

Postpartum haemorrhage in a very remote hospital

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Our small rural hospital in the Torres Strait is staffed by four GP obstetricians and five GP anaesthetists. We are located over 1000km from our nearest tertiary referral centre. We have 190 'low-risk' women birth in our hospital every year. Recently, an unexpected massive postpartum haemorrhage was an alarming experience that stretched our skills and resources.

It appeared to be a routine delivery for the midwife of a woman at term just after midnight. It was the woman's second baby, the first having been a normal birth with a short labour and no complications. The pregnancy had been uneventful and the placenta was anterior and clear of the cervix on a 32-week ultrasound. The woman was well with no previous medical history of concern. She smoked three to four cigarettes per day and had a BMI of 21.

The woman gave birth vaginally to a healthy female infant weighing 3.2kg within 70 minutes of presentation to the hospital. Syntocinon was given after delivery of the baby and the placenta delivered within 15 minutes, rapidly followed by a large gush of blood. Membranes were seen at the introitus and the midwife removed these with sponge forceps. The bleeding continued and the fundus was palpated well above the umbilicus.

The midwife called for assistance from a general ward nurse who administered IM syntometrine and cannulated the patient, collecting blood for a group and hold. I was called to assist and arrived ten minutes later to see the patient pale and sweaty with a rapidly expanding pool of blood under her legs on the bed. The midwife had done an in-out catheter draining little urine. The fundus was well above the umbilicus and quite firm.

During the following 20 minutes, we inserted an indwelling catheter (IDC) and a second IV line and began IV fluid resuscitation with normal saline in one arm and a syntocinon infusion through the other. A large amount of clot was extracted from the cervix on vaginal examination and the uterus eventually contracted to the level of the umbilicus with continuous rubbing of the fundus. The patient was initially hypotensive and tachycardic. There was only a partial response to IV fluids. The on-call laboratory staff were called for an urgent cross-match of four units. Misoprostol 800mcg was given rectally.

One hour after the delivery of the placenta, the estimated blood loss was 1800ml and the patient was still bleeding, although not profusely. There were no perineal lacerations. The placenta appeared intact, however, it was felt that the membranes may not have been complete. The theatre staff were called in and the patient was prepared for an examination under general anaesthesia (EUA). The patient remained very pale with a BP of 90/60 and a heart rate of 95bpm.

The anaesthetic proceeded uneventfully and the uterus was explored digitally. A large amount of clot was removed. Initially, no products were felt, however, after several attempts I was able to extract

three large pieces of membrane from the uterus by trapping them between my index and third finger. It was exhausting work and I had aching arms from the effort. The uterus felt empty, however, the patient continued to bleed and with great trepidation I explored the cavity with a large blunt curette. Some small pieces of membrane were removed and finally the uterus remained firm and contracted and the bleeding stopped. The cervix was not lacerated and the perineum was intact. Three hours had passed since the birth of the baby and an estimated 2.5 litres of blood had been lost.

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The patient had remained haemodynamically stable during the procedure, however, much to the despair of my anaesthetic colleague, the cross-match was still in progress. There was apparently a technical problem in the laboratory. The cross-matched packed cells appeared in the recovery ward and the patient was transfused four units over the course of the following morning. She completed a syntocinon infusion, had no further bleeding and was discharged five days after the birth of her baby with a haemoglobin of 80.

Postpartum haemorrhage (PPH), defined as a blood loss of more than 500ml, occurs in five to ten per cent of births in Australia.¹ Most are easily managed and cause little morbidity. However, even in developed countries, PPH is one of the three main causes of maternal mortality, along with thromboembolic disease and hypertensive disorders of pregnancy. As many as two-thirds of cases of PPH cannot be predicted² and will therefore occasionally occur in a low-risk birthing unit, which is less-equipped to manage an obstetric emergency.

The Torres Strait spans the ocean between the Australian mainland and Papua New Guinea. Our northern islands are only 5km from the PNG coast. Tragically, death from PPH and other pregnancy-related causes are a real risk for women birthing in the villages in

this country. We occasionally retrieve the fortunate woman who has survived many hours of travel by vehicle and/or boat to the Torres Strait Islands with a pregnancy complication. Most women sadly do not make it.

The formula to elucidate the cause of PPH is tone (poor uterine contraction), trauma (of the genital tract), tissue (retained products of conception) and thrombin (abnormalities of coagulation). It was clear from soon after delivery that the uterine tone was poor and that retained tissue was a possible cause. Once the retained membranes had been removed the tone rapidly improved.

One of the greatest challenges of working in a rural hospital is not having enough pairs of hands in an emergency situation. At night, the midwife works alone with the general ward nurses at the end of the emergency-call bell. She will usually have the nurse with her for the delivery of the baby but not necessarily for the placenta.

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When it was apparent the patient was bleeding heavily, the nurse was able to return to insert the IV and retrieve the PPH medication box, however, there was no swarm of midwives to descend on the patient, as may happen in a tertiary hospital in the middle of the night. The midwife had to insert the catheter and administer the oxytocics as precious minutes passed and the uterus was filling with blood and clot.

It is a difficult decision to take the patient to theatre for an EUA. I am aware of the time it takes for the nursing, pathology and medical staff to arrive and prepare the theatre. Technical problems occasionally happen and again take time to resolve. We do not have fresh frozen plasma (FFP) or platelets for transfusion. We must be mindful of this in the event of haemorrhage and try to prevent disseminated intravascular coagulation (DIC) developing if at all possible.

I have postulated many times: 'What would I have done next?' If the uterus was empty, the IV oxytocics had been given, there were no genital tract lacerations and she was still bleeding? I would have called a local obstetric colleague to come into assist and telephoned for advice from the on-call obstetrician at Cairns Base Hospital. We have prostaglandin F2 alpha available and as there was no history of asthma or pulmonary hypertension given, this may have been the next step. After that? One of the GP obstetricians has once done a B-Lynch suture and I have seen one done, so that may have been next. And if she was still bleeding? I feel pale and sweaty myself and block any further catastrophic thoughts from my mind!

References

1. Henry A, Birch M R, Sullivan E A, Katz S, Wang Y A. Primary postpartum haemorrhage in an Australian tertiary hospital: a case-control study. *Aust NZ J Obstet Gynaecol.* 2005; 45:233-36.
2. SOGC. Prevention and management of postpartum haemorrhage: SOGC Clinical Practice Guidelines No 88. *J Soc Obstet Gynaecol. Can.* 2000; 22(4):271-81.



Sunset outside the emergency area at the hospital on Thursday Island.



Dr Case with her son on Thursday Island.