterial infection.

Typhoid perforation is the most dangerous complication of typhoid enteritis as it is highly unpredictable and associated with high morbidity and mortality¹⁰. Unresolved typhoid enteritis results in bacteraemia and settling of organisms in the bile from where they further migrate into the reticulo-endothelial system and multiply rapidly^{3,5}. A high proportion of the total bacterial load settles in the Payers patches of the terminal ileum in the second week of the infection resulting in hypertrophy, mesenteric adenitis and ulceration due to the recruitment of inflammatory cells of the mononuclear and lymphocytic cell⁹. It is thought that perforation occur as a result of delayed hypersensitivity reaction elicited by the organism⁹. This may explain the occurrence of perforation in patients who are already on antibiotics specific for salmonella and in those who have had prior laparotomy and closure of perforation.⁸

In pregnant patients, the gravid uterus usually separates the parietal peritoneum of the anterior abdominal wall from the content of the perforated bowel leading to a delay in eliciting the features of peritonitis (guarding, tenderness and rebound tenderness).^{2,10} Also, the rapid progression of the disease in pregnancy to involve complications like confusion and typhoid psychosis may obscure intestinal perforation and are often accompanied by septic shock leading to death.^{2,9,10} Apart from the problem of delayed diagnosis, pregnant women with typhoid fever are at increased risk of foetal loss especially in the first and second trimester. The risk of preterm delivery is highest in the third trimester,

as seen in this case. Therefore, fever in pregnancy should be investigated early and treated adequately. Also abdominal pain should not be dismissed simply as due to physiological and anatomical changes in pregnancy until after thorough evaluation.

The investigation of choice for patient with peritonitis is an abdominal CT⁸. It is a very good imaging modality and readily shows pneumoperitoneum and presence of free intraperitoneal fluid. Due to the limitation in this environment which includes financial and logistic problems, the diagnosis of intestinal perforation was confirmed by the presence of pneumoperitoneum in the erect plain chest radiograph of the patient. Plain chest radiograph is cheap and readily available, it does not require the use of contrast and it is a good alternative option for initial imaging³. Abdominal ultrasound can detect free intraperitoneal fluid and can give reasonable information on the ovaries and the uterus to rule out differentials. It is however limited in the presence of gaseous distension of the bowel. The combination of chest radiograph and abdominal ultrasound is very helpful in our environmental setting⁸. Also, ciprofloxacin: a cheap and essential antibiotic in the management of typhoid enteritis is considered unsafe in pregnancy³.

Early diagnosis, prompt resuscitation, antibiotics therapy and early surgical intervention are central to reducing the morbidity and mortality associated with intestinal typhoid perforation^{2,4}. Diagnosis in the index case was delayed as her symptoms started during pregnancy, masking the clinical features. Also her health care was largely out of pocket and significantly delayed due to financial constraint, which also led to a delay in surgical intervention and at the time of surgery there was massive intraperitoneal faecal spillage, all of which contributed to poor prognostic factors.

Surgical intervention involves resection and anastomosis with intestinal diversion via an ileostomy. This is followed by copious peritoneal lavage, closure and post-operative intensive care. The surgical options for typhoid perforation in

pregnancy or puerperium are limited as these patients come in late, with poor haemodynamic status and poor circulatory reserves. This patient had an ileostomy done on account of multiple ileal perforations and presence of faecal peritonitis.

Typhoid enteritis and perforation are better prevented in the general population^{3,4}. This can be achieved by enlightening the public on maintaining strict hygiene for food and water and via immunization campaigns^{3,4}. Health care professionals should have a high index of suspicion for women living in a low-resource setting presenting with an acute abdomen. Radiological imaging and proper evaluation of these patients should be done and abdominal pain should not be ruled out solely because of the pregnant or recently delivered status of a woman.

CONCLUSION

This report describes the presentation, management and outcome of a 25 year old postpartum woman who presented with typhoid perforation in a resource limited environment. She had an emergency exploratory laparotomy and was managed post operatively in the ICU but clinically deteriorated and subsequently died on the third post-operative day secondary to multiple organ failure from severe sepsis.

Typhoid perforation in pregnancy or puerperium is a rare presentation, a high index of suspicion, early recognition, prompt resuscitation and swift surgical intervention, would reduce the incidence of morbidity and mortality associated with this disease condition.

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