ORIGINAL ARTICLE

Effectiveness of Single Compression Suture in Management of Atonic Uterus during C-Section

TAHIRA FATIMA[1], SHAHNAZ KOUSAR[2], BUSHRA MOHSIN[3], *ZUNAIRA TABASSUM[4]*

ABSTRACT

Background: PPH is one of the top five causes of maternal mortality in both developed and developing countries. Conservative medical / surgical management is the aim in young patients. Application of single compression suture is a simple and new strategy for conservative surgery in these cases.
Aim: To evaluate safety and effectiveness of single compression suture in management of atonic uterus during c-section
Method: Study included all patients with uncontrolled PPH due to atonic uterus at the time of cesarean section carried out in Fauji foundation hospital, Lahore from January 2015 to June 2017.
Results: Single compression suture was applied in 50 patients with uncontrolled PPH due to atonic uterus and it was found to be successful in 100 percent of the patients.
Conclusion: Single compression suture is effective in controlling postpartum hemorrhage due to atonic uterus during C - Section when other conservative medical management fails. This technique useful for an effective control of postpartum hemorrhage and at the same time is also easier and quick to apply as compared to other compression suture.
Keywords: Atonic Uterus, Single uterine compression suture, , Postpartum hemorrhage (PPH)

INTRODUCTION

Postpartum hemorrhage (PPH) after vaginal and operative delivery occurs in up to 5% of cases[1,2]. It is a major cause of maternal morbidity and mortality in both developed and developing countries, although the absolute risk of death is much lower in the former than the later (1 in 100,000 versus 1 in 1000 births)[2].

PPH is defined as estimated blood loss of ≥500mL after vaginal delivery or ≥1000mL after cesarean section[3,4]. it may also be defined as a reduction in the patient's hematocrit level of more than 10% compared with the pre-delivery value or sometimes it is defined as blood loss causing hemodynamic instability of sufficient degree to require blood transfusion[5,6]. Uterine atony is the most common cause of PPH, accounting for almost 80% of PPH cases[7,8].

According to an estimate, worldwide over 1,25,000 female die of Postpartum hemorrhage each year[9] .In a study by Naz et al at Women and Children Teaching Hospital, Abbottabad, from 1994 to 1997, the maternal mortality rate was 9.46/1000 live births (LB) and the main cause of death was haemorrhage in 27% of cases[10].

The usual management strategies include bimanual compression and uterine massage, use of uterotonic agents, uterine tamponade with balloon and occasionally arterial embolization. Failure of these methods mandates surgical intervention. Some surgical measures such as ligation of major pelvic vessels demands a comprehensive surgical competency and skill possessed by few surgeons. Sometimes In cases of severe hemorrhage, hysterectomy is the last resort. To tackle these issues Hayman *et al*[11] in Derby modified the procedure of B-Lynch suture in 2002. The suture was applied vertically over the uterus by passing the needle from the anterior surface of uterus in lower segment above bladder reflection, coming out posteriorly through the full thickness of uterus and tying the suture over the fundus. This suture can be applied in cases of PPH, even after normal delivery, as this technique does not require opening of uterine cavity.

This aim of this study was to review the effectiveness of a simpler single suture as compared to routine compression sutures applied bilaterally i.e the Hayman's uterine compression suture, b lynch and Pereira sutures. The purpose of the uterine compression suture is to exert persistent mechanical compression to an atonic uterus as a measure to control massive obstetric hemorrhage before it results in further complications and ultimately maternal death.

This study was carried out at Fauji Foundation Hospital Lahore from January 2015 to June 2017.

MATERIAL AND METHOD

This study included 50 patients with uncontrolled PPH due to atonic uterus at an elective or emergency C-section. All patients were booked, investigated and passed through the trial of labor within the hospital or had an elective C-section. The patients were subjected to the single compression suture instead of the B-lynch stitch when the conservative medical management failed to control the PPH due to atonic uterus. In this study we exclude the patients with placenta previa, DIC, bleeding disorder and uterine anomalies.

In these patients, after removal of placenta, blood loss was recorded by calculating the amount of blood collected in the suction bottle, measuring the clots and blood from vagina collected in a kidney tray. Uterus was exteriorized. A # 2 vicryl with round body was converted into a straight needle and was then used to puncture the uterus in the

[1]Classified Consultant, Fauji Foundation Hospital , Lahore.
[2]Rahbar Medical & Dental College/ Rangers Teaching Hospital, Lahore.
[3]M O, Fauji Foundation Hospital, Lahore.
Correspondence to Dr. Tahira Fatima, Res- 827 W Phase-3, street 8, DHA, Lahore. Email sk845@hotmail.com Cell: 03354212158,

center, above the bladder reflection, where the incision line was closed. This needle was passed from the anterior to the posterior surface of the uterus. The assistant was asked to compress the uterus as much as possible; the suture was tied in the center of the fundus giving the uterus a unique heart shape appearance as shown in the picture given below.

Post-operatively, the patients were kept under observation in intensive care facility for 24 hours and monitored for bleeding and vital signs. Haemoglobin level was repeated 6 hours after procedure. Blood was transfused according to pre-procedure Hb% and amount of blood loss during surgery. Postoperative complications like fever, wound infection, deep vein thrombosis, vesico-vaginal fistula, uterine wall necrosis were looked for. The patients were discharged after 3 days routinely if clinically stable. They were called for removal of the abdominal stitches, routinely on the 7th post-operative day.

RESULTS

Table- 1 Mode of caesarian section

Mode of Section	n	%age
Emergency section	38	76
Elective section	12	24

Table 2: Indications of Elective section (n=12)

Elective section indications	n	%age
Twin pregnancy	4	33
Triplet pregnancy	1	8.3
Previous 3 C-section	3	25
Breech presentation	2	14
Good size babies (more than 4kg)	2	14

Table-3: Approximate blood loss

Amount of blood loss	n	%age
Up to 1000 ml - 1200ml	35	70
Up to 1200ml-1500m	10	20
Up to 1800-2100ml	5	10

Table 4: Requirement for Blood transfusion:

No. of unit of blood transfusion	n	%age
No blood transfusion	35	70
1 unit blood transfusion	10	20
2 unit of blood transfusion	5	10

Table 5: Overall effectiveness of suture

Effectiveness of suture	%age
Effective and successful	100

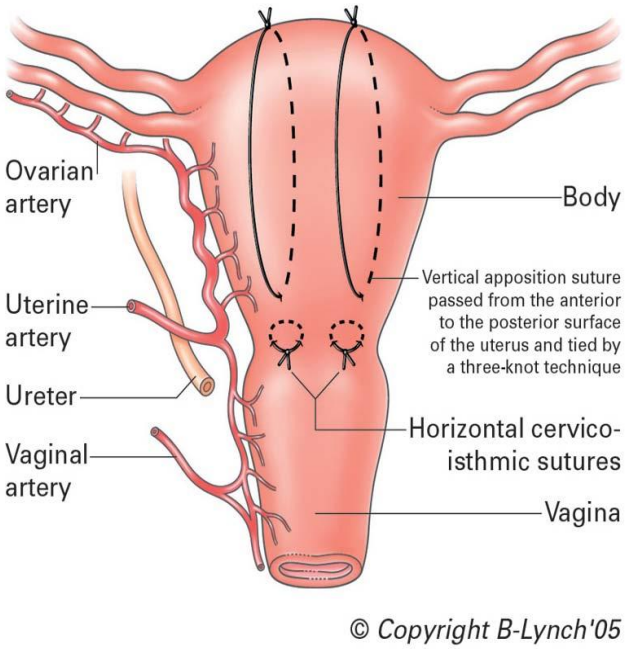
Table 6: Complications

	Complications	n
Minor	Fever	2
	Gape Wound	1
	Hematoma Formation	0
Major	VVF	0
	Uterine wall necrosis	0
	Maternal Mortality	0
	Deep vein thrombosis	0

DISCUSSION

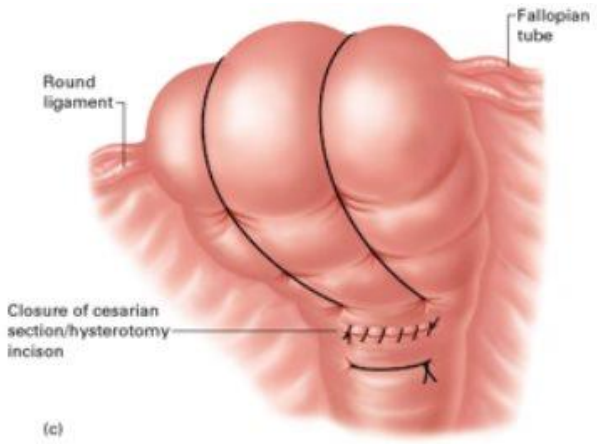
Primary PPH may nessesitate emergency hysterectomy in some patients after failure of medical treatment. Surgical method to control PPH usually include application of B-Lynch suture or Heymans stitch or other compression sutures as described in different studies. These compression sutures are an effective means reduce the morbidity associated with massive blood loss and hysterectomy. Among all the haemostatic sutures in practice, the modified B-Lynch stitch is preferred because of simplicity of application and less time taken in procedure. However the single compression suture analysed in this study is equally effective but with added advantage of being more simpler and easier to apply. This is highly recommended in cases of PPH with atonic uterus. It is applied with less pricks and it does not slip from shoulder of uterus so does not cause ischemia and could be applied easily by trainee resident usually without any complication. However the limitation of this technique was that this suture was difficult to apply after massive heamorrhage or after vaginal delivery hence its effectiveness is questionable in these cases.

Hayman suture



In a study by Khatoon *et al* [12], modified B-Lynch stitch was applied on 9 cases i.e. 60% after vaginal delivery and in 6 cases (40%) during cesarean section. In our study it was only applied during c-section. In another study by Anamika *et al* [13], time taken to put this stitch was 11 to 20 min in 35 patients, less than 10 min in 3 patients, and more than 20 min in 5 patients. In our study, time taken to put stitch was less than 5 min in all patients. So time saving was a significant advantage with this technique.

B Lynch suture



Study conducted by Hackenthal *et al* [14] and Anamika *et al*[13] revealed success rate of 100%, thus proving that this technique was highly effective. In our study success rate was also 100%.

In a prospective study conducted by Ghodake *et al*[15], 31 patients underwent modified B-Lynch stitch, out of which 5 patients had post-operative pyrexia, 3 patients had surgical wound gape. In our study 50 patients underwent the procedure and none had major complication, again showing the practicability of this technique.

CONCLUSION

Single compression suture technique is equally effective method as Hayman compression stitch in controlling postpartum hemorrhage if done early after failure of conservative medical methods in cases with uterine atony. Its relative simplicity of application, no complications in terms of uterine ischemia or tissue damage has made it very easy and practical for surgeons; even for trainees to use as an everyday method.

Limitation of the study: This study has dealt with only 50 cases of C-section so larger studies are required to see the effectiveness of this procedure. Moreover, it should be also tried in PPH after the normal delivery.

REFERENCES

1. Lu M C, Fridman M, Korst L M. et al. Variations in the incidence of postpartum hemorrhage across hospitals in California. Matern Child Health J. 2005;9:297–306. [PubMed]
2. Mousa H A, Alfirevic Z. Treatment for primary postpartum haemorrhage. Cochrane Database Syst Rev. 2003;(1):CD003249–. [PubMed]
3. Stafford I, Dildy G A, Clark S L, Belfort M A. Visually estimated and calculated blood loss in vaginal and cesarean delivery. Am J Obstet Gynecol. 2008;199:519, e1–e7. [PubMed]
4. Ueland K. Maternal cardiovascular dynamics. VII. Intrapartum blood volume changes. Am J Obstet Gynecol. 1976;126:671–677. [PubMed]
5. Hackethal A, Brueggmann D, Oehmke F, Tinneberg H R, Zygmunt M T, Muenstedt K. Uterine compression U-sutures in primary postpartum hemorrhage after cesarean section: fertility preservation with a simple and effective technique. Hum Reprod. 2008;23:74–79. [PubMed]
6. Jacobs A J, Lockwood C J, Barss V A. Causes and treatment of postpartum hemorrhage. Obstet Gyn. 2008;16:1–3.
7. Combs C A, Murphy E L, Laros R K Jr. Factors associated with postpartum hemorrhage with vaginal birth. Obstet Gynecol. 1991;77:69–76. [PubMed]
8. Dildy G A III. Postpartum hemorrhage: new management options. Clin Obstet Gynecol. 2002;45:330–344. [PubMed]
9. S Nanda, Hayman, uterine compression stitch for arresting atonic postpartum hemorrhage. *Taiwan J obstet gynecol. 2011 June, 50-2 Pub med central June 9 2011.*
10. Naz H[1], Sarwar I, Fawad A, Nisa AU. Maternal morbidity and mortality due to primary PPH--experience at Ayub Teaching Hospital Abbottabad. *J Ayub Med Coll Abbottabad. 2008 Apr-Jun;20(2):59-65*
11. Hayman RG, Arulkumaran S, Steer PJ. Uterine compression sutures: Surgical management of PPH,.*Obstetrics and Gynecology* 2002: 99(3): 502-6.
12. Khatoon Ayesha, SyedaFarihaHasnny, Junaid Ansari. B-Lynch brace suture for the treatment of major primary postpartum hemorrhage: An experience at AbbasiShahi Hospital Karachi Mc 2011; 17(3): 36-38.
13. AnamikaMajumdar A, Mallick K, Vasava B, Desai KT, Dalal M. A descriptive study on Hayman suture technique to control postpartum
14. Hackethal A, Bruggmann D, Oehmke F, Tinneberg HR. Uterine compression sutures in primary PPH after Caesarean section: Fertility Preservation with a simple and effective technique. *Human Reprod*2008; 23(1): 74-9.
15. Ghodake V B, Pandit S N, Umbardand S M. Role of modified B-Lynch suture in modern day management of atonic PPH. *Bombay Hospital Journal* 2008; 50(2) : 205-10.