

ORIGINAL ARTICLE

B Lynch Suture and Intrauterine Balloon Tamponade for Management of Severe Postpartum Hemorrhage: A Comparative Study

MEHWISH SYED¹, AFRAH AMAN¹, SAEEDA SAFI¹, RABIA NAWAZ², ASIA HABIB³, SUMMAYA SHAH⁴

¹Senior Registrar Gynae & Obs, QHAMC, Nowshera KPK

²District Gynaecologist Gynae & Obs, THQ Hospital, Dargai KPK

³Associate Professor Gynae & Obs, QHAMC, Nowshera KPK

⁴Assistant Professor Gynae & Obs, QHAMC, Nowshera KPK

Correspondence author: Dr Afrah Aman, Email Address: afrahaman19@gmail.com, Cell No: +923339199151

ABSTRACT

Objective: The aim of this study is to compare the effectiveness of intrauterine balloon tamponade and B Lynch suture for management of severe postpartum hemorrhage.

Study Design: Randomized Control trial

Place and Duration: The study was conducted at Gynae & Obs department of Qazi Hussain Ahmad Medical Complex, Nowshera KPK for six months duration from January to 2021 to June 2021.

Methods: There were one hundred and twenty patients with ages 20-45 years were presented in this study. All women had severe postpartum hemorrhage were included in this study. Demographically detailed of enrolled cases age, body mass index, gestational age and parity were recorded after taking informed written consent. Patients were equally divided into 2-groups I and II. Group I had 60 patients and received Lynch suture while in group II 60 patients received intrauterine balloon tamponade. Post-operative success rate among both groups were assessed and compared in terms of bleeding control within 10-15 minutes. SPSS 24.0 version was used to analyze the complete data.

Results: In group I mean age was 29.09±2.53 years with mean BMI 25.11±7.64 kg/m² while in group II mean age was 29.02±3.62 years with mean BMI 24.87±6.32 kg/m². Mean gestational age in group I was 37.87±3.29 weeks and in group II mean gestational age was 38.19±6.41 weeks. Mean parity in group I was 4.03±1.19 and in group II it was 4.01±0.87. Frequency of success rate in group I was significantly higher among 54 (90%) cases as compared to group II 39 (65%) with p value < 0.05. We found that patients of group I was significantly satisfied than that of patients who received intrauterine balloon tamponade.

Conclusion: In this research we concluded that lynch suture for the management of severe postpartum hemorrhage among females had higher effectiveness in terms of bleeding control within 15 minutes and with higher satisfaction among patients as compared to those females who received intrauterine balloon tamponade.

Keywords: Postpartum hemorrhage, Lynch Suture, intrauterine balloon tamponade, Success Rate

INTRODUCTION

A postpartum haemorrhage (PPH) is defined as blood loss of more than 500 millilitres (mL) following a vaginal delivery and more than 1000 millilitres (mL) following a caesarean delivery [1]. Postpartum haemorrhage (PPH) is a prominent cause of maternal morbidity and mortality around the world, with an increasing incidence trend in both industrialised and developing countries [2, 3]. Postpartum haemorrhage (PPH) is responsible for more than 30% of all maternal deaths in developing countries [3, 4], with the majority of these occurring in low- and middle-income countries. In contrast, PPH-related death can be avoided in the majority of cases with appropriate prevention, diagnosis, and treatment [4].

In addition to uterine atony, genital tract trauma (such as vaginal or cervical lacerations), uterine rupture, retained placental tissue, and maternal coagulation issues can all result in PPH. PPH is most usually caused by uterine atony. A increased risk for postpartum haemorrhage is associated with grand multiparity and multiple pregnancy, despite the fact that the vast majority of women who suffer PPH difficulties have no recognised clinical or historical risk factors. It is possible that PPH is exacerbated by pre-existing anaemia, and even when only a little volume of blood is lost, the clinical effects can be life-threatening [5,

6]. Conservative management with uterotonic medicines (oxytocin or prostaglandins) is the first-line treatment option for PPH; second-line treatment options include uterine packing, external compression with uterine sutures, and selective devascularization via ligation or embolization of the uterine artery [6, 7]. Conservative treatment for severe PPH is often ineffective; therefore, hysterectomy is now the most common surgical procedure for reversing the condition. [8] Blood loss, damage to other organs, poor wound healing, infection, and loss of fertility are all possible side effects of postpartum hysterectomy, both in the short and long run. Techniques like uterine compression sutures (also known as B Lynch sutures) [9, 10] and intrauterine balloon tamponade [11, 12] have gained popularity as an alternative to hysterectomy and the hazards that go with surgery. For a long time, the primary purpose of all intrauterine balloon catheters was to stop bleeding from sources other than the uterus. Case reports and case series have been published in which these catheters have been found to be effective in the treatment of PPH [3, 7, 8].

According to Diemert et al [9], it is successful in up to 60% of the instances studied thus far. Specifically, the aim of this study was to compare the success rates of intrauterine balloon tamponade and B Lynch suture for the management of severe postpartum haemorrhage in the

local population. Postpartum haemorrhage is a potentially fatal complication of delivery that is associated with high maternal mortality and morbidity. As a result of the findings of this study, these patients may be offered a treatment with a higher success rate in order to prevent maternal morbidity and mortality as a result of severe postpartum haemorrhage in the future. It is also possible that individuals with severe postpartum haemorrhage can avoid hysterectomy, and that some practical instructions for handling severe postpartum haemorrhage using a fertility-preserving approach can be included in our standard practise guidelines.

MATERIAL AND METHODS

This randomized control trial was conducted at at Gynae & Obs department of Qazi Hussain Ahmad Medical Complex, Nowshera KPK for six months duration from January to 2021 to June 2021. The study consisted of 120 pregnant females. Informed consent was taken for demographical details of enrolled cases. Patients had history of disease like bleeding, genital tract trauma, perineal trauma, ruptured uterus were excluded from this study.

Patients were aged between 20-45 years. Patients were randomly divided into 2-groups I and II. Group I had 60 patients and received B Lynch compression Suture while in group II 60 patients received Intrauterine Balloon Tamponade. B Lynch compression suture was applied via laprotomy through Pfannenstiell incision in group I. To begin, bimanual compression was used while assistance swabbed the vagina to ensure optimal bleeding control, then Blynch compression suture was applied, the aim was to compress the uterus and decrease surface area of the uterus , The suture was approximately 4 cm from the cornua and was almost vertical. Individuals in group II were

treated by inserting No. 24 Foleys catheters into the uterine cavity via the cervix, each with an average balloon capacity of 80–100 ml. Warm saline was injected into the balloons, resulting in a total fluid volume of 320–400 ml.

The surgery was considered effective if the bleeding stopped within 15 minutes after the end of the procedure. When the bleeding continued after 15 minutes of the procedure, the hysterectomy was performed, and the procedure was deemed unsuccessful. Mean deviation was used. Frequencies and percentages were used for categorical variables. SPSS 24.0 version was used to analyze the complete data.

RESULTS

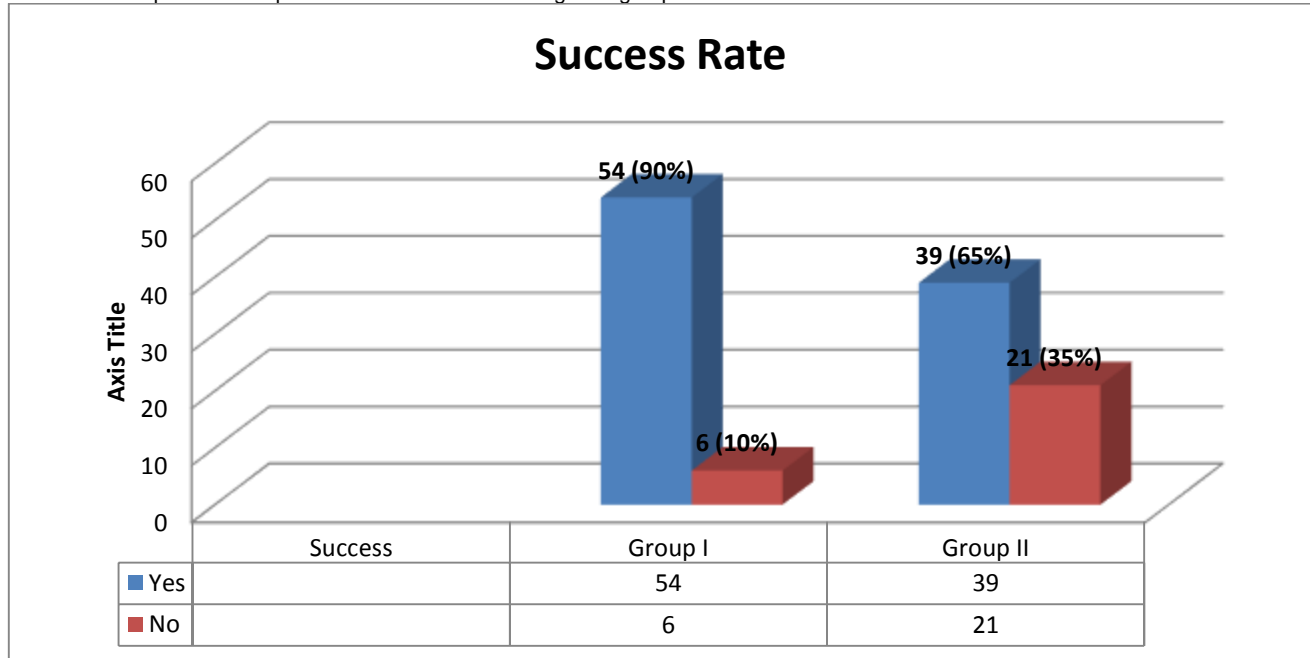
In group I mean age was 29.09±2.53 years with mean BMI 25.11±7.64 kg/m² while in group II mean age was 29.02±3.62 years with mean BMI 24.87±6.32 kg/m². Mean gestational age in group I was 37.87±3.29 weeks and in group II mean gestational age was 38.19±6.41 weeks. Mean parity in group I was 4.03±1.19 and in group II it was 4.01±0.87. (Table 1).

Table 1: Demographically baseline details of enrolled women

Variables	Group I	Group II
Mean age (years)	29.09±2.53	29.02±3.62
Mean BMI (kg/m ²)	25.11±7.64	24.87±6.32
Mean gestational age (weeks)	37.87±3.29	38.19±6.41
Mean parity	4.03±1.19	4.01±0.87.

Frequency of success rate in group I was significantly higher among 54 (90%) cases as compared to group II 39 (65%) with p value < 0.05.(Figure 1)

Table 2: Post-operative comparison of success rate among both groups



P-value 0.0026

We found that patients of group I was significantly satisfied than that of patients who received intrauterine balloon tamponade.(table 3)

Table 3: Comparison of patients' satisfaction among both groups

Variables	Group I (n=60)	Group II (n=60)
Satisfaction		
Yes	49 (81.7%)	36 (60%)
No	11 (18.3%)	24 (40%)

DISCUSSION

The majority of PPH-related morbidity and mortality can be avoided during pregnancy by seeking competent help. However, delays in diagnosing haemorrhage, transportation to a suitable care facility, and obtaining the recommended medication all correlate with higher maternal death and PPH morbidity rates. Early detection and therapy are crucial in the management of PPH. Massive postpartum haemorrhage is both a life-threatening emergency and an obstetrician's worst fear. [11]

In this randomized control was conducted at 120 pregnant women with ages 20-45 years. Patients were equally categorized into two groups. In group I mean age was 29.09±2.53 years with mean BMI 25.11±7.64 kg/m² while in group II mean age was 29.02±3.62 years with mean BMI 24.87±6.32 kg/m². Mean gestational age in group I was 37.87±3.29 weeks and in group II mean gestational age was 38.19±6.41 weeks. These findings were similar to those of Yaqub U et al [12], who found that the average age of patients was 27 years old, with the majority of patients being between the ages of 26 and 30. Despite the fact that Kanwal M et al found that the average age of women was 30.94±4.057 and the average gestational age was 37.63±1.088 weeks, [13] This reveals that individuals with a longer gestational age have a higher risk of postpartum haemorrhage. Mean parity in group I was 4.03±1.19 and in group II it was 4.01±0.87.

In our study frequency of success rate in group I was significantly higher among 54 (90%) cases as compared to group II 39 (65%) with p value < 0.05. Our results was comparable to the previous study.[14] Shazia et al discovered a comparable success rate of 83 percent using B Lynch suture in postpartum haemorrhage. [15] Kanwal Met al [13] consistently reported a 93.7 percent success rate using B Lynch sutures in PPH. The success rate of B lynch sutures was reported to be 100% in a recent study by Yousaf T et al [16]. When comparing the B-Lynch suture and bilateral uterine artery ligation in the management of PPH, Mohamed EH et al.[17] reported that there was no significant difference in the success rate. We found that patients of group I was significantly satisfied than that of patients who received intrauterine balloon tamponade.

Patients with PPH have undergone a variety of fertility-preserving procedures, including pelvic devascularization and radiographic arterial embolization, in addition to compression suture and balloon tamponade treatments. Pelvic devascularization includes closure of the uterine and internal iliac arteries, although such procedures require surgical competence and can take time. These approaches have been linked to complications such as broad-ligament haematoma, peripheral nerve ischaemia, and unintentional ligation of the lower limb arteries.[18,19] The success rate of B-Lynch suture was determined to be 94 percent in prior research by Palacios-Jaraquemada et al [20]. The success rate of B Lynch suture in postpartum

haemorrhage was determined to be 83 percent by Neelam et al [21]. The success rate of the B Lynch suture in managing PPH was reported to be exceptionally high, at 97.78 percent, in a case series conducted in Pakistan. [22]

In these patients, we propose using the B Lynch suture technique as the primary procedure to decrease maternal morbidity and mortality from severe postpartum haemorrhage. Furthermore, in these women, hysterectomy could be avoided, and this procedure could be utilized consistently in our general practice for the treatment of severe postpartum haemorrhage using a fertility-preserving method.

CONCLUSION

In this research we concluded that lynch suture for the management of severe postpartum hemorrhage among females had higher effectiveness in terms of bleeding control within 15 minutes and with higher satisfaction among patients as compared to those females who received intrauterine balloon tamponade.

REFERENCE

- 1 Sam O, Florence M, Julius W, Oona MRC. Incidence and risk factors for postpartum hemorrhage in Uganda. *Reprod Health* 2016; 13: 38.
- 2 Scott AH, Eunjung L, Krupa RG, Jill M, Kazuma N. Racial-ethnic Disparities in Postpartum Hemorrhage in Native Hawaiians, Pacific Islanders, and Asians. *Hawaii J Med Public Health* 2017; 76(5): 128–32.
- 3 Kerr R, Eckert LO, Winikoff B, Durocher J, Mehe Sr, Fawcus C et al. Postpartum haemorrhage: Case definition and guidelines for data collection, analysis, and presentation of immunization safety data. *Vaccine* 2016; 34(49): 6102–09.
- 4 Raghavan S, Geller S, Miller S, Goudar SS, Anger H, Yadavannavar MC, et al. Misoprostol for primary versus secondary prevention of postpartum haemorrhage: a cluster-randomised non inferiority community trial. *BJOG* 2016; 123(1): 120–27.
- 5 Briley A, Seed PT, Tydeman G, Ballard H, Waterstone M, Sandall J, et al. Reporting errors, incidence and risk factors for postpartum haemorrhage and progression to severe PPH: a prospective observational study. *BJOG* 2014; 121(7): 876–88.
- 6 Nizam K, Haider G. Role of uterovaginal packing in postpartum hemorrhage. *J Liaquat Uni Med Health Sci* 2010; 9(1): 27–9.
- 7 Natarajan A, Pendleton AA, Nelson BD, Oguttu RAM, Dulo L. Provider experiences with improvised uterine balloon tamponade for the management of uncontrolled postpartum hemorrhage in Kenya. *Int J Gynaecol Obstet* 2016; 135(2): 210–13.
- 8 Desai S, Campbell OMR, Sinha T, Mahal A, Cousens S. Incidence and determinants of hysterectomy in a low-income setting in Gujarat, India. *Health Policy Plan* 2017; 32(1): 68–78.
- 9 Diemert A, Ortmeyer G, Hollwitz B, Lotz M, Somville T, Glosemeyer P, et al. The combination of intrauterine balloon tamponade and the B-Lynch procedure for the treatment of severe postpartum hemorrhage. *Am J Obstet Gynecol* 2012; 206: 65.e1–4
- 10 Antony KM, Racusin DA, Belfort MA, Dildy GA. Under pressure: intraluminal filling pressures of postpartum hemorrhage tamponade balloons. *AJP Rep* 2017; 7(2): e86–e92

- 11 Bonner J. Massive obstetric haemorrhage. *Baillieres best pract res clinical obstet and gynecol*2000;14:1-18
- 12 Yaqub U, Hanif A. Balloon tamponade with Foleys catheter: an effective method of controlling postpartumhaemorrhage (PPH). *Annals of King Edward Medical University*. 2010;16(4):295
- 13 Kanwal M, Iftikhar PM, Khalil S. Role of B lynch sutures for control of postpartum hemorrhage. *Rawal Medical Journal*. 2014;39(2):190-2
- 14 Fatima T, Monis B, Qasim R, NadeemM. Comparison of Intrauterine Balloon Tamponade and B Lynch Suture in the Management of Severe Postpartum Haemorrhage. *J Soc Obstet GynaecolPak*. 2021; 11(1):1-4
- 15 Shazia, Shabnam Naz, Afsheen, Rehana Parveen, Nargis Soomro. B-Lynch suture in the management of massive postpartumhemorrhage. *RMJ*. 2013; 38(4): 404-408
- 16 Yousaf T, Khalid T. Effectiveness of uterine compression suture as a conservative measure to control post-partum haemorrhage: At a secondary care hospital. *ISRA Med J*. 2019;11(3):133-6
- 17 Mohamed EH, Ahmed T, Ibraheim AE, Zakaria AE, Mohamed AA, Taha W. A Prospective Comparative Study between the Efficacy of Uterine Compression Sutures (B-Lynch) and Bilateral Uterine Artery Ligation for the Prevention of Atonic Postpartum Haemorrhage duringCaesarean Section in High Risk Women. *The Medical Journal of Cairo University*. 2018;86:3349-58.
- 18 Savcı G, Ozdemir AZ, Karlı P, Kocak İ, Katırcı Y, Önal M. A Different Method in the Treatment of Placenta Previa: A Comparison of Lower Uterine Segment Transverse Suture Technique and Bakri Balloon Application. *Open Journal of Obstetrics and Gynecology*. 2019;9(03):334.
- 19 Chai VY, To WW. Uterine compression sutures for management of severe postpartum haemorrhage: five-year audit. *Hong Kong Med J*. 2014;20(2):113-20.
- 20 Palacios-Jaraquemada JM. Efficacy of surgical techniques to control obstetric haemorrhage: Analysis of 539 cases. *ActaObstetGynecologyScand* 2011;90:1036-42.
- 21 Neelam N, Kumar SJ. B-Lynch suture -an Experience. *J ObstetGynecol India* 2010;60(2):128-34
- 22 Faruqi NJ, Javed L, Yousaf F, Salik A, Alam AN, Nausheen S. B-Lynch suture for the management ofpostpartum hemorrhage –a local experience. *Ann King Edward Med Coll* 2004;10:370-78.