Unexpected outcome (positive or negative) including adverse drug reactions

Massive obstetric haemorrhage following removal of a cervical suture

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The authors present an unusual case of massive ante partum haemorrhage following removal of a cervical suture. This patient was admitted for routine removal of a McDonald's cervical suture at 37 weeks gestation. The suture was densely adherent and after removal she suffered a haemorrhage of 2500 ml from where the suture was removed which led to fetal distress and an emergency caesarean section. The cervix was sutured and a vaginal pack inserted. During the procedure she developed hypovolaemic shock requiring 7 units of blood, 4 units of fresh frozen plasma, 1 unit of platelets and 1 unit of cryoprecipitate. Ten days later she was readmitted with a postpartum haemorrhage of 1000 ml requiring further haemostatic sutures to the cervix.

BACKGROUND

There are no other reported cases in the available literature of similar life threatening haemorrhage following removal of a cervical suture.

CASE PRESENTATION

A 27-year-old, 59 kg and 1.6 m tall woman initially presented at antenatal clinic at 8 weeks gestation. She had mild asthma but was otherwise fit and well. She had four previous pregnancies. The first ended in spontaneous abortion at 20 weeks gestation due to cervical incompetence. Following that she had three pregnancies that progressed to term and she had a cervical suture inserted with each of these pregnancies. An initial management plan was made for a repeat suture to be inserted at 14 weeks gestation followed by fortnightly scans for cervical length up to 24 weeks gestation. The stitch would then be removed at 37 weeks gestation as in her previous pregnancies.

At 14 weeks she was admitted for insertion of a cervical suture. On examination, the cervix was 3 cm long and a McDonald's suture was inserted using mersilene tape with the knot on the anterior surface of the cervix. Estimated blood loss during the procedure was 50 ml. She was scanned postoperatively; a viable fetus was seen and the suture was visible half way along the cervix. A catheter was inserted for 24 h postprocedure with 5 days of oral clindamycin prescribed. A plan was made for a cervical scan in 2 weeks. Following the stitch she had regular cervical scans every 2 weeks up to 23 weeks gestation. The cervical length remained 3.4 cm with no funnelling. Routine anatomy scan at 20 weeks gestation was normal. The patient was scanned at 34 weeks gestation as she was measuring large for dates. The growth scan was normal with abdominal circumference on the 75th centile.

At 37 weeks gestation the patient was admitted for removal of cervical suture. The anterior knot was identified and noticed to be adherent and deeply embedded in the cervix. The cervix was noted to be erythematous around

the embedded knot but there was no obvious evidence of infection or offensive discharge. It was lifted off the cervix, the knot was cut and then the stitch was removed. The cervix was noted to be bleeding and pressure was applied until haemostasis was achieved. After 30 min she was still bleeding and a large 500 ml clot was expelled from the vagina. The patient was examined and the cervix was bleeding from where the knot had been removed. Blood pressure was 90/40 mm Hg, pulse was 131 bpm and the patient was extremely distressed. Oxygen was commenced, two 16 gauge cannulas were inserted and 6 units of cross matched blood were requested. A decision was made to go to theatre for examination under anaesthetic (EUA). Both the consultant obstetrician and consultant anaesthetists were present.

A spinal was performed in the left lateral position using 2.2 ml 0.5% heavy bupivacaine alongside rapid infusion of 500 ml of voluven and the unit protocol standard of 1 litre crystalloid with phenylephrine 400 mcg and ephedrine 30 mg with the aim of achieving a block adequate for cervical EUA. Testing the level of the block was difficult due to maternal distress but as soon as she was unable to raise her leg she was placed in lithotomy for EUA. She did not suffer any nausea on establishment of the block. Blood loss continued to be heavy and her blood pressure required 1 mg of phenylephrine in divided doses over the next 20 min along with rapid infusion of a further litre of voluven and litre of crystalloid to try and maintain adequate perfusion. Despite aggressive resuscitation she became increasingly hypovolaemic and developed both placental and cerebral hypo perfusion which manifested with a systemic blood pressure of 58/20 mm Hg, pulse 130 bpm, a bradycardic fetal heart rate of 68 bpm and a temporarily reduced maternal conscious level. At this point transfusion of 'flying squad' O negative blood via a level 1 transfuser was initiated and the cardiotocograph (CTG) was commenced. The CTG was classified as pathological needing immediate delivery. There was a large arterial bleed from where the

knot had been removed, one haemostatic 1.0 vicryl suture was placed which reduced the bleeding and a temporary pack was inserted. A decision was made to proceed with emergency caesarean section and then examine the cervix again. Four units of group-specific blood obtained from blood bank were transfused while the fully cross matched blood was still being prepared.

Fortunately, the neuraxial block height was adequate for the caesarean section and the baby was delivered 74 min after the cervical suture was removed. The total estimated blood loss at this point was 2500 ml. During the caesarean section, an arterial line was inserted in her right brachial artery (radial pulsations were too weak to palpate). The first maternal arterial blood gas (ABG) analysis showed pH 7.28, pCO₂ 3.8, pO₂ 28.74, BE 13.2, demonstrating significant organ hypo perfusion. During the procedure the minimum haemoglobin was 6.5 g/dl and she received 7 units of blood (1 unit of O negative flying squad, 4 units of type specific and 2 fully cross matched units), 4 units of fresh frozen plasma, 1 unit of platelets and 1 unit of cryoprecipitate via the level 1 rapid transfuser, as well as further boluses of phenylephrine. She also received 10 ml of 10% calcium chloride in order to facilitate coagulation and as an inotrope.

Postcaesarean section the cervix was examined again. There was moderate oozing at the stitch site but there was no arterial bleeding and a further haemostatic stitch was placed on the cervix. Haemostasis was achieved after the second stitch and a vaginal pack was inserted. Analgesia during this stage required supplementation with intravenous alfentanil as the block height had receded. A further 10 mg morphine were also given for postoperative analgesia along with 50 mg cyclizine and a morphine patient controlled analgesia system as she had not received any intrathecal opiates. A syntocinon infusion was commenced and cefuroxime and metronidazole were administered. On leaving theatre, the haemoglobin (on ABG analysis) was 8.1. She was in theatre for just under 2 h.

Haemoglobin was checked 6 h later and was 12.2. She made a good postoperative recovery. The vaginal pack was removed after 24 h with minimal blood loss and the antibiotics continued for 48 h. She was discharged home 4 days later with a plan to see her back in clinic in 6 weeks time.

Ten days later she was readmitted with vaginal bleeding. On arrival via ambulance there was approximately 500 ml of blood on her pad and sheets. She was haemodynamically stable, but a decision was made for examination under anaesthetic. She was examined in theatre and found to be bleeding from where the knot had previously been

and from a small abrasion on the left lateral vaginal wall. Haemostatic sutures were used and a pack soaked in proflavine was inserted. The estimated blood loss in theatre was 500 ml which made a total blood loss of 1000 ml, haemoglobin was 9 g/dl postprocedure. Therefore, she did not receive a blood transfusion. Intravenous antibiotics were commenced for 48 h and the pack was removed after 24 h. A pelvic ultrasound scan demonstrated a small amount of fluid in the mid uterine cavity. She made a good postoperative recovery and was discharged after 3 days with a plan to see her back in clinic in 6 weeks time.

OUTCOME AND FOLLOW-UP

Both mother and baby made a good postoperative recovery and they were followed up 6 weeks later in the outpatient clinic. Long term forms of contraception were discussed at this appointment.

DISCUSSION

There are no similar cases reported in the available literature of such massive haemorrhage following removal of a McDonald's cervical suture. Before removal of a deeply embedded cervical suture, the patient should be warned of the possible risk of haemorrhage from the cervix instigating emergency caesarean section. In addition, the theatre team should be made aware of this possibility so they can be appropriately prepared to deal with both haemorrhage and the possibility of proceeding to emergency caesarean section.

Learning points

- Removal of a cervical suture has the potential to cause life threatening haemorrhage.
- The cervix has a rich blood supply. The cervical branches of the uterine arteries generally descend on the lateral aspects of the cervix at 3 and 9 o'clock. Awareness of this blood supply should be taken into account during both suture insertion and removal.
- Rapid maternal haemorrhage requiring EUA may necessitate unplanned caesarean section and this should be considered when planning the anaesthetic for the EUA.

Competing interests None.

Patient consent Obtained.

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