

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

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Citation

M Vachhani, A Virkud. *Prophylactic B-Lynch Suture During Emergency Caesarean Section In Women At High Risk Of Uterine Atony: A Pilot Study*. The Internet Journal of Gynecology and Obstetrics. 2006 Volume 7 Number 1.

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 Oxytocic. 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 labour¹. 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 scar². Need for prophylactic Oxytocic infusion after delivery in presence of risk factors is considered³. 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

⁴. 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

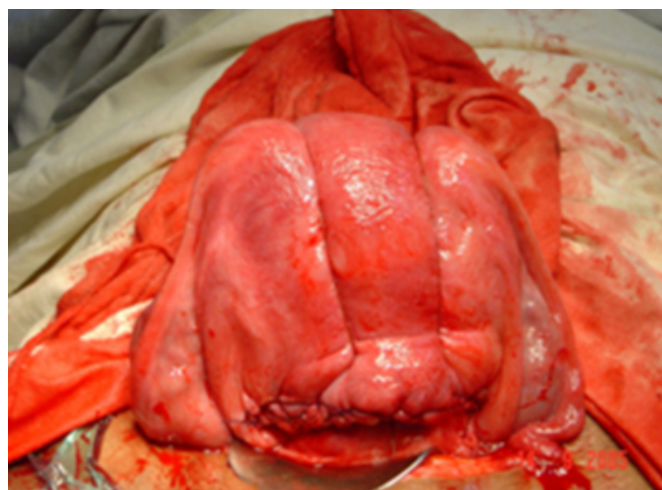


Figure 2



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 Oxytocic. 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.

Figure 3

Table 1: Summary of case histories of the patients undergoing emergency caesarean section where prophylactic suture was applied

Age in years	Obstetric history	Gestation in weeks	Haemoglobin	Risk factor	Post operative haemoglobin
19	G2 P0 M1	39	9.4 gms/dl	Chorio-amnionitis temp 40°C, Pre-Eclampsia BP=130/100 mmHg	8.8 gms/dl
21	G2 P1 FTND	37	8.9 gms/dl	Uterus atony Indication LSCS-failure to progress	8.5gms/dl
23	G2 P1 FT forceps del	38	10.00gms/dl	Prolonged second stage, high head	9.2gms/dl
20	G2 P1 LSCS for post date	41	10.00gms/dl	Uterine atony Indication of LSCS: foetal distress	9.3gms/dl
20	G1 P0	Not known (No ANC)	12.0 gms/dl	Eclampsia BP=190/120 MgSo4 infusion	10.2gms/dl
20	G1	34 weeks	10.00gms/dl	Twins Severe-pre Eclampsia Bp= 180/120 MgSo4 infusion	9.3gms/dl
20	G1	36 weeks	8.5gms/dl	Twins Eclampsia BP=200/120 MgSo4 infusion	7.8 gms/dl

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 ⁵. World-wide 1, 50,000 women per year bleed to death during or immediately after labour ⁶. In developing countries PPH contributes between 17% to 40% of maternal mortality and 40% of maternal morbidity ⁷. In developing

countries the risk of maternal death from post partum haemorrhage is approximately one in 1000 deliveries⁸. In UK the risk of death from obstetric haemorrhage is about one in 100,000 deliveries⁹.

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 problem¹⁰. 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 norm¹¹. Prophylactic Oxytocic reduces the risk of PPH by about 60%¹². 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°C¹³. 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 constraints 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 PPH¹⁴. The other risk factors for atony of uterus are nulliparity, maternal obesity, a large baby^{15,16}, chorio-amnionitis, preeclampsia, protracted active phase of labour, second stage arrest, multiple

gestation, failed instrumental delivery, use of magnesium sulphate¹⁷ (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 primiparous¹⁸.

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 1997¹⁹ 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 1989²⁰.

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 procedure²¹. 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

mastered by the duty registrar. We therefore feel that a larger study is now justified.

ACKNOWLEDGEMENTS

We would like to thank Dr Seema Malik Chief Medical Superintendent and Dr Mishra Medical superintendent of K.B.Bhabha Municipal general hospital for allowing us to publish the data. We thank the women who participated in this study.

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

1. Gulmezoglu AM, Villar J, Ngoc TNN et al. WHO multicentre randomised trial of Misoprostol in management of third stage of labour Lancet 2001; 358:689-695.
2. Mitty HA, Sterling KM, Alvarez M, Genler R. Obstetric haemorrhage: Prophylactic and emergency arterial catheterisation and embolotherapy. Radiology 1993; 188:183-187.
3. Mousa HA; Walkinshaw S. Major postpartum haemorrhage. Current opinion in Obstetric and Gynaecology Dec 2001 - Vol 13(6) pp 595-603.
4. Dob.D.P, Yentis.S.M. Practical management of the parturient with congenital heart disease: international Journal of Obstetric Anaesthesia (2006) 15,137-144.
5. World Health Organisation. Maternal mortality in 2000.
6. World Health Organisation. Preventing maternal deaths. Geneva: WHO, 1989; 107-36.
7. World Health Organisation, Maternal Mortality a Global Fact book, Geneva: WHO, 1991; 3-16.
8. Abou Zahar C, Royston E. Global mortality: global factbook. Geneva: World health Organisation; 1991.
9. Department of Health. Why mothers die. Report on confidential enquiries into maternal deaths in the United Kingdom 1994-1996. London:HMSO ; 1998.
10. Lawson JB. Obstetric haemorrhage. In Lawson, Stewart DB (Eds) Obstetric & Gynaecology in the Tropics.London: Edward Arnold, 1967; 155-9
11. Prendiville W, Elbourne D, Care during the third stage of labour. In Chalmers I, EnkinM, Keirse MJNC (Eds) Effective care in pregnancy and childbirth, Oxford: Oxford University press, 1989; 1145-69.
12. Prendiville WJ, Elbourne DR, Mc Donald S Active versus expectant management in the third stage of labour. Cochrane Database Syst Rev 2000; 3:CD000007.
13. Hogerzeil HV, Walker GJ. Instability of (methyl) ergometrine in tropical climates: an overview. Eur J Obstet Gynecol Reprod Biol 1996; 69:25-9
14. TamizianO; ArulkumaranS. The surgical management of Postpartum haemorrhage. Current opinion in Obstetric and Gynaecology volume 13(2) April 2001 pp 127-131
15. Stones RW, Paterson CM, Saunders NJ. Risk factors for major obstetric haemorrhage. Eur J Obstet Gynecol Reprod Biol 1993; 48:15-18.Bibliographic Links.
16. Tsu VD. Postpartum haemorrhage in Zimbabwe: a risk factor analysis. Br J Obstet Gynaecol 1993;100:327-333. Bibliographic Links.
17. Pahlavan,P;Nezhat,C; Nezhat C. Haemorrhage in Obstetric and Gynaecology (Review Article) Current Opinion in Obstetric and Gynaecology volume 13(4) August 2001, pp 419-424.
18. Chaudhari KR, Vaswani MN, Analysis of 18 cases of Obstetric Hysterectomy. Bombay hospital Journal vol 42 no 4 October 2000.
19. BLynch 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. BJOG vol 104, pp 372, March 1997.
20. Price N, Lynch CB, Uterine necrosis following B-Lynch suture for primary postpartum haemorrhage. BJOG: An International Journal of Obstetrics & Gynaecology Volume 113 Page 1341 - November 2006
21. Joshi VM, Shrivastava M. Partial necrosis of the uterus following a uterine brace compression suture.Br J Obstet Gynaecol 2004; 111(3): 279-280 March

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