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Case Study
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Difficult Caesarean Section with Massive Blood Transfusion, Abdominal Packing and Second Look Surgery: A Case Report

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Abstract

We present a 46-year old Diabetic woman with 3 previous myomectomies, caesarean section and appendectocmy; who had in-vitro fertilization - conceived pregnancy and an elective caesarean section at 35 weeks, gestation, complicated by recalcitrant primary postpartum haemorrhage, and managed by massive blood transfusion, damage control measures and a second look surgery.

She booked for antenatal care at 10 weeks gestation with BMI = 30.47kg/m^2, Fasting blood sugar =10.1 mmol/l and normal urinalysis. Her diabetes was controlled on insulin throughout her12 ante-natal visits. On examination she was healthy-looking with normal vital signs and a midline infra umbilical scar; compactible fundal height of a singleton foetus with heart rate of 148 bpm.

She had elective caesarean section with findings of dense pelvic adhesions, a partial rupture of the anterior uterine wall and a live female foetus with a birth weight of 2.5kg, good Apgar scores; and estimated blood loss of 1.5litre. Three units of blood were transfused intra-operatively.

She was noticed to be bleeding per vagina with a non-contracting uterus despite oxytocin infusion. Immediately re-explored, subtotal hysterectomy done but haemostasis was unsuccessful despite multidisciplinary team approach. Abdomen was packed and closed. She had 12 units of blood, 2 units of fresh frozen plasma transfused and admitted to the intensive care unit.

At the second-look surgery 72 hours later, packs were removed and haemostasis was satisfactory with a healthy-looking bowel. The abdomen was closed and patient recovered to intensive Care Unit. She responded well, was discharged on the 12th day post-operative (PCV=31%) after 19 units of blood and 2 units of FFP transfusion.

In conclusion,severe postpartum haemorrhage from dense adhesions of previous abdominal surgeries in caesarean section is life-threatening. Our experience showed that available blood transfusion and intensive care services; and early triger of multidisciplinary care are key to a successful outcome.

Keywords: Difficult Caesarean section; multiple transfusions; abdominal packing; second look surgery; Near-miss

Introduction

PPH is defined as blood loss of more than 500 mL following vaginal delivery or more than 1000 mL following cesarean delivery [1]. A loss of these amounts within 24 hours of delivery is termed early or primary PPH, whereas such losses are termed late or secondary PPH if they occur 24 hours after delivery [1,2]. According to the WHO, each year, about 14 million women experience PPH resulting in about 70,000 maternal deaths globally [3].

The majority of maternal deaths due to PPH occur in sub-Saharan Africa due to the increased prevalence of risk factors and poorly developed obstetrics services, [4-6]. These maternal deaths come with both significant economic losses to the family and society as well as a negative impact on the health of the surviving children [5]. In Nigeria, there is a significant variation in PPH rates with a range of 0.4 – 16.8% with a considerable variation in maternal outcome as well [7].

Although uterine atony is the most common cause of primary PPH, the bleeding is more likely

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after caesarean section than vaginal delivery. Studies have shown the relative contribution of previous uterine surgeries to this catastrophic entity [3,8-10].

In this study, we present a case of severe primary PPH in a woman with previous multiple uterine surgeries to highlight the added impact of severe adhesions on the severity of primary PPH.

Case Study

The patient was a 46-year-old gravida 2 para1^{+0}, Diabetic woman with an invitro fertilisation (IVF) conceived pregnancy; admitted through antenatal clinic for elective caesarian section at 35 weeks, 5 days gestation, indicated by multiple uterine surgeries and IVF.

Pregnancy was desired and booked at 10 weeks gestation with a weight of 82kg, height = 160cm, BMI = 30.47kg/m^2, blood pressure of 117/71mmHg and a normal urinalysis result. Her Full blood count was normal but serology was positive for hepatitis B surface antigen. She received 3 doses of Intermittent Preventive Therapy for malaria (IPT), had completed tetanus prophylaxis in her last pregnancy and was placed on routine antenatal medications. She had a total of 12 uneventful ante-natal visits.

The first pregnancy was in 2019, it was IVF-conceived, booked and delivered in a district hospital by elective caesarian section at 37 weeks indicated by three previous uterine surgeries. The outcome is a live female baby. She is three years now.

She is a known diabetic diagnosed about a year prior to presentation, well controlled and on Humalog insulin 12:12:8. She was not a known hypertensive and had no known drug allergies. She had 5 abdominal surgeries as follows; 3 open myomectomies, 1 previous caesarian section and 1 open appendectomy.

Examination revealed a calm woman in no obvious distress. She was afebrile (36^0C), not pale with no pedal oedema. Her pulse rate was 76 beats per minute with a blood pressure of 110/69mmHg. Her chest was clinically clear and the abdomen was gravid with a midline infra-umbilical scar. Fundal height was 36cm above symphysis with a singleton foetus, longitudinal lie, cephalic presenting and a regular fetal heart rate of 148bpm.

She was worked up for surgery in conjunction with the neonatologists, anaesthetists and endocrinologists. Three units of blood were cross matched. Blood investigations were within normal limits with a PCV of 30%. Her latest obstetrics ultrasound showed no foetal abnormalities.

She had the elective caesarean section under subarachnoid block. Intra-operative findings were dense pelvic adhesions involving the rectus sheath and the anterior lower uterine segment with a partial rupture of anterior uterine wall. A live female neonate was delivered cephalic with a birth weight of 2.5kg, Apgar scores of 8, 9, 9 in the 1^{st}, 5^{th} and 10^{th} minutes respectively; and placenta was anterior. Estimated blood loss was 1.5litres and 3 units of blood were transfused intra operatively.

Thirty minutes postoperatively, she was noticed to be bleeding per vagina with a flabby uterus that responded poorly to uterine massage despite on-going oxytocin infusion. Patient and her spouse were counselled and high-risk consent obtained for possible hysterectomy. She was immediately re-explored and the findings were; a flabby uterus, blood oozing in the pelvis, freed bowel surfaces as well as residual dense adhesions. Subtotal hysterectomy was done but bleeding continued, then General surgical and urological teams were invited. When all attempts at securing haemostasis proved abortive, abdominopelvic packing and temporary abdominal wall closure were done. The estimated blood loss was 3.1 litres. She received an additional 12 units of O-positive blood under frusemide cover, 10mls of 10% calcium gluconate was given for every 3 units of blood transfused. She had 2 units of fresh frozen plasmas transfused and was commenced on parenteral antibiotics (Ceftriazone and Metronidazole) and analgesics (Pentazocine). She was then admitted to intensive care unit on inotropes and oxygen. In between blood transfusions, she was maintained on normal saline and 5% dextrose in water solution. The patient was monitored in conjunction with surgeons, anaesthetists and haematologists in the ICU for 72 hours. Clotting profile showed prothrombin time (PT) of 12.5, activated partial thromboplastin time (APTT) of 39.1 and International Normalize Ratio (INR) of 1.21, and was assessed as essentially normal. She had one unit of fresh whole blood transfused while in the ICU, and intravenous ceftriaxone was changed to Meropenem and Metronidazole. She was continued on parenteral Pentazocine and Paracetamol.

She had a second look surgery with the removal of the abdominal packs on the third day. Haemostasis was satisfactory and her bowels were healthy-looking. Two additional units of blood were transfused intraoperatively. The abdominal wall was closed, and she was monitored in ICU for another 48 hours; had one unit of blood transfused before she was transferred to the ward.

She recovered well and was discharged on the 12^{th} day post-operative after 19 units of blood transfusion and 2 units of FFP. The PCV at discharge was 31%. She was seen two weeks at follow up clinic and found to be well with no complaints. Her PCV was 32%.

Discussion

The patient was 46 years old para 1+0, a known diabetic with IVF-conceived singleton gestation and a history of multiple abdominal surgeries. Although the effect of maternal age has not been clearly defined in a large study, increasing maternal age of 35 years and above is associated with a higher risk of PPH [11]. This may be due to the increased risk of comorbidities like hypertension and diabetes mellitus as seen in our case. Our patient booked at 10 weeks of gestation in line with early booking seen in patients with high-risk pregnancies for close specialist attention throughout pregnancy. Furthermore, she was educated and gainfully employed. A study from Tanzania found that maternal level of education and economic status as factors associated with early booking [12]. She was compliant as seen in her recorded twelve antenatal visits.

Our patient developed postpartum haemorrhage within 30 minutes of caesarean delivery. This is in line with several studies indicating the onset of PPH within the first few hours of caesarean section [8, 9, 13]. The intraoperative finding of a flabby uterus indicated uterine atony as the primary culprit. Uterine atony has widely been proven to be the most common cause of primary PPH in many series [3, 9, 14, 15]. This differs from some isolated studies conducted in southwest Nigeria where retained products of conception was found to account for up to 71% of cases of primary PPH [16]. Subtotal hysterectomy was done simultaneously with resuscitation using blood and inotropic support. This became necessary when all other available non-operative and less invasive methods failed to stop the bleeding. Although hysterectomy for PPH is not common, it is sometimes the only option left in our setting. Studies in the United

States reported 1 to 1.5 in 1000 deliveries [17, 18] while the study across Nigeria reported a variable range of 0 to 2.5% of deliveries [7].

Our patient received a total of 19 units of blood and blood products within 72 hours. This is quite high and reflects the severity of the PPH from a recalcitrant atony; and severe adhesions from multiple previous abdominal surgeries. This large volume of blood transfusion in PPH may be isolated and uncommon at the in the contemporary practice. In fact, it has been observed to be on the decline in recent years as shown by nationwide comparison at two different times [19]. In general, blood requirements in PPH vary with severity. In Nigeria, while there is a high rate of blood transfusion in some facilities, blood transfusion requirement of 0.4 to 48.6% was recorded in a multicenter study involving 38 health facilities [7].

This patient had initial temporary abdominal closure followed by intensive care admission for continued resuscitation and monitoring; and final re-exploration with definitive abdominal wall closure. The decision for pelvic packing/ damage control was taken when there were still some oozing areas in the pelvis following subtotal hysterectomy. This is appropriate in this patient who had received a massive transfusion and was at risk of coagulopathy from a combination of factors. Damage control surgery, though rare has been described in postpartum haemorrhage [20]. In addition, intensive care was employed as part of the damage control surgery and for further resuscitation and monitoring in patients with severe haemorrhage as in our case.

Patient had a satisfactory recovery and was discharged on the 12th day from the first surgery. Despite the additional morbidity and a prolonged hospital stay, it is a success story of an African woman with a massive haemorrhage. This success was possible partly due to the availability of blood, an intensive care facility and a multidisciplinary team which were timely mobilised for the total care of this patient.

Conclusion

Massive postpartum haemorrhage may follow a caesarean delivery in a patient with previous multiple uterine surgeries. Our experience shows that the availability of blood transfusion facilities, intensive care and early trigger and mobilisation of relevant teams are key to a successful outcome.

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