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Gangrenous Gut in a Pregnant woman: A Case Report

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Authors' contributions

This work was carried out in collaboration between all authors. Authors VO, EC and SF carried out subjective and objective patient examination, diagnosis and treatment. Authors VO, OO, AS and CO carried out literature searches and wrote the draft of the manuscript for publication. Author AA revised the draft and contributed to the technical content of the manuscript. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Gangrene of the intestines is a rare complication in pregnancy. Intestinal obstruction and ischemic bowel diseases are common causes of gangrene of the intestines in pregnancy. Adhesion bands can cause intestinal obstruction while arterial occlusion, venous thrombosis and vasculitis are some causes of ischemic bowel disease. We present a case of small intestinal gangrene in a 30 year old woman in her third pregnancy, diagnosed during emergency cesarean section with extensive gangrene of the ileum and jejunum caused by band formation at the illeo-caecal junction. This case, despite the unfortunate catastrophic outcome, highlights the subtle challenges of managing rare obstetric complication in resource limited settings.

Keywords: Intestinal gangrene; intestinal obstruction; fetal distress; abruption placentae; short bowel syndrome; electrolyte imbalance.

1. INTRODUCTION

Gangrene of the small intestines is one of the rare, unanticipated complications posing a great risk to the life of both mother and the unborn child. As at 2011, there were only 16 reported cases according to MEDLINE search [1]. Though few cases have been reported after that time, it remains a very rare complication in pregnancy [2,3]. It is usually caused by intestinal obstruction and intestinal ischemia. Obstruction is usually caused by bands and adhesions, Volvulus and Merkel's diverticulum [4,5]. Ischemic bowel diseases are caused by arterial occlusion, vasculitis, venous thrombosis, embolism and nonocclusive disease [2].

Management of gangrenous gut is mainly surgical, involving resection of gangrenous section and anastomosis of the healthy sections. The outcome of this management is usually determined by the amount of the gangrenous gut resected and the resources available for post-operative management [6,7,8]. This is a report of a rare case of gangrenous small intestine in a 30-year-old pregnant woman.

2. CASE REPORT

A 30-year-old woman in her third pregnancy, presented at 28 weeks gestation with acute abdominal pain and vomiting that started some hours before arriving at the primary care center. Her pregnancy has been generally uneventful based on antenatal care visits, except for similar symptoms that occurred about 3-4 weeks before this present episode. That episode resolved after malaria and analgesics treatment. The patient had no previous medical problem or prior abdominal surgery as well as no history of trauma, smoking or substance abuse. On examination, the patient was markedly pale, febrile, mildly dehydrated and in obvious respiratory distress, with a blood pressure of 100/70 mmhg and a pulse rate of 78 beats per minute. The abdomen was tender and soft, fundal height was 26 weeks, fetal heart rate was decreased, faint and thready, and there was no vaginal bleeding. Laboratory investigation showed a HB of 9.9 g/dl (normal range for women: 12.3-15.3 g/dl), white blood cell count (5.5×10^3 µL) (normal range: 4-11 x 10^3 µL), with differentials (Neutrophils, 52%; Lymphocytes, 16%; Monocyte, 0.8%), Platelet (279×10^3 µL) (normal range: 150-450 x 10^3 µL), blood urea (8 mg/dl) (normal range: 3-20 mg/dl) and creatinine (1.1 mg/dl) (normal range for adult female: 0.4-1.1 mg/dl) were all within normal range. Urinalysis, lactate, and arterial blood gas were not performed. Ultrasound investigation showed fetal distress hence, the patient was admitted with a provisional diagnosis of fetal distress secondary to abruption placentae. Intranasal oxygen was administered and 2 units of whole blood were transfused preemptively. An emergency caesarean section was indicated based on the diagnosis of fetal distress and abruption placentae and a very weak baby with a very poor APGAR score of 4 was delivered. Attempts to resuscitate baby failed and the baby died some minutes after delivery. Intraoperatively, a gangrenous portion of the small intestine was observed. This prompted an exploratory laparotomy that revealed a band formation at the illeo-caecal region with extensive gangrene of about 3 meters of ileum and jejunum, thus having less than 2 meters of small intestines left (Fig. 1). Resection and anastomosis of the gut were done. The Patient was placed on infusions ciprofloxacin and metronidazole for 72 hours. Intravenous infusion of 2000 milliliters (mLs) of dextrose saline and 1000 milliliter of ringer's lactate with 60 mmoL of potassium chloride was given in the first twenty-

four hours after surgery. This was followed by 3000 mL of (1000 mLs of 5% dextrose + 1000 mLs normal saline+ 1000 mLs ringers lactate) intravenous infusions daily. Bowel sound returned 4th post operative day and patient commenced graded oral sips. She started vomiting and passing watery stools on the 5th postoperative day. Abdomen examination showed no sign of peritonitis. The management team discussed referral to the regional, tertiary hospital but patient and relatives refused due to financial reasons. Intravenous fluid infusions were continued but patient condition deteriorated with marked weight loss and dehydration, with decreased urine output and elevated urea (38 mg/dl) and creatinine (10 mg/dl) and she died on the 14th postoperative day.

Fig. 1. Gangrenous small intestines resected during Laparatomy

3. DISCUSSION

This case highlights the precarious peculiarities of managing rare and unanticipated complications in pregnancy in some resource-limited settings. In this case, the indication for the cesarean section was fetal distress, which was diagnosed based on both clinical and sonographic findings of bradycardic, faint and thready fetal heart. This was believed to be caused by abruption placentae, a commoner complication in pregnancy. However, exploratory laparotomy revealed gangrene of the intestine. In pregnancy, it is a very rare complication and an obstetric catastrophe as the lives of both mother and the unborn child hang in a balance [3]. Since most of the symptoms and signs suggesting intestinal abnormalities such as intestinal obstruction and gangrene, mimic common symptoms and signs in pregnancy, it is very difficult to make an early diagnosis [9,10,1]. In this case, like in some reported ones [11], late diagnosis played a huge role. The symptoms of acute abdominal pain and vomiting, similar to the presenting complaints actually occurred almost 3-4weeks before this present episode. Since obstruction or gangrene of the intestines was not anticipated, the patient was treated with arthemeter-lumefantrin (antimalarial medication) and analgesics which is a common practice in malaria endemic areas; symptoms resolved, only to recur some few weeks later. Antimalaria therapy as a cause of the complication in this case is not likely despite the fact that some antimalaria drugs such as Halofantrine, Tetracycline / Doxycycline and Primaquine are contraindicated in pregnancy. Artmeteter lumefantrin, which was used in this study, is safe in pregnancy, unlike Halofantine which has been reported to be embryotoxic in nonhuman models while Primaquine is associated with the risk of intravascular hemolysis in the mother and the fetus [12]. Typically, as seen in this case the accurate diagnosis is sometimes made incidentally during cesarean section either by spotting diseased gut or perceiving foul smelling peritoneal fluid [2,3]. Despite this difficulty in arriving at an early diagnosis, due to the overlap of symptoms of pregnancy and intestinal obstruction and gangrene [9,10,1], the absolute failure of diagnosing a peritionic abdomen is the hallmark of this case. Though there was tenderness during abdominal examination it was thought to be confined to the uterus hence, the wrong diagnosis of abruptio placentae was made.

The cause of the gangrene of the small intestines, in this case, was the band formation at the illeo-caecal region. Bands have been known to trap loops of intestines causing obstruction and occluding arterial supply [13]. Occlusion of the arterial supply will naturally progress to intestinal ischemia and gangrene if left untreated [11]. Band is the common cause of intestinal obstruction in pregnancy [14,11]. Band formation has also been implicated in causing Volvulus [13,11], which is also a frequent cause of intestinal obstruction as noted in some studies [15,16,17]. Bands and adhesions are common post-operative complications of abdominal surgeries [15]. It is also a complication of pelvic inflammatory disease (PID) and untreated appendicitis which is probably the cause in this case as there was no history of previous abdominal surgery [18,19]. In most case reports, the cause of the gangrene is not identified, but

the hypercoagulable state in pregnancy is usually blamed for the intestinal ischemia that progress to gangrene [1,2].

The Patient in this case obviously did not get the best of post-operative care. This is probably due to the fact that the management team for this patient was not ready for the post-operative outcome. The patient might have suffered from short bowel syndrome (SBS) following the extensive resection of close to 3 meters of ileum and jejunum, with less than 2 meters of small intestines left. The patient was obviously dehydrated due to vomiting and diarrhea which are the manifestations of short bowel syndrome [20,21]. Studies have reported that in the long term, nutritional support is the major challenge for short bowel syndrome and maintenance of the nutritional status is the mainstay of management of short bowel syndrome [21]. Total parenteral nutrition (TPN) is usually employed in feeding patients with SBS solely through intravenous route [22]. TPN like most aspects of critical care services is grossly deficient in resource-limited settings, a setting similar to this case [23]. These settings are bedeviled with an inadequate number of staffs and expertise as well as a lack of equipment [23]. More so, it is a very expensive condition to manage both for the patient and the health facilities [20,24]. In addition, there is limited or no healthcare insurance system in place to cover the cost of treatment as obtainable in developed countries. It is unlikely that the cause of death, in this case, was short bowel syndrome owing to the short period after surgery before death. The cause of death, in this case, is unknown since no post mortem was performed; however, egress of intra-intestinal flora might have caused a massive septicemia leading to septic shock, electrolyte disarray, hypovolemia and eventually death which is almost certainly due to multiorgan failure. This could not be determined due to inadequate expertise and diagnostic equipment in the hospital. Perhaps, the outcome would have been different if the patient was properly managed pre and post operatively with specialist care and adequate equipment.

4. CONCLUSION

This case implicated band formation as the cause of the intestinal gangrene. Delayed diagnosis probably contributed greatly to the fatal outcome of both mother and child. This case shows the unpreparedness of the health care system in most resource-limited settings in handling rare and unanticipated complications in pregnancy. Obstetricians and midwives should be trained on how to detect, anticipate and manage medical and surgical complications that might arise during pregnancy to ensure the protection of the pregnant mother and her unborn child. Also, adequate diagnostic equipment should be provided in primary healthcare centers in the region.

CONSENT

Informed consent was obtained for this report.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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