

TWO CASE REPORTS: APPLICATION OF THE B-LYNCH SUTURE IN MAJOR POSTPARTUM HAEMORRHAGE

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CASE REPORT 1

A 25-year-old primigravida was induced at 42 weeks for postdated pregnancy at Arrowe Park Hospital. She had one dose of 2 mg dinoprostone gel (Prostin E2) vaginally with a cervical Bishop's score of four and the same dose was repeated at an interval of seven hours with an unchanged Bishop's score. Another dose of 1 mg dinoprostone was given after 17 hours with a Bishop's score of six.

Artificial rupture of the membranes was performed six hours later when the Bishop's score was nine and oxytocin (Syntocinon) infusion was commenced. At that time the cervix was 1 cm dilated and completely effaced with the fetal head at 2 cm above the ischial spine. The cervical findings did not change eight hours after commencement of oxytocin despite a rate of 32 μ /hour for six hours which was the maximum dose of oxytocin infusion permitted in the unit. The uterine contractions appeared to be adequate for three hours and the fetal heart remained satisfactory. A diagnosis of failed induction was made and a decision to perform a caesarean section was taken following consultation with the on duty consultant.

A lower segment caesarean section under spinal anaesthesia was performed by the SHO. The baby was delivered in good condition. Ten units of oxytocin was given intravenously following delivery. The placenta was delivered by controlled cord traction. The uterine cavity was swabbed and checked to be empty. At this point heavy bleeding was noted from the relaxed uterus. Another dose of ten units of oxytocin was given intravenously combined with bimanual compression of the uterus. Oxytocin infusion of 40 units in 500 ml of normal saline was also commenced at a rate of 125 ml/hour. The uterine angles were secured and repair of the lower segment margins was started with No 1 Polyglactin (Vicryl). The registrar was informed at this point as the uterus remained relaxed and the bleeding continued.

The registrar injected 250 mcg of carboprost tromethamine (Hemabate) into the myometrium and applied bimanual compression to the uterus. Although the bleeding was controlled on bimanual compression, the uterus remained relaxed and the bleeding continued on release of compression. A further dose of 250 mcg of carboprost was given intramyometrially after 15 minutes without any appreciable effect. The on-duty consultant was informed.

In a desperate attempt to control the bleeding from the atonic uterus the registrar removed the sutures from the uterine angles and lower segment margins, and applied the B-

Lynch brace suture 1 with No 1 Polyglactin, which stopped the bleeding successfully. Subsequently the consultant arrived and the repair of the lower segment margins was completed. Though the uterus remained atonic, the haemostasis was satisfactory. The abdomen was closed in layers as usual. The oxytocin infusion was stopped after closure of the abdomen.

The estimated blood loss was about three litres resulting in a drop of the haemoglobin level from 13.0 gm/dl to 8.1 gm/dl. The patient received four units of blood and four units of fresh frozen plasma postoperatively. The coagulation profile, and urea and electrolytes levels remained normal. Her vital signs were stable postoperatively and she made a good recovery without any recurrence of postpartum haemorrhage.

She was discharged on day four or puerperium with a haemoglobin level of 9.3 gm/dl. She did not have any problem at the postnatal visit after six weeks.

CASE REPORT 2

A 21-year-old primigravida was induced at 38 weeks' gestation for mild pre-eclampsia at Furness General Hospital. She had a history of acute myeloid leukaemia at the age of 11 years which was treated successfully with chemotherapy (daunorubicin) and bone marrow transplant. She was also asthmatic and was using salbutamol regularly. She had one dose of 2 mg dinoprostone gel vaginally at a Bishop's score of four and 1 mg of dinoprostone gel was repeated at an interval of five hours with an unchanged Bishop's score of five. The following morning the Bishop's score remained unchanged and a decision was made to deliver her by caesarian section for failed induction.

The caesarean section was uneventful till the delivery of the placenta, when the uterus was found to be unusually atonic even after the ergometrine injection IV (50 mcg). It remained atonic despite a repeat ergometrine injection IV (50 mcg), oxytocin infusion (20 units in 500 ml normal saline, 125 ml/hr) and intramyometrial carboprost tromethamine 250 mcg. The on-call consultant was informed in the meantime and the bleeding had been controlled by bimanual compression. The consultant performed a B-Lynch brace suture with No 1 Polyglactin which stopped the bleeding successfully.

The oxytocin infusion was continued for four hours as the uterus remained atonic. The estimated blood loss was about one litre with a drop in the haemoglobin level from 11.7 gm/dl to 9.4 gm/dl. The patient had two units of blood

postoperatively. She made an uneven recovery except for some abdominal pain on day four, which settled. She was discharged home on day seven of puerperium with a haemoglobin level of 10 gm/dl. She did not have any problem at the postnatal visit after six weeks.

DISCUSSION

Major postpartum haemorrhage (loss > one litre) is a life-threatening obstetric problem. It is an important cause of maternal mortality and morbidity worldwide⁽¹⁾.

Postpartum haemorrhage (PPH) is responsible for 28% of maternal deaths in developing countries and the risk of maternal death from PPH is about one in 1000 deliveries there. In Britain the incidence of major PPH is 1.3% of deliveries and the risk of maternal death from obstetric haemorrhage is about one in 100,000 deliveries.

Uterine atony is by far the commonest cause of primary PPH. Uterine atony during caesarean section can be treated by bimanual compression and exobolics such as oxytocin, syntometrine and prostaglandins. Occasionally these are ineffective and necessitate some sort of surgical procedure.

Several surgical methods to reduce pelvic pulse pressure have been described, such as surgical ligation of the uterine, ovarian and internal iliac artery. The skills required to perform these procedures are not always possessed by the on-duty registrar and even some of the consultants because of the rarity of the situation⁽¹⁾. This leads to two possible consequences. Firstly, the delay in instituting definitive management to control bleeding until the on-duty consultant arrives increases the complications related to bleeding. Secondly, a substantial number of cases end up with hysterectomy because of the poor cardiovascular stability of the woman or the lack of skills of the consultants to perform more complex procedures.

In the literature two different types of compression suture for the treatment of uterine atony have been described. The B-Lynch brace suture is simpler than the suture technique described from Zurich^(1,2), is easy to perform and can be applied by a person capable of performing caesarean section.

Control of haemorrhage with bimanual compression is a prerequisite and should be checked before applying the suture. In the original procedure described, a No 2 chromic catgut suture is passed outside inwards through the lower flap of the opened lower segment about 3 cm below the cut margin and taken out inside outwards through the upper flap of the lower segment about 4 cm above the cut margin. The suture is then passed over the top of the fundus and the posterior wall of the uterus and passed outside inwards through the posterior wall of the uterus about 4 cm above the cut margin on the anterior wall. It is continued laterally for about 3 cm inside the uterus and is passed inside outwards through the posterior uterine wall about 4 cm above the cut margin on the anterior wall. It is then continued over the posterior uterine wall and the top of the fundus in a reverse direction to go through the upper and lower flaps at the same level as on the other side. Two ends of the suture are tied over the lower flap of the cut lower segment (Figure 1). It is usually quite effective in stopping bleeding from the uterus following caesarean section and can save the uterus in most cases⁽¹⁾. Successful application of the suture has two advantages. First, prompt control of bleeding reduces the morbidity and mortality associated with excessive

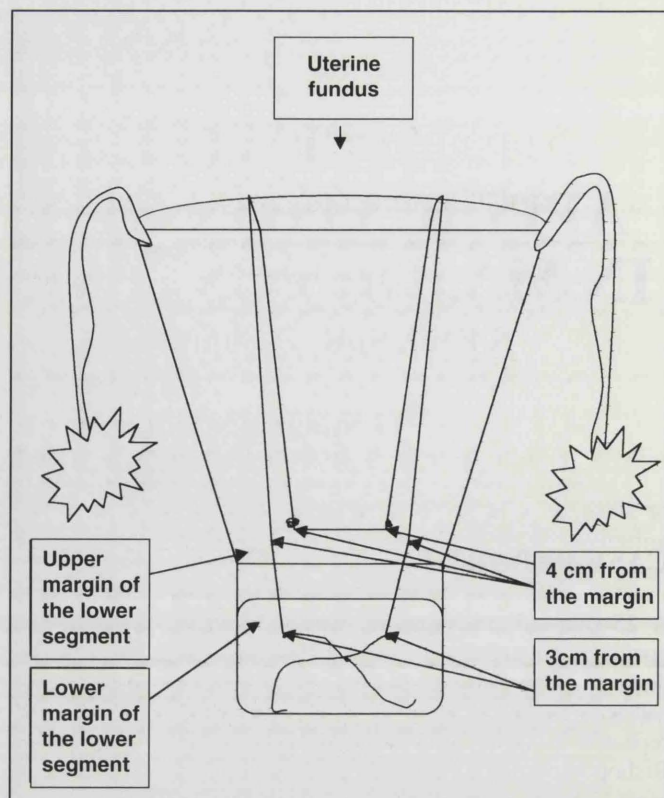


Figure 1 Schematic diagram of B-Lynch brace suture.

haemorrhage. Second, it could prevent hysterectomy, thereby saving the reproductive potential of the woman.

Only a case series of five cases of successful application of B-Lynch brace suture to control major obstetric haemorrhage has been reported in the literature. All of them were performed by Mr C B-Lynch himself whilst on emergency duty as consultant on call or called to such emergencies⁽¹⁾.

The present cases demonstrate the simplicity of the technique which was performed by the registrar (in the first case) as a desperate attempt without any previous experience of the procedure. It successfully stopped bleeding from the atonic uterus, thereby avoiding more complex surgical procedures. This supports Mr B-Lynch's claim that the B-Lynch brace suture is a simple, easy-to-perform and effective method to control major postpartum haemorrhage due to refractory uterine atony, and can avoid hysterectomy. This method is new and not usually tried in clinical practice because of lack of experience of the technique. The present cases show how simple it is to perform and how effective it can be.

The interesting point to notice in both cases is the lack of response to prostaglandin and oxytocin. Probably they represent a group of women whose uterus is unresponsive to oxytocics. It is not known whether acute myeloblastic leukaemia, daunorubicin or salbutamol have any association with uterine atony.

REFERENCES

- 1 B-Lynch C, Coker A, Lawal AH, Abu J, Cowen MJ. The B-Lynch surgical technique for the control of massive postpartum haemorrhage: an alternative to hysterectomy? Five cases reported. *Br J Obstet & Gynaecol* 1997;104:372-75
- 2 Drife J. Management of primary postpartum haemorrhage. *Br J Obstet & Gynaecol* 1997;104:275-77