Original Article

SIMPLE TECHNIQUE OF UTERINE COMPRESSION SUTURES FOR PREVENTION OF PRIMARY POSTPARTUM HEMORRHAGE DURING CAESARIAN SECTION

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ABSTRACT

Objectives: To report our clinical experience of the effect of applying simple technique of uterine compression sutures to prevent primary postpartum hemorrhage in atonic uterus developed during caesarian section.

Methodology: The use of simple uterine compression sutures in atonic uterus during caesarian section was reviewed within the period of January 2006 to March 2008 in a tertiary obstetric unit in three Medical College. It is a descriptive observational study. In atony uterus, first to treat fundal compression, used Intravenous or Intramuscular uterotonic drugs followed by per-rectal use of misoprostol and observed 10-15 minutes and then applied simple technique of uterine compression sutures.

Results: Age of patients ranged from 15-40 years. 49 patients were primiparae and 54 patients were multiparae. Indications for caesarian section were previous caesarian section 21 (20%), large baby head to disproportion 23 (22%), obstructed labour and prolonged labour 29 (28%), twin pregnancy 16 (15.5%), polyhydromnios 4 (3.8%), abruptio placenta 4 (3.2%), placenta preavia accreta 7 (6.5%), All cases were maintained with post-operative 10 units oxytocin for 8 hours. Two patients needed one unit blood transfusion after surgery. No post-operative excessive bleeding was observed. There was no alteration of uterine involution and lochial discharge. In followed up cases subsequent pregnancy were 12(11.6%).

Conclusion: Extreme degree of uterine compression may leads to uterine anatomic damage. Simple compression technique is surgically easy, with life saving potential, offers relative safety, time saving and can be managed by trainee doctors after some experience.

KEY WORDS: PPH, Simple compression sutures, Atony uterus.

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INTRODUCTION

Postpartum hemorrhage (PPH) is a nightmare for the Obstetrician. Globally, 200 to 210 million pregnancies occur every year, of which 515,000-600,000 results in a maternal death. Ninety nine percent of these deaths are in developing countries. Roughly 150,000 of these deaths are from bleeding complications.[1] The great majority of PPH cases result from uterine atony. About 75-90% of those were from

primary postpartum hemorrhage, a condition in which the uterus fails to contact after delivery of the fetus and / or placenta. Although PPH accounts for 24% of the causes of maternal deaths globally it is the biggest maternal killer. It is said that do not let the best be the enemy of the good which can lead to death within 2 hours if it is not managed immediately.

Uterine atony developing during cesarean section is usually managed by oxytocin, syntometrine, manual compression and use of prostaglandin. In case of failure one can manage this condition using various surgical solutions, including uterine artery ligation, more complicated stepwise devascularization of the uterus, internal iliac artery ligation and ultimately, hysterectomy. All these procedures require average surgical skill.

The invention of the B-Lynch surgical technique for the conservative management of PPH was first performed and reported by consultant in Milton Keynes NHS Trust publishing the first series of cases in BJOG 1997[2]. Other similar or modified techniques such as Cho's Square suture[3] and K. BHAL[4] modification of the B-Lynch suture technique have been introduced adding to make available methods of conservative surgery. Here we applied more simple technique of uterine compression sutures in atony uterus for prevention of PPH during cesarean section. This helps to reduce morbidity, preserve fertility and can easily be performed by junior trainee doctors after some experience.

METHODOLOGY

During the period of January 2006 to March 2008, we applied simple technique of uterine compression sutures in atonic uterus during caesarian section in obstetric Unit of three tertiary Medical College Hospitals and private clinic as conservative method to preserve the uterus for future fertility.

Procedure:

1. Patient were under spinal anaesthesia with Foley catheter in place for continuous bladder drainage. Pfannenstiel incision was used for opening the abdomen. Lower segment uterine incision was made for caesarian section after dissection of the bladder.
2. After delivery of the baby and placenta, uterus was closed by atraumatic no. I catgut in a single layer and confirmed the uterine contraction. In case uterotonic drugs such as oxytocin, ergometrine and per-rectal misoprostol were not used and manual compression was achieved.
3. Wait for 10-15 minutes, if uterus failed to contract, no. 1 atraumatic catgut in round body needle was used to apply modified B-Lynch suture. Near straightening of the round body needle was done as far as possible and passed through anterior and posterior uterine wall just below the repaired uterine layer, 2-3cm medial to the right lateral margin and passed it 3-4 cm medial to the right cornu of the uterus around the fundus and tie it at its entrance point. Second atraumatic no. I catgut is used in the same way on the left side and fixed. (Fig-1 & 2)
4. During placement of the sutures, uterus was lifted up from the abdominal cavity; the assistant pulled it and bimanually compresses the uterus until the suture was tight. The third person observed vaginally and confirms the bleeding is minimum. Visceral peritoneum closure depends upon the surgeon choice.
5. In case of placenta praevia we applied 3-4 sutures after first more downward placement of the bladder and entrance point is 3-4 cm below the transverse incision suture. (Fig-3)

RESULTS

Retrospective analysis of year 2004 and 2005 showed that there were 84 cases of atonic PPH which developed after caesarean section and its management is presented in Table–I. Blood transfusion about 5-10 units was required in all cases.

We report the result of our 103 cases, those who had developed atony uterus during cesarean section for prevention of primary PPH. When manual compression and conventional ecbolics had proved ineffective to maintain

Fig-1: Showing insertion point of both sutures.

uterine contraction, then we applied our simple technique of uterine compression sutures. Age of patients ranged from 15-40 years. Indications of caesarian section were parity, amount of blood loss and morbidity were recorded and are presented in Table-I. All cases were managed in three tertiary Medical College Hospitals (Khulna, Rajshahi and Bogura Medical College Hospitals) where approximately 2500-5000 caesarian section deliveries are being done per year with caesarian section rate of around 25-30%. Incidence of atonic PPH after caesarean section was 1.2-1.5%. All deliveries were between 36 to 41 weeks, elective and emergency caesarian section were 37 (36%) and 66 (64%) respectively. Homeostasis and adequate uterine compression was achieved after applying simple technique of uterine compression suture. Post-operative recovery was excellent in all cases with no long-term sequel. To date twelve women has conceived spontaneously with confirmed intrauterine pregnancy.

Table-I: Management of atonic after caesarean section PPH in year 2004 and 2005 n -84 (%)

1. Continuation con of conservative approach (Uterotonic drug and uterine mass age) PPH was controlled spontaneously	21 (25)
2. Relaparatomy	
* with subtotal hysterectomy	42 (50)
* Ligation of ovarian and uterine vessel	14 (16)
* B-lynch brace suture	7 (8.3)

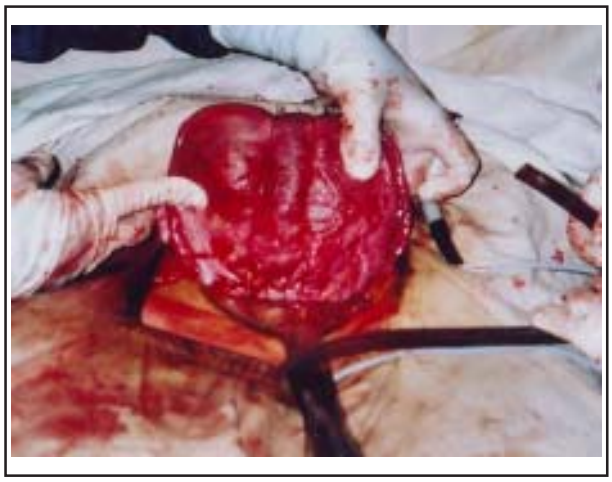

Fig 2: Showing two knots below the repaired layer of the uterus with desired level of compression.

DISCUSSION

Massive uncontrolled hemorrhage after child birth is one of the leading causes among pregnancy related death and resulting morbidity. PPH remains among the main causes of maternal death in developing and developed countries. Uterine atony is the most common cause of primary PPH (about 90%), which can lead to death within two hours if not managed immediately. Atonic uterus can be managed conservatively by using manual compression,

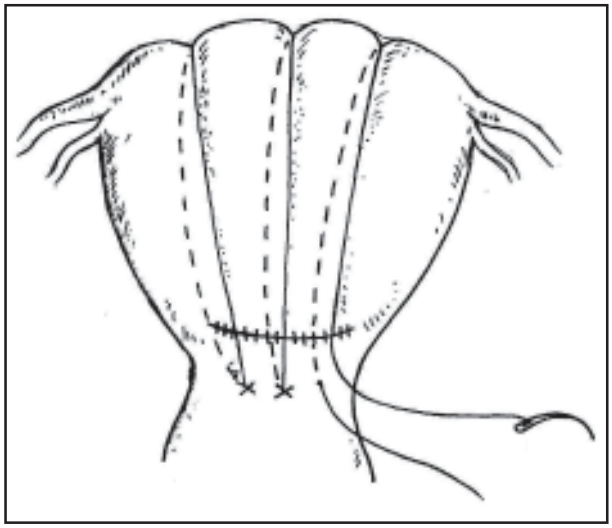

Fig-3: Showing placement of 3 sutures in case of placenta praevia.

Table-II: Patient's characteristics and post-operative morbidity

No of the patients (n)			103
Age (years)			15-40
Parity	Primipara: 49		Multipara: 54
Gestation (weeks)	36/37	38/39	40/41
	n-32	n-49	n-22
Indications for Caesarian section		No	%
- Previous Caesarian section		21	20
- Cephalopelvic disproportion		23	22
- Obstructed labour & prolonged labour		29	28
- Twin pregnancy		16	15.5
- Placenta praevia accreta		7	6.5
- Polyhydromnios		4	3.8
- Abruptio placenta		3	2.9
Blood transfusion (One Unit)		4	3.2
Out come		Good	
		No complication	
		No morbidity	
Subsequent Pregnancy		12	11.6

uterotonic drugs and prostaglandins in majority cases.

When conservative measures fail to control PPH, definitive treatment should be surgical, especially at cesarean section.[5] For preservation of uterus many procedures like ligation of uterine, utero-ovarian arteries or ligation of internal iliac artery may control hemorrhage.[6-7] These procedures are time consuming, needs expertise especially for ligation of internal iliac artery which may be the cause of nerve injury, gluteal necrosis or sometime ligation of common iliac artery may take place. It should be done in haemodynamically stable patient.[8] In tertiary Medical College more than 94% caesarean section are done by trainee doctors which include about 75% of atonic PPH patients sequinseal relaperratony for sub-total hysterectomy or ligation of uterine or ovarian vessels or B-lynch brace suture. In order to avoid further miserable PPH trainee doctors preferred subtotal hysterectomy. For compression of these large numbers of hysterectomy, we prefer more friendly simple procedures like comprerin suture as a prophylactic meanse in all atonic uterus for prevention for PPH.

Modified B-Lynch technique was also introduced by ChoJH and colleagues in 2003.[3] The purpose of the technique is to approximate the anterior and posterior uterine wall until no space is left in the uterine cavity and multiple sutures are inserted to obliterate the cavity to stop bleeding caused by uterine atony, four and five square sutures are placed evenly throughout the uterus from the fundus to the lower segment. But extreme uterine compression may lead to partial ischemic necrosis of the uterus and erosion of a B-Lynch suture through the uterine wall.[9,10] Our technique is very easy and simple to perform; less skilled persons can also do it appropriately.

The procedure does not involve any serious complications. Patients recover with normal uterine cavity and normal lochial flow after suturing ensures possibilities in subsequent conception. Tensile strength of the catgut suture is reduced within 48 hours, so it exerts no permanent damage to the uterus, does not interfere the normal uterine involution or lochial discharge. None of the cases developed any complication The technique was successful in all 103 cases and none of the patients needed relaparotomy or re-admission to the hospital for PPH. The total amount of blood loss was considerably less because of the maintenance of continuous bimanual uterine compression from begining with intermittent release only to check the atonicity and bleeding. As per our experience and world wide review of the uses of the uterine compression suture techniques, the

fertility rate was 2%.[11] In our study population subsequent pregnancy was 12% because many women are not interested to further pregnancy.

Many young women had sacrificed their uterus for controlling atonic PPH when other modalities had failed. B-Lynch Brace suture and other modified technique and now the use of our simple compression technique can save the uterus and the women may have future fertility, enjoy the quality of life and prevent the psychological trauma due to hysterectomy at a very young age. However, it must be mentioned here that medical measures for preventing PPH are almost routine therapy in managing the third stage of labour and same holds good for cesarean sections. An invasive surgical technique will be needed only in a few cases and it should be discouraged if not required. Further more it should be carried on after approval of a senor consultant.

CONCLUSION

This more simple compression suture technique provides an update of B-Lynch brace suture to prevent atonic PPH and can be easily performed. The procedure has a life saving potential, offer relative safety and the capacity for preserving the uterus and fertility.

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