Prophylactic B-Lynch Suture During Emergency Caesarean Section In Women At High Risk Of Uterine Atony: A Pilot Study

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Citation

Abstract
A pilot study to evaluate effect of elective B-Lynch suture in preventing atonic PPH was carried out on seven women undergoing emergency (Em) caesarean section (LSCS) with additional risk factors for atony of uterus. Five women were selected before start of LSCS with risk factors like general anaesthesia, chorio-amnionitis, preeclampsia, prolonged labour, second stage arrest, multiple gestation and use of magnesium sulphate. Two women were selected during the caesarean section when uterus remained atonic despite post delivery Oxytocin. Before the closure of uterus B-Lynch suture was applied. Need for additional intervention or use of blood transfusion (BT) was evaluated. None of the women required BT or additional pharmacological or surgical intervention. No intra operative or postoperative or six months follow up complication were noted. In conclusion elective B-Lynch suture is cheap, quick and appeared to be effective in preventing atonic PPH in women undergoing Em LSCS who are at high risk for haemorrhage.

INTRODUCTION
PPH represents a serious obstetric emergency and is a cause of significant maternal mortality and morbidity ranging from minor ailment like fatigue, tiredness, failure to breast feed, need for haematinics to major ailments like blood transfusion, admission to intensive care unit, renal failure, liver failure, adult respiratory distress syndrome and loss of fertility. Many articles have been written and protocols have been made and practised on the management of PPH in obstetric units in the developed countries.

Recently focus is concentrated on prevention of PPH. Active management of the third stage by intramuscular or intravenous injection of oxytocic is practiced for a long time. Other prophylactic measures are on trial. Misoprostol a cheap and stable drug has emerged as an alternative drug for management of third stage of labour. Surgical prophylaxis in the form of balloon occlusion or arterial catheterization with or without embolisation to reduce intraoperative blood loss is being tried in cases of placenta previa especially in patients with a previous uterine scar. Need for prophylactic Oxytocic infusion after delivery in presence of risk factors is considered. Elective B-Lynch suture is described during caesarean section in parturient with congenital heart disease, to avoid the need for Oxytocic and to prevent atony of uterus. In this article I have described prophylactic B-Lynch suture in women undergoing emergency caesarean section who have additional high risk factors for atony of uterus.

Figure 1
Methods
Women were selected from a public hospital (K. B. Bhabha Municipal General Hospital Mumbai, India) catering to the needs of poor strata of society with delivery rate of 4,500. Seven women were included, of them five were assessed to be at high risk of PPH before performing caesarean section and two were included at the time of caesarean section since uterus was atonic after usual dose of Oxytocin. The risk factors were general anaesthesia, chorio-amnionitis, preeclampsia, protracted active phase of labour, second stage arrest, multiple gestation and use of Magnesium sulphate. B-Lynch suture was applied before the closure of uterus using number two catgut on a 70mm round bodied needle. We used 70 mm round bodied ½ circle needle which was threaded with number two catgut. The patient was in supine position and after the delivery of baby through lower segment the B-Lynch suture was applied in a usual way with moderate tension causing blanching of the vessels on the surface of uterus giving pale appearance between the suture lines. Intra operative & postoperative complications were examined. Need for blood transfusion, additional pharmacological or surgical interventions for arrest of bleeding were recorded. Cost effectiveness, time taken, and number of procedures required to train the registrar to be competent to do the procedure were the outcomes noted.

Results
The average ages were 20 years. Four of the seven women were nulliparous. The average haemoglobin level was 9.8gms/dl. Risk factors involved were Eclampsia in 4/7 of cases, multiple gestation & use of MgSo4 involved in 2/7 of cases. Other risk factors were Chorio-amnionitis, prolonged second stage and uterine atony after delivery of baby. All cases were done under general anaesthesia. All of them received 5 units of Oxytocin by intramuscular injection after delivery of the baby. None of the seven women required any other means of surgical or additional pharmacological intervention. None of them required blood transfusion. Pre operative and post operative haemoglobin levels differed by 0.4 to 1.8 gms/dl. The patient who had haemoglobin 12.0 gms/dl before LSCS was probably due to haemoconcentration which usually happens in eclampsia. All patients were discharged on oral iron. There were no complications during the procedure and at six months follow up. All women resumed normal menstruation. It took an additional extra four minutes after a normal caesarean section to apply B-Lynch suture. Registrars were able to master the technique after assisting and after performing one procedure under supervision.

Discussion
WHO estimates that 5, 29000 women die each year from pregnancy related causes and almost all these deaths occur in developing countries. The main reason is resource poor settings. World-wide 1, 50,000 women per year bleed to death during or immediately after labour. In developing countries PPH contributes between 17% to 40% of maternal mortality and 40% of maternal morbidity. In developing
countries the risk of maternal death from post partum haemorrhage is approximately one in 1000 deliveries. In UK the risk of death from obstetric haemorrhage is about one in 100,000 deliveries.

PPH is defined by World Health Organisation (WHO) as post partum loss in excess of 500ml after vaginal delivery and in excess of 1000ml after caesarean delivery. In countries where severe anaemia is common, a loss of as little as 250 ml may constitute a clinical problem. Hence it becomes more important to prevent any avoidable blood loss in Women who are at high risk of PPH.

Incidence of PPH ranges between 5% to 8% where some form of prophylaxis is practised, but may be as high as 18% when a physiological approach is the norm. Prophylactic Oxytocic reduces the risk of PPH by about 60%. Oxytocic should be stored at temp between 2 and 8°C, and it must be protected from light. In tropical countries Oxytocic loses 21%-27% of active ingredients after one month and over 90% after one year of storage exposed to light and at 21-25°C. The storage requirements are an important barrier to the effective use of Oxytocic in the developing countries as due to poor resource setting refrigerators are not always present in delivery suites. Knowledge and technology to prevent maternal deaths are available but may not reach the intended target in time. Timely care may not be available because of one or more delays; delay in deciding to seek care, delay in reaching care, and delay in receiving care after reaching the place of care. These may be related to many reasons including social and financial constrains at individual community and health service delivery level.

Various surgical methods to reduce pulse pressure like Bilateral internal iliac artery ligation, uterine or ovarian vessel ligation, Obstetric Hysterectomy and other surgical intervention to treat severe PPH require skill and presence of a senior which takes time to arrive in emergency situations. Prostaglandins are yet not available on public hospitals pharmacy schedules. Blood and blood products are not available free of cost and require money, and require screening for hepatitis and HIV infection.

Epidural analgesia for painless labour service is not practised in public hospitals due to restricted resources. Most of the emergency caesarean sections are done under general anaesthesia which is a risk factor for PPH. The other risk factors for atony of uterus are nulliparity, maternal obesity, a large baby, chorio-amnionitis, preeclampsia, protracted active phase of labour, second stage arrest, multiple gestation, failed instrumental delivery, use of magnesium sulphate (uterine relaxant) for the treatment of eclampsia etc. Women undergoing Emergency caesarean section are at high risk of atony due to multiple factors such as indication of caesarean section & type of anaesthesia. In our pilot study the women were in the age group of 20-23 years and were primigravidas or with one child only. Chaudhari and Vaswani have reviewed 18 cases of obstetric hysterectomies and they reported 33% of cases were below 25 years and 17% were primiparous.

The hospital where pilot study was carried out had reported maternal mortality of 1.5 and obstetric hysterectomy rate of 1.75 per thousand deliveries and 80% of cases were following emergency caesarean section. With such a high incidence of morbidity and mortality, prevention of PPH was an important task. I was inspired by Professor B-Lynch's statement in the last two sentences of the conclusion in his original article on B-lynch suture published in BJOG in 1997 that “cost-effectiveness of this procedure may encourage developing countries to consider its application where necessary both for prophylactic and therapeutic purposes.” Hence I started this pilot study. B-Lynch suture is tested and tried with successful outcome in around 1800 cases in management of severe postpartum haemorrhage since 1989.

B-Lynch suture requires 70 mm round bodied needle which is cheap, easily sterilised and is reusable. Number two catgut is still used in developing countries and it is cheap and at times available on pharmacy stock. The technique of B-Lynch suture is quick and takes extra four minutes only. The technique can be easily mastered with need of basic surgical skills only. We did not find any intra or post partum complications of the technique although in literature partial ischemic necrosis is reported as a rare complication of the procedure. B-Lynch suture technique takes extra four minutes to apply and can be easily taught and learnt by the duty registrar who can then utilise their skills in the management of severe PPH.

CONCLUSION

This small observational study was performed with a sole intention of determining whether or not elective B-Lynch suture is effective in preventing PPH in women undergoing caesarean section who are at high risk for haemorrhage to justify a larger study to accurately quantify the response rate. B-Lynch suture technique is cheap, quick and easily
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mastered by the duty registrar. We therefore feel that a larger study is now justified.

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CONTRIBUTION TO AUTHORSHIP

MV designed the study. MV and AV conducted and analysed the study. Both the authors made comments on the paper. MV will act as guarantor for the paper.

References

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