Efficacy of Prophylactic B-Lynch Suture during Lower Segment Caesarian Section in High Risk Patients for Atonic Postpartum Haemorrhage

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ABSTRACT

Background

Postpartum Haemorrhage causes significant maternal mortality and morbidity all over the world. Active management of the third stage of labour with oxytocics is come into practice. If postpartum haemorrhage is anticipated conservative surgical procedures like B-lynch suture is being applied.

Objective

To evaluate the effect of elective B-Lynch suture in preventing atonic postpartum haemorrhage during emergency caesarian section with high risk factors for atonicity.

Method

Forty antenatal women undergoing emergency caesarean section with risk factors for atony of the uterus were selected in our study. Thirty five women were selected before starting Lower segment caesarian section with risk factors like general anaesthesia, chorio-amnionitis, preeclampsia, prolonged labour, second stage arrest, multiple gestation and use of magnesium sulphate. Five women were selected during the caesarean section where uterus remained atonic despite of post delivery oxytocics. Before the closure of uterus B-Lynch suture was applied. Need for additional intervention or use of blood transfusion was evaluated. The results were analysed by using appropriate statistical method.

Result

Seventy five percent of patients were in the age group of 18 to 23 years. Ninety percent were nulliparous and ten percent were parous women. Risk factors involved were eclampsia in 20/40 (50%), multiple gestation in 6/40 (15%), hydramnios in 6/40 (15%) and prolonged second stage of labour in 4/40 (10%) patients. Other risk factors were Chorio-amnionitis in 2/40 (5%) patients and use of magnesium sulphate in 2/40 (5%) patients causing uterine atony. The average haemoglobin level was 9.8 gms/dl. Pre and post operative haemoglobin levels differed by 0.4 to 1.8 gms/dl. There were no complications during the procedure and at three months follow up. All women resumed normal menstruation within 40 days after delivery.

Conclusion

Elective B-Lynch suture is cheap, quick and effective in preventing atonic Postpartum Haemorrhage in women undergoing emergency lower segment caesarian section who are at high risk for haemorrhage.

KEY WORDS

B-lynch suture, prevention of PPH, risk Factors for PPH

INTRODUCTION

Postpartum haemorrhage causes significant maternal mortality and morbidity all over the world. Many protocols have been made and practised on the management of postpartum haemorrhage in obstetric units in the developed countries. Recently focus is on prevention of postpartum haemorrhage.

Active management of the third stage of labour by intramuscular or intravenous injection of oxytocic is practiced for a long time. Misoprostol a cheap and stable drug has emerged as an alternative for management of third stage of labour.[1] 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.[2] Need for prophylactic oxytocic infusion after delivery in presence of risk factors is also considered.[3]

Elective B-Lynch suture is done during caesarean section in parturient with congenital heart disease, to avoid the need for oxytocic and to prevent atony of uterus.[4]

METHODS

This prospective study was conducted over one year period from January 2012 to December 2012 after obtaining the clearance from institutional ethical committee. Antenatal women with term gestation were selected from Mamata general hospital who were admitted in the department of obstetrics and gynaecology and were posted for emergency caesarian section with high risk factors for atonicity of uterus and hence postpartum haemorrhage. Forty women were included, out of them thirty five were assessed to be at high risk of postpartum haemorrhage before performing caesarean section and five were included at the time of caesarean section since uterus was atonic after usual dose of oxytocic. Informed and written consent was obtained from all the patients before the procedure.

The risk factors were general anaesthesia, chorio-amnionitis, pre- eclampsia, 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 chromic catgut on a 70 mm round bodied needle. During caesarian section after the delivery of baby through lower segment incision, 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 and post operative complications were observed. Need for blood transfusion, additional pharmacological or surgical interventions for arrest of bleeding were recorded. Cost effectiveness, time taken for applying the suture and the effect of the procedure in minimising blood loss were noted. (Fig.1)

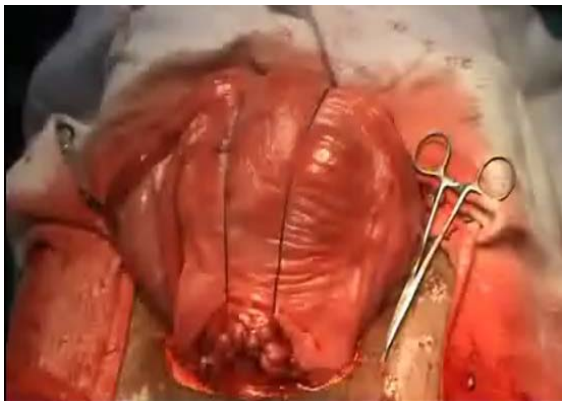

Figure 1. **B-Lynch technique**

RESULTS

Distribution of patients in relation to age:

Majority of the patients i.e. 75% of them were in the age group of 18 to 23 years. 15% of them were in between 24 to 26 yrs where as only 10% were in between 27-29 years. None of them were above 30 yrs of age. (Table-1.)

Table 1. **Distribution of patients in relation to age (n=40)**

Age in years	n	%
18-20	20	50
21-23	10	25
24-26	6	15
27-29	4	10
Total	**40**	**100**

Distribution of patients in relation to parity:

Majority of the women were nulliparous around 90%. Remaining 10% were parous women.

Distribution of patients in relation to risk factors:

Risk factors involved were Eclampsia in 20 (50%) cases, multiple gestation in 6 (15%) of cases, hydramnios in 6 (15%) cases and prolonged second stage of labour in 4 (10%) cases. Other risk factors were Chorio amnionitis in 2 (5%) patients and use of magnesium sulphate in 2 (5%) patients causing uterine atony after delivery of baby. (Table-2.)

Table 2. **Distribution of patients in relation to risk factors (n=40)**

Risk factors	n	%
Eclampsia	20	50
Multiple gestation	6	15
Hydramnios	6	15
Prolonged second stage of labour	4	10
Chorioamnionitis	2	5
Use of magnesium sulphate	2	5
Total	**40**	**100**

The average haemoglobin level was 9.8 gms/dl. All cases were done under general anaesthesia. All of them received five units of oxytocin by intramuscular injection after delivery of the baby. None of the 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 lower segment caesarian section was probably due to haemoconcentration due to eclampsia.

Majority of the patients were in the younger age group and nulliparous and presented with eclampsia. All patients were discharged on oral iron. There were no complications during the procedure and at three months follow up. All women resumed normal menstruation within 40 days after delivery. 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

Our hospital is a tertiary care referral centre, where there are lot of patients coming from the primary and secondary health care centres and invariably we see many antenatal mothers with postpartum haemorrhage. That is the reason, we were doing prophylactic B-lynch technique in all patients who were at risk for post partum haemorrhage. WHO estimates that around five lakh women die each year from pregnancy related causes and most of these deaths occur in developing countries.[5] Globally 1.5 lakh women per year bleed to death during or immediately after labour.[6] In developing countries postpartum haemorrhage contributes between 17% to 40% of maternal mortality and 40% of maternal morbidity.[7] In developing countries the risk of maternal death from postpartum haemorrhage is approximately one in 1000 deliveries, where as in United Kingdom the risk of death from obstetric haemorrhage is about one in 1,00,000 deliveries.[8,9] Our results were comparable to the incidence of maternal mortality due to Postpartum haemorrhage from various parts of the globe.

Postpartum Haemorrhage is defined by WHO as postpartum loss in excess of 500 ml after vaginal delivery and in excess of 1000 ml after caesarean delivery. In countries where severe anaemia is common, a loss of as little as 300 ml may constitute a clinical problem.[10] Hence it becomes more important to prevent any avoidable blood loss in women who are at high risk for Postpartum Haemorrhage. In my study i have taken the same criteria for postpartum haemorrhage. In our study almost all the patients were anaemic, so even 300 ml of blood loss would be trivial, so we performed prophylactic B-Lynch suture to prevent postpartum haemorrhage.

Incidence of postpartum haemorrhage ranges between 5% to 8% where some form of prophylaxis is practiced, but may be as high as 18% when a physiological approach is present.[11] Prophylactic oxytocic reduces the risk of Postpartum haemorrhage by about 60%.[12] Oxytocic should be stored at temperature 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 also the potency of the drug is lost at 21°-25° C.[13] The storage requirements are an important barrier to the effective use of oxytocic in the developing countries due to poor resource since refrigerators are not always present in all delivery rooms, especially in the primary health centres in our set up. So, the efficacy of the oxytoxics would be a challenge for the obstetrician. To avoid these problems we applied B-lynch sutures during a caesarian section in our study for preventing postpartum haemorrhage.

Knowledge and technology to prevent maternal deaths are available with us but may not reach the intended target in time. Timely care may not be available because of delay in deciding to seek care, delay in reaching care, and delay in receiving care after reaching the place. 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 postpartum haemorrhage require skill and presence of a senior which takes time to arrive in emergency situations. Prostaglandins are yet not available in all public hospitals pharmacy schedules. Blood and blood products are not available free of cost and require money and require screening for hepatitis and human immunodeficiency virus infection.

Epidural analgesia for painless labour service is not practised in all the hospitals due to restricted resources. Most of the emergency caesarean sections are done under general anaesthesia which is a risk factor for postpartum haemorrhage.[14] The other risk factors for atony of uterus are multiparity, 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.[15-17] Women undergoing emergency caesarean section are at high risk for atony related to multiple factors such as indication of caesarean section and type of anaesthesia. In our study majority three forth i.e 70% of the women were in the age group of 18 to 23 years and 90% of them were nulliparous. Chaudhari and Vaswani have reviewed 18 cases of obstetric hysterectomies and they reported 33% of cases were below 25 years and 17% were primiparous which is comparable with my study.[18] Fifty percent of the women had PPH due to eclampsia, 15% due to multiple gestation, 15% due to hydramnios, 10% due to prolonged labour, 5% because of chorio amnionitis in our study which was comparable to study done by Stones et al. and Tsu et al. in 1993.[15,16]

Since our hospital is a referral centre we had maternal mortality rate of 1% and obstetric hysterectomy rate of 2 per thousand deliveries and 80% of cases were following emergency caesarean section. With such a high incidence of morbidity and mortality, prevention of Postpartum Haemorrhage was an important task. So we tried B-Lynch suture technique to reduce blood loss. B-Lynch et al. stated that cost effectiveness of this procedure may encourage developing countries to consider its application where necessary both for prophylactic and therapeutic purposes.[19] Hence we took up this study. B-Lynch suture is tested and tried with successful outcome in around 1800 cases in management of severe postpartum haemorrhage since 1989.[20]

B-Lynch suture requires 70 mm round bodied needle which is cheap, easily sterilised and is reusable. Number two chromic catgut is still used in developing countries and it is cheap and is 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 operative complications of the technique although in literature partial ischemic necrosis is reported as a rare complication of the procedure.[21] B-Lynch suture technique can be easily taught and learnt by any surgeon who can then utilise their skills in the management of severe postpartum haemorrhage. The sample size in my study is too less to come to a concensus and make a protocol. In spite of this limitation, I definitely found it to be usefull to prevent postpartum haemorrhage especially in the high risk patients.

CONCLUSION

This prospective study was performed with a sole intention of determining whether or not elective B-Lynch suture is effective in preventing postpartum haemorrhage in women undergoing caesarean section who are at high risk for atonic uterus. To justify a larger study is needed to accurately quantify the response rate. B-Lynch suture technique is cheap, quick and easily mastered by any surgeon. We therefore feel that B-Lynch suture is justified to prevent and reduce postpartum haemorrhage and hence maternal mortality and morbidity.

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