East African Scholars Journal of Medicine and Surgery
Abbreviated Key Title: EAS J Med Surg
ISSN: 2663-1857 (Print) & ISSN: 2663-7332 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-5 | Issue-10 | Nov-2023 | DOI: 10.36349/easjms.2023.v05i10.002

Case Report

Managing Maternal Sepsis after Delivering an Advanced Abdominal Pregnancy in Low Resource Setting Health Facility

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Article History
Received: 25.09.2023
Accepted: 31.10.2023
Published: 10.11.2023

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Background:*** Abdominal pregnancy is a rare form of ectopic pregnancy with a higher misdiagnosis rate. Sepsis is a life-threatening complication associated with this type of ectopic pregnancy. Various techniques for managing septic advanced abdominal pregnancy have been discussed in the literature. In this article, we report a case of managing septic abdominal pregnancy in which a macerated baby was delivered, and the necrotic placenta was left in situ. ***Case presentation*:** We report a 34-year-old African woman, para 5 living 4, who was three days post laparotomy due to abdominal pregnancy. A re-laparotomy was done due to maternal sepsis. The peritoneum had foul-smelling pus, with a necrotized placenta which was still attached to various parts of the abdomen. The placenta was left in situ and the abdomen was left open. Pus swab revealed methicillin-resistant staphylococcus aureus which was sensitive to Vancomycin. She was managed with a ten-day Vancomycin regime. Dressing with normal saline and honey twice or thrice a day for eight weeks was done. Secondary suturing was done and the patient was discharged home later in good health. ***Conclusion*:** Advanced abdominal pregnancy is a rare condition, and its management is very challenging. Once it complicates into maternal sepsis the life of the mother becomes endangered. Identifying and treating the source of infection with daily dressing using normal saline and honey is simple and cheap, it saves life.

Keywords: Abdominal pregnancy, retained placenta, puerperal sepsis.

INTRODUCTION

Ectopic pregnancy accounts for 1% to approximately 2% of all pregnancies with 95% occurring in the fallopian tube [1]. Abdominal pregnancy is a rare obstetric entity accounting for 1.4% of ectopic pregnancies and is associated with high maternal and perinatal morbidity and mortality. The rate of misdiagnosis is high and most of the time the diagnosis is made intra-operatively. The trans-vaginal ultrasound usually confirms the diagnosis but in case of a dilemma, MRI can provide further clarity regarding the diagnosis [2]. Gestational Abdominal pregnancy can occur anywhere in the peritoneal cavity, and the most common sites include the omentum, peritoneum of the pelvic and abdominal cavity, liver, diaphragm and large blood vessels of the abdomen [3]. Maternal complications include severe post-partum hemorrhage due to abnormal implantation of the placenta and sepsis because most times the placenta cannot be delivered. Maternal mortality is approximately seven times higher in abdominal pregnancy than the ectopic pregnancy.

Here we report the successful management of sepsis in34-year-old mother with advanced abdominal pregnancy at 34 weeks gestation, which was diagnosed during surgery. A macerated baby boy was extracted and a necrotic placenta was left in situ in an open abdomen. We hope to provide a new basis for managing septic advanced abdominal pregnancy in a low-resource setting.

CASE REPORT

Our case was a 34-year-old P5+0 L4, who was referred from a nearby hospital, three days post laparotomy due to advanced abdominal pregnancy at 34weeks. While at 20 weeks gestation, an ultrasound revealed an intra-uterine pregnancy and the mother had attended three antenatal visits. She had a sudden onset of severe abdominal pain, which was not associated with

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vaginal bleeding, and were progressive and generalized in nature. She was diagnosed with surgical abdomen and emergency laparotomy was planned. Intra-operatively, a macerated baby boy was extracted with a birth weight of 1600 grams. The placenta was attached to the posterior part of the uterus, part of the intestines, the right iliac fossa, and the right ovary. The placenta was left in situ and the abdomen was closed. Three days later the incision site started oozing foul-smelling pus. The patient was then rushed to our facility for further management.

Fig 1: A macerated baby (taken from a close view)

Fig 2: Photo showing good progress of the wound two weeks after applying Normal saline and honey

Upon arrival, the patient was then rushed to the theatre and a laparotomy was done, the placenta was still attached to different parts of the abdomen and the necrotized areas were oozing pus. A pus swab was taken for culture and sensitivity and it revealed methicillin-resistant Staphylococcus aureus. The abdomen was irrigated with warm saline and then left open. We isolated the patient and a plan of twice daily cleaning and dressing was made. About 300 mls of foul-smelling pus were drained daily from the open abdomen together with some placenta tissues. Intravenous Vancomycin was then administered for ten days, together with Paracetamol IV due to episodes of high-grade fever which she had. Intravenous fluids were administered too for the first three days. For eight weeks, wound cleaning was done twice daily or thrice with normal saline and honey was used for dressing.

Fig 3: Photo showing one month progress of daily cleaning and dressing

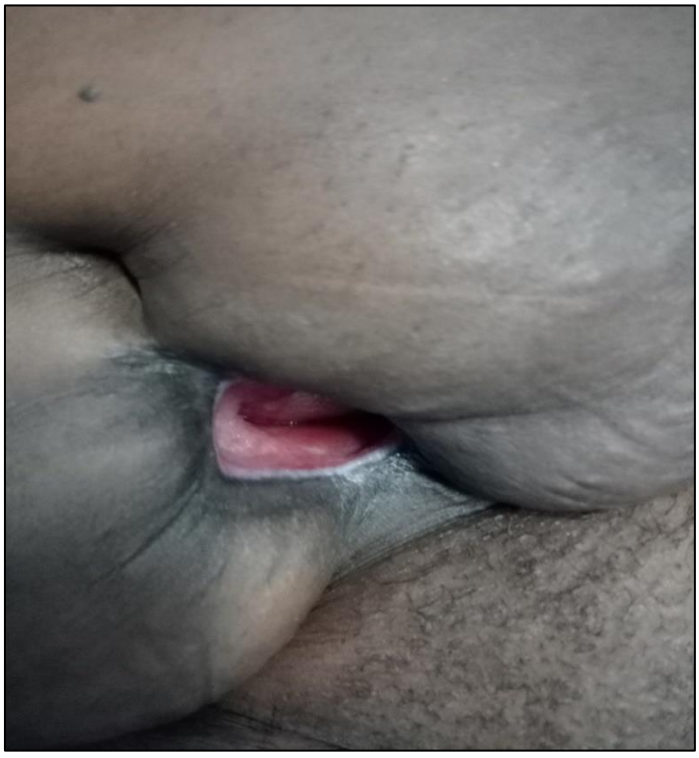

Fig 4: Two months of progressive daily cleaning and dressing

DISCUSSION

Abdominal pregnancy is a rare condition and normally occurs in approximately 2% of all pregnancies [4]. Abdominal pregnancies are very different from intrauterine pregnancies, and in resource-poor settings where ultrasound evaluation is not widely available, women with abdominal pregnancies continue to suffer significant morbidity [5]. The patient with advanced abdominal pregnancy may present with a history of recurrent abdominal discomfort, painful fetal movement beneath the abdominal wall, the presence of fetal movements high in the upper abdomen, cessation of fetal movement, a closed and uneffaced cervix, or the failure of oxytocin to start uterine contractions [6]. Maternal morbidity and mortality closely correlate to the management of the placenta following delivery [3].

Maternal sepsis post-surgery has a high risk of morbidity and mortality. Sepsis from an abdominal origin is initiated by the outer membrane component of gram-negative organisms as well as toxins from anaerobic bacteria which leads to the release of pro-inflammatory cytokines such as interleukins 1 and 6 and tumor necrosis factor α (TNF-α), which leads to the production of toxic mediators [7]. This may cause a complex multi-factorial syndrome that may evolve into conditions of varying severity and may lead to the dysfunction of one or more vital organs or systems [8].

Studies have shown that a patient with a retained placenta is managed with four-day methotrexate and antibiotics for 20 to 25 days and repeated laparotomy due to abdominal compartment syndrome, and hemorrhage. However, it is controversial to use methotrexate due to the high risks of necrosis, pelvic abscess, intestinal obstruction, and coagulation dysfunction [4]. In our case, our patient was managed by leaving the abdomen open, irrigating with one liter of normal saline daily, and dressing the wound with honey for eight weeks. No re-laparotomy was done, nor methotrexate given. Vancomycin was given for ten days only, and after repeating the pus culture it was negative.

Patients with peritoneal infection normally develop an excessive inflammatory response, causing organ failure. The open abdomen allows an easy second look to control the source of infection and evacuate inflamed and toxic contents, reducing the load of peritoneal cytokines and other inflammatory substances [9].

Several solutions have been used to irrigate septic wounds, include tap water, povidone–iodine, hydrogen peroxide, normal saline, and others. However, normal saline is the most preferred because it is an inexpensive, nontoxic, isotonic solution and doesn't affect normal skin flora. The irrigation helps to facilitate local dilution of the organism load, which lifts bacteria and debris from the wound [10].

We dressed the wound for eight weeks with natural honey. As a wound dressing agent, honey provides a moist environment that has some antimicrobial properties and anti-inflammatory effects reducing edema and exudates, therefore promoting angiogenesis and granulation of tissue formation. It also enhances wound contraction and stimulates collagen synthesis hence facilitating debridement and accelerating wound epithelialization.

CONCLUSION

Leaving the abdomen open after laparotomy is important in managing patients with severe abdominal sepsis despite of lack of strong evidence in the international literature. Irrigating the septic abdomen more than twice a day facilitates the local dilution of the organism's load, lifting bacteria and debris from the wound. Honey provides a moist environment that has some antimicrobial and anti-inflammatory properties. It also accelerates wound epithelialization. In a low-resource setting both normal saline and honey are available and the mortality rate is reduced in patients with sepsis by leaving the abdomen open and daily irrigation as indicated above.

Timeline

The patient was admitted in 2023 and investigations and management were initiated upon admission. She underwent an emergency laparotomy on the same day of admission where the abdomen was left open, the dressing was done for eight weeks. Preparations of this case report took 3 months, whereby the case was presented at Bugando Medical Centre and to the ethical committee after obtaining the patient's consent.

Availability of data and materials: Not applicable in this case report.

Ethical consideration

Approval for the publication of this case was sought from the Joint CUHAS/BMC Ethics Review Committee.

Consent for publication

Written informed consent was obtained from the patient for publishing this case and the accompanying images.

Authors' Contributions

JM, AK, RK, and FT contributed to treating and following the patient; JM, AK, RK, and FJ prepared the case; DM, EN, FJ, and FT reviewed and edited the case ready for publication.

Conflict of interest: All authors declare no conflict of interest in this case report.

Funding

No special funding was obtained for the patient treatment and preparation of the case. Some costs were waived by the hospital and a small cost was paid by the patient.

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Cite This Article: Sr. Juliet Macharia, Albert Kihunrwa, Richard Kiritta, Dismas Matovelo, Edgar Ndaboine, Feredina John, Francis Tegete (2023). Managing Maternal Sepsis after Delivering an Advanced Abdominal Pregnancy in Low Resource Setting Health Facility. *East African Scholars J Med Surg, 5*(10), 179-183.