

# SUCCESS RATE OF B-LYNCH SUTURE IN THE TREATMENT OF POST PARTUM HEMORRHAGE

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## ABSTRACT

**Background:** Postpartum hemorrhage remains among the leading causes of maternal mortality in Pakistan. Uterine atony is the commonest cause for it. Failing mechanical and medical methods, application of B-Lynch suture to prevent atony has been shown to be successful in controlling PPH.

**Objective:** To determine the frequency of successful control of postpartum hemorrhage with B-Lynch sutures in women having postpartum hemorrhage.

**Methodology:** It was cross-sectional study, conducted at Gynecology Unit 4, Sir Ganga Ram Hospital, Lahore over a period of six months from June 2018 to December 2018. A total of 314 patients fulfilling the criteria underwent emergency caesarean section and if developed PPH it was managed by B-Lynch suture, and its success was noted. Data was recorded on a specially designed performa and data was analysed using SPSS version 16.

**Results:** The mean age of the patients was 27.46±5.61 years. Most of the patients 125, (39.8%) were para 2, followed by para 3 (30.9%). Following application of B-Lynch suture, PPH was successfully controlled in 301 (95.9%) patients while 13 (4.1%) patients didn't respond well and were managed by hysterectomy. When stratified the data for age groups, the frequency of successful control of PPH was 96.9% among 20-25 years, 96% between 26-30 years, 95.9% between 31-35 years and 91.9% between 36-40 years of patients age.

**Conclusion:** B-Lynch suture was found to successfully control postpartum hemorrhage in majority of patients undergoing emergency caesarean section.

**Key Words:** Postpartum Hemorrhage, B-Lynch Suture, Emergency Caesarean Section.

## INTRODUCTION

Postpartum haemorrhage is among the five leading causes of maternal deaths around the globe. Over 125,000 women die of PPH around the globe.<sup>1</sup> PPH in Pakistan is seen in about one third of deliveries. Uterine atony is the commonest cause of PPH, in majority of cases. Other causes include morbidly adherent placenta, genital tract injuries, coagulation disorders, uterine inversion and uterine ruptures.<sup>2,3</sup>

Loss of 500 ml. of blood in the first 24 hours, following delivery is generally considered normal, and blood loss more than that is post partum haemorrhage. Much deterioration in patient is not seen unless there is a haemorrhage of one litre to 1500 ml. Massive primary PPH occurs when blood loss exceeds > 1500 ml, decrease in haemoglobin is > 4 g/dl or need for transfusing of 4 units of blood exists. In a tertiary care, hospital in Pakistan, massive PPH was reported in 0.5% cases.<sup>4</sup> The first line action for uterine atony is bimanual uterine massage, emptying of bladder and

use of drugs that include oxytocin infusion, ergometrine Injection and various forms of prostaglandins. The mechanical methods to control excessive bleeding include tamponade and uterine packing in low resource settings. The refractory cases are dealt by B-lynch brace suture, Uterine Artery Embolization, pelvic devascularisation and the ultimate being obstetrical hysterectomy. The decision is dictated by individual circumstances.<sup>5</sup>

B-lynch suture, is applied during caesarean section to prevent atony of the uterus. It is an effective and efficacious method for the treatment of primary postpartum haemorrhage. This technique may be very useful because of its potential for preserving fertility. So it should be the first line treatment, before opting for hysterectomy.<sup>6</sup>

Uterine Compression Suturing is done when Bimanual compression can control bleeding to some extent during laparotomy and drugs prove to be ineffective. B-Lynch made use of Catgut but nowadays Vicryl Rapide is used.<sup>7,8</sup> B Lynch uterine suture, a technique used for the control of PPH has

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been subjected to relatively few trials. Complications like Ashermann's Syndrome, haematometra, pyometra, localized uterine necrosis and erosion through uterine wall have been reported occasionally.<sup>9,10</sup>

B-Lynch brace has been used in our country in many cases of uterine atony with post partum haemorrhage where the sample size was small and results were conflicting. So the rationale of the current study was to repeat this trial over larger sample size to confirm the control of PPH with B-Lynch suture in women having postpartum haemorrhage undergoing emergency cesarean section and to observe its safety and efficacy at the same time.

## METHODOLOGY

It was a cross sectional study, conducted at Department of Obstetrics and Gynecology, Sir Ganga Ram Hospital, Lahore from June 2018 to December 2018. Sample size of 314 cases was calculated with 5% margin of error, 95% confidence level and taking expected percentage of successful control of PPH to be 71.4%,<sup>6</sup> in patients managed with B-Lynch suture in emergency caesarean section. Patients were selected by Non-probability, consecutive sampling. The patients aged between 20-45 years of any parity with single fetus and having PPH as per operational definition. Those with spontaneous vaginal delivery and developing PPH due to coagulation disorders i.e prolonged PT >13sec and APTT >34sec and platelet count less than normal, were excluded from the study.

A total of 314 patients fulfilling the inclusion/exclusion criteria admitted from Labour Room of Sir Ganga Ram Hospital, Lahore were included in the study. Informed consent was taken to include their data in the study. In patients having findings of postpartum haemorrhage, B-Lynch suture was applied under general anaesthesia, following departmental protocols. Successful control of PPH was observed as per operational definition. In case of failure, the case was managed according to the standard protocol for hysterectomy. All this information was collected through specially designed proforma.

All the collected data was entered into SPSS version 16. Numerical variables; were presented by mean  $\pm$ SD. Categorical variable i-e successful control of PPH was presented as frequency and percentage. Frequency was calculated for parity.

Data was stratified for age and parity to control the effect modifiers. Post stratification chi-square test was applied taking  $p \leq 0.05$  as significant.

Operational definitions:

Postpartum Haemorrhage:

Blood loss of greater than 1000ml after delivery of the baby during emergency caesarean section. Blood loss was measured as

Observational method:

- Capacity of one kidney tray equals 500ml or more.
- Single sponge soaked with blood equals 150 ml of blood or more.
- Measured in suction jar

Successful Control of PPH:

It was established by blood loss decreased to <1000ml and contracted uterus within 15 minutes of application of B-Lynch Suture.

## RESULTS

This study involved 314 patients who underwent emergency caesarean section and developed PPH, which was managed by B-Lynch suture. The age of the patients ranged from 20 years to 38 years and mean age of  $27 \pm 5$  years. Most of the patients 125,(39.8%) were para 2.

**Table I: Distribution of parity and successful control of PPH**

Parity	Frequency	Percent
1	76	24.2
2	125	39.8
3	97	30.9
4	16	5.1
<b>Total</b>	<b>314</b>	<b>100.0</b>
PPH Controlled	Frequency	Percent
Yes	301	95.9
No	13	4.1
<b>Total</b>	<b>314</b>	<b>100.0</b>

Following application of B-Lynch suture, PPH was successfully controlled (as per operational definition) in 301 (95.9%) patients while 13 (4.1%) patients didn't respond well and were managed by hysterectomy as shown in Table I. When stratified the data for age groups, the frequency of successful control of PPH is as shown in Table III.

**Table II: Age Groups and Successful Control of PPH**

Age Groups	Successful Control of PPH		Total	P value
	Yes	No		
20-25 Years	123 (96.9%)	4 (3.1%)	127 (100%)	0.617
26-30 Years	97 (96%)	4 (4 %)	101 (100%)	
31-35 Years	47 (95.9%)	2 (4.1%)	49 (100%)	
36-40 Years	34 (91.9%)	3(8.1%)	37(100%)	
<b>Total</b>	301 (95.9%)	13 (4.1%)	314 (100%)	

When stratified the data for parity, the frequency of successful control of PPH was 94.7% among para 1, 96.0% among para 2, 96.9% among para 3 and 93.8% among para 4, however again the observed difference was statistically insignificant ( $p=0.874$ ).

## DISCUSSION

In spite of marked progress in management, postpartum hemorrhage remains a major cause of maternal morbidity both in developing nations and in hospitals equipped with all facilities that modern era has to offer.<sup>11-14</sup> Postpartum hemorrhage is the third major cause of maternal mortality. While going through the literature it has been seen that there are very few randomized controlled trial judging efficacy of B-lynch in cases complicated by uterine atony. One of the reasons could be the life-threatening nature of the problem.<sup>15,16</sup>

In our study, the mean age of the patients was  $27.46 \pm 5.61$  years. Most of the patients were Para 2. Following application of B-Lynch suture, PPH was successfully controlled in 301 (95.9%) patients while 13 (4.1%) patients didn't respond well and were managed by hysterectomy.

Smith JR and colleagues recorded successful control of PPH in 71.4% of the cases with B-Lynch suture for the treatment of primary postpartum haemorrhage.<sup>12</sup> In the study done by Nasreen et al,<sup>6</sup> only 12 patients were applied B-Lynch suture. Ten patients responded satisfactorily. The majority were grand multipara. In both these studies the success rate for B-lynch suture was relatively low. This difference could be due to clinically different set of patients i.e morbidly adherent placenta.<sup>6,12</sup>

Another recent trial showed it to be successful in

97.33% cases, while in another study Ayesha Khatoon and colleagues<sup>13</sup> in Pakistan applied B-Lynch sutures to 15 patients, 14 (93.3%) had effective control of bleeding. One patient (6.6%) failed to respond suture application.

A study came up with hundred percent success rate. The suture was applied in 50 patients. Our results also match with a study having high success rate (97.33%) and and yet another study, (93.3%) who also observed a similar success rate of B-Lynch Suture.<sup>4,7,10</sup>

In another local study the success rate of the B – Lynch suture was found to be between 80-95%. A study done by Kalkal and colleagues indicated that the success rate of the brace was almost 100% in their study. Their sample size was very small as compared to ours. Most of the patients belonged to the same age group as ours. The majority patients were primigravida.<sup>17</sup>

A study conducted in Thailand also proved that use of B-Lynch brace was highly efficacious. The majority patients were primipara and mean age of the patients was 27 years.<sup>18</sup> In another study, the use of modified and classic sutures was found to be 80-95% effective. A total of 160 patients was included. The mean age of the patients was 30 years and the mean parity was 1.6.<sup>19</sup> In a study, done by Shaista and Colleagues and colleagues use of B -lynch Brace was able to prevent all cases of obstetrical hysterectomy. The majority patients were between 20 to 35 years of age. The parity was between 2 and 4.<sup>20</sup>

Thus all aforementioned studies indicate that B-lynch suture is an effective treatment in the control of PPH in patients undergoing emergency cesarean section with a very high success rate. This efficacy of B-Lynch suture is not affected by age and parity of the patient, making it an ideal choice for the control of PPH in any age group and parity. It is a study performed on a large sample size of 314 patients which has never been done before. It was not a randomized controlled trial, which could yield much better results.

## CONCLUSION

B-Lynch suture was found to successfully control postpartum hemorrhage in a large number of patients undergoing emergency cesarean section. By carefully excluding the confounders and stratifying the results for age and parity, the element of bias was reduced. The results of this study are therefore reliable and advocate routine use of B-Lynch suture

in the management of PPH. The junior doctors can be trained for this procedure and benefits achieved can be multiplied.

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