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INTRODUCTION

Postpartum haemorrhage (PPH) is an incident in pregnant women and due to this reason women are delivered by vaginally or cesarean section.¹ After every four minutes, approximately 140,000 mothers die due to PPH in the world.² WHO found that women get death due to PPH in three portions of the world.^{1,3} Postpartum haemorrhage (PPH) is classified in two main types.¹ Ninety percent women get atonic because of uterine failure to contract.² Ten percent of women get traumatic disorder because of genital tract damage. In developing countries, there are five types of women death due to "postpartum haemorrhage" and 75 to 90% uterine atony occurs with primary PPH.^{4,5}

EFFECTIVENESS OF B-LYNCH SUTURE TECHNIQUE FOR TREATMENT OF HIGH RISK WOMEN FOR POSTPARTUM HAEMORRHAGE AT LIAQUAT MEDICAL UNIVERSITY HOSPITAL HYDERABAD.

Zakia Zaheen¹, Reema Akhter², Misha Khalid³, Rozina Mujeeb Sahito⁴, Rekha⁵, Yasmeen Joyo⁶

ABSTRACT: Postpartum haemorrhage (PPH) is an incident in pregnant women and due to this reason women are delivered by vaginally or cesarean section. Globally most of the women die due to this significant reason. Several methods are being used to prevent hysterectomy when "uterotonic" drugs are fail in the management of postpartum haemorrhage. **Objectives:** To determine the effectiveness of B-lynch suture technique for treatment of high risk women with postpartum haemorrhage at Liaquat medical University Hospital Hyderabad. **Study Design:** Descriptive cases series. **Setting:** Department of the obstetric/Gynaecology at Liaquat University hospital Hyderabad. **Period:** 6 months from 1st January to 30th June 2018. **Material & Methods:** There were fifty patients who were found high risk for PPH on history and clinical examination was included in this study. A detailed medical history and base line equitable investigation was done. They were operated irrespective of the surgical procedure by which B-Lynch suture technique was applied. Effectiveness was noted and all other data was entered on predesigned proforma attached with. **Results:** The average age of the patients was 31.54±6.54 years and Average blood loss the PPH patients were 931.38±32.994 ml. Effectiveness of B-lynch suture technique for treatment of high risk women with postpartum haemorrhage was 88% as presented. **Conclusion:** In this study we found that "B-Lynch suture" technique is safe and effective for the management of postpartum hemorrhage.

Key words: B-lynch Suture, Caesarean Delivery, Postpartum Haemorrhage.

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Depending on the criteria used to define the disease, the prevalence of postpartum hemorrhage varies significantly.⁶ From 2004 to 2006, in a population based study conducted by "United States National Inpatient Sample" found 26% increased diagnosis of PPH.⁷ The quantity of women with "uterine atony" is increased from 1.6 to 2.4% within 12 years. Hysterectomy is avoided by new many methods when "uterotonic drug" get failure for the management of postpartum haemorrhage.

These include surgical compression sutures like B-lynch brace sutures, Hayman suture and balloon tamponade with an intrauterine catheter with good results.^{8,9} Satisfactory haemostasis

can be assessed immediately after application. In the cesarean section of delivery, there is no any benefit of “B-Lynch Brace Suturing” technique for the management of “atonic primary postpartum haemorrhage”.^{10,11} Compression suture placed into the post partum uterus may provide a simple first surgical step to control bleeding when routine oxytocin measures have failed.¹² B-lynch brace suture technique is highly successful in 83% of cases while failure rate is only 17%.¹³ In a study Wohlmut reported 85% success rate of B-Lynch suture method in cases postpartum haemorrhage. In the study of Faruqi et al., postpartum haemorrhage of 45 cases was also controlled by “B-Lynch suture” technique. By this technique, 44 (97.78%) cases were successful and failure rate 2.22% was seen in only one patient.¹⁴ Purpose of this study is to evaluate the efficacy of B-lynch suture for the treatment of massive postpartum haemorrhage in the term of success and failure rate. This study will provide grounds to others for making better strategies for improvement.

MATERIAL AND METHODS

This descriptive case series study was conducted on 50 patients in department of the obstetric/ Gynae at Liaquat University hospital Hyderabad for the period of six months. All admitted women who were high risk for PPH on history and Clinical examination, age between 20-45 years, and gestation age between 36 to 40 weeks were included whereas women with Primigravida women, history of previous LSCS, history of twin pregnancy, Ultrasound scan show RPOCS were exclude. After the permission of ethical committee of hospital. Written informed consent was taken from all the patients. All the patients, who fulfilling the inclusion and exclusion criteria were selected in the study. A detailed medical history and base line equitable investigation was done. The total patient with postpartum hemorrhage (Estimated blood loss more than 500 mL after normal vaginal delivery, or more than 1000 ml a caesarean section) after diagnosis by history and clinical examination was included in this study, they was operated by senior consultant having 5 years or more experience in particular specialty, irrespective of the surgical procedure

by which B-Lynch suture technique was applied. Effectiveness was noted in the term of successful (covered PPH) and failure (non-covered PPH) rate. All the data was entered on predesigned proforma attached with.

Data Analysis Procedure

Data was analyzed on SPSS program version 16.0. Mean and standard deviation was calculated for patient age in years, gestational age in weeks and blood loss. Simple frequency and percentage was computed for parity, booking status and residential status and effectiveness. Stratification with respect to age, gestational age, parity, booking status, residential statue and mode of delivery was done. Chi square test was applied and a-p value ≤ 0.05 was considered significant.

RESULTS

There were fifty patients who were found high risk for PPH on history and clinical examination was included in this study. Age distribution of the patients is presented in bar graph as shown in Table-I. The average age and gestational age of the patients was 31.54 ± 6.54 years and 37.2 ± 1.27 weeks similarly Average blood loss the PPH patients was 931.38 ± 32.994 ml as shown in Table-I. Seventy two 72% of the women were from urban (Table-I). Parity status of the women is also shown in Table-I. There were 68% booked cases and 32% un-booked cases. Regarding mode of delivery, 50% were delivered vaginally, 18% instrumental and 32% were caesarean as presented in Table-I.

Effectiveness of B-lynch suture technique for treatment of high risk women with postpartum haemorrhage was 88% as presented in Table-I. B-lynch suture technique was significantly effective in 21 to 30 years and 31 to 40 years of age women as shown in Table-II. It was also high in gestational age groups, parity and booked and un-booked cases but statistically not significant as shown in Table-III to 5 respectively. Effectiveness of B-lynch suture technique was also significant between rural and urban cases (Table-II) while it was not significant among mode of delivery as shown in Table-II.

Baseline Characteristics	Mean \pm SD	Range
Age (in years)	31.5 \pm 6.54	20 to 45 years
Gestation (in weeks)	37.20 \pm 1.27	36 to 40 weeks
Blood loss	931.38 \pm 32.994	-
	Number	Percentage
Age Groups		
21 to30	27	54%
31to 40	17	34%
>40	6	12%
Residence		
Rural	14	28%
urban	36	72%
Parity		
2-3	32	64%
>3	18	36%
Booking Status		
Un booked	16	32.00%
booked	34	68.00%
Mode of Delivery		
Vaginal	25	50%
Caesarean	16	32%
Instrumental	9	18%
Effectiveness		
Yes	44	88%
No	6	12%

Table-I. Baseline characteristics of the women (n = 50).

	Effectiveness of B-Lynch Suture		Total	P-Value
	Yes (n = 44)	No (n = 6)		
Age Groups (Years)				
21 to 30	25(92.6%)	2(7.4%)	27(54.0%)	0.009*
31 to 40	16(94.1%)	1(5.9%)	17(34.0%)	
>40	3(50%)	3(50%)	6(12.0%)	
Gestational Age (Weeks)				
\leq 37	24(82.8%)	5(17.2%)	29(58.0%)	0.180
>37	20(95.2%)	1(4.8%)	21(42.0%)	
Parity				
2-3	29(90.6%)	3(9.4%)	32(64.0%)	0.446
>3	15(83.3%)	3(16.7%)	18(36.0%)	
Booking Status				
Booked	31(91.2%)	3(8.8%)	34(68.0%)	0.314
Un-booked	13(81.3%)	3(18.8%)	16(32.0%)	
Residence Status				
Rural	10(71.4%)	4(28.6%)	14(28.0%)	0.025*
Urban	34(94.4%)	2(5.6%)	36(72.0%)	
Mode of Delivery				
Vaginal	22(88%)	3(12%)	25(50.0%)	0.383
Instrument	9(100%)	0(0%)	9(18.0%)	
Caesarean	13(81.3%)	3(18.8%)	16(32.0%)	

Table-II. Effectiveness of B-Lynch suture technique for treatment of high risk women with postpartum haemorrhage by age groups, gestational age (weeks), parity and booking status (n=50).

*P value is statistically significant calculated by chi-squarer test

DISCUSSION

Massive postpartum haemorrhage is an important cause of maternal mortality.^{15,16} Postpartum hemorrhage PPH is a common obstetric problem which can lead to emergency hysterectomy in patients with treatment-resistant, life threatening bleeding. It is an acute obstetrical emergency that remains the commonest cause of maternal deaths (25 to 43%) in the under developed countries.^{17,18} A viable technique of controlling postpartum hemorrhage depends on the cause, but generally delaying analysis and treatment can lead to serious conditions. Five percent women who are delivered by vaginal loss their blood > 1 L due to postpartum haemorrhage.¹⁹ It happens commonly due to "uterine atony, lower genital tract lacerations, retained placenta and placental fragments, coagulopathy, uterine inversion and ruptured uterus".²⁰ Because of these reasons women get serious conditions. Atonic uterus is preventable cause of maternal mortality and morbidity constituting 80% of PPH cases. The traditional management has conservative methods like bimanual compression, uterine massage, and when medical treatment such as "uterotonic agents", "uterine tamponade" including "balloons" and occasionally "arterial embolization" are fails then surgical treatment is allowed.

To overcome PPH in 1997 Balogun Lynch Christopher described use of uterine compression stitch to uterine atony in massive obstetrics hemorrhage with objective of compressing the uterus without devascularisation. Since its invention in 1997, the B-Lynch technique has been used successfully in approximately 1,300 cases worldwide.²¹ Richard Hayman and Professor Subratanam Arulkumaran in Derby modified this procedure & made it simple in 2002.²² This study is conducted to determine the effectiveness of b-lynch suture in the treatment of postpartum hemorrhage, there were fifty patients found high risk for PPH on history and clinical examination were included. These women were of ages 20-45 years with an average age of 31.54 ± 6.54 years. In our study there were 54% women were 21 to 30 years of age, 34% were 31-40 years and 12% were of above 40 years of age. Shazia Sheikh et

al in their study reported that out of 35 patients with massive hemorrhage Twenty one (60%) patients were below 31, years of age, 7(20%) were between 31 to 35 years of age and 7(20%) were above 35 years of age.¹³ In Khatoonet al study, 9(60%) women were treated by "B-Lynch stitch" technique who delivery by vaginal whereas 6(40%) women delivery by cesarean section.²³ Vijay Kalyankar in their study applied modified B-Lynch stitch on 7 cases i.e. 14% after vaginal delivery and on 43 cases i.e. 84% during cesarean section. In our study out of 50 cases of deliveries, 50% were delivered vaginally, 18% instrumental and 32% were caesarean.²⁴ Regarding parity status of the women in our study data shows that out of 50 women, 54% were para 2-3 and 36% were more than 3 para.

From northern Nigerian study conducted by Harrison in Zaria who showed multiparous women had twice increased prevalence of PPH.²⁵ This shows the importance of multiparity in Zimbabwe's population-based PPH study, but got attention to previously unknown elements like maternal ages more than 35 years and "occipitoposterior" position.²⁶ He stated that Low parity, advanced maternal age, and antenatal hospitalization were among the strongest risk factors. In addition, there was a poor relationship between high parity and third stage accident found by Lennox.²⁷ While according to "Papua Guinea" and Hall et al.²⁸ in Aberdeen, observed frequency of postpartum haemorrhage in women who had "grand multiparous"

In 1997, B-Lynch showed 90 to 100% success rate of "compression sutures" in his first research article¹⁷ and small samples like 15 to 20 patients are found from these results.^{29,30} From the largest data of India, there was 94% success rate of 45 patients they utilized "Hayman sutures" for postpartum haemorrhage because of "uterine atony".³¹

We found efficacy of "B-lynch suture" technique for management of high risk cases with postpartum haemorrhage was 88%. Holtsema and colleagues recently opined, in a review, that the B-Lynch technique for postpartum hemorrhage should be

an option for every gynecologist.³² In the results of wide data by wohlmuth and his co-workers reported 91% success rate and it was found globally.¹⁴ In the case series study conducted by a single surgeon's included 539 cases of PPH due to different reasons such as "uterine atony", "placenta praevia", cervical scar pregnancies as well as "uterine / vaginal / cervical tears".³³ These cases are mostly treated with many surgical techniques but "B-Lynch suture" had 94% (81/86) success rate. The B-Lynch suture method is found to be very simple in the reatment of primary postpartum haemorrhage as compared ligation of "pelvic" or "internal iliac arteries" also than caesarean hysterectomy.³⁴

CONCLUSION

From this study, we found that postpartum hemorrhage treated with "B-Lynch suture" demonstrates that it is an effective method of controlling postpartum hemorrhage if done as early as possible after conservative measures and medical managements fail. It has proved to be valuable as an alternative to obstetric hysterectomy. It is simple, safe, easily applied, lifesaving procedure and has the capacity for preserving the uterus and hence female fertility All obstetrical staff and trainees should get training about application of a B-Lynch suture. Its capacity to preserve the uterus compels us to attempt it before any radical surgery is considered. Hence it is helpful in reducing both maternal morbidity and mortality. In this comparatively new method, the study has dealt with only 50 cases, so larger studies are required to carry out further conclusion.

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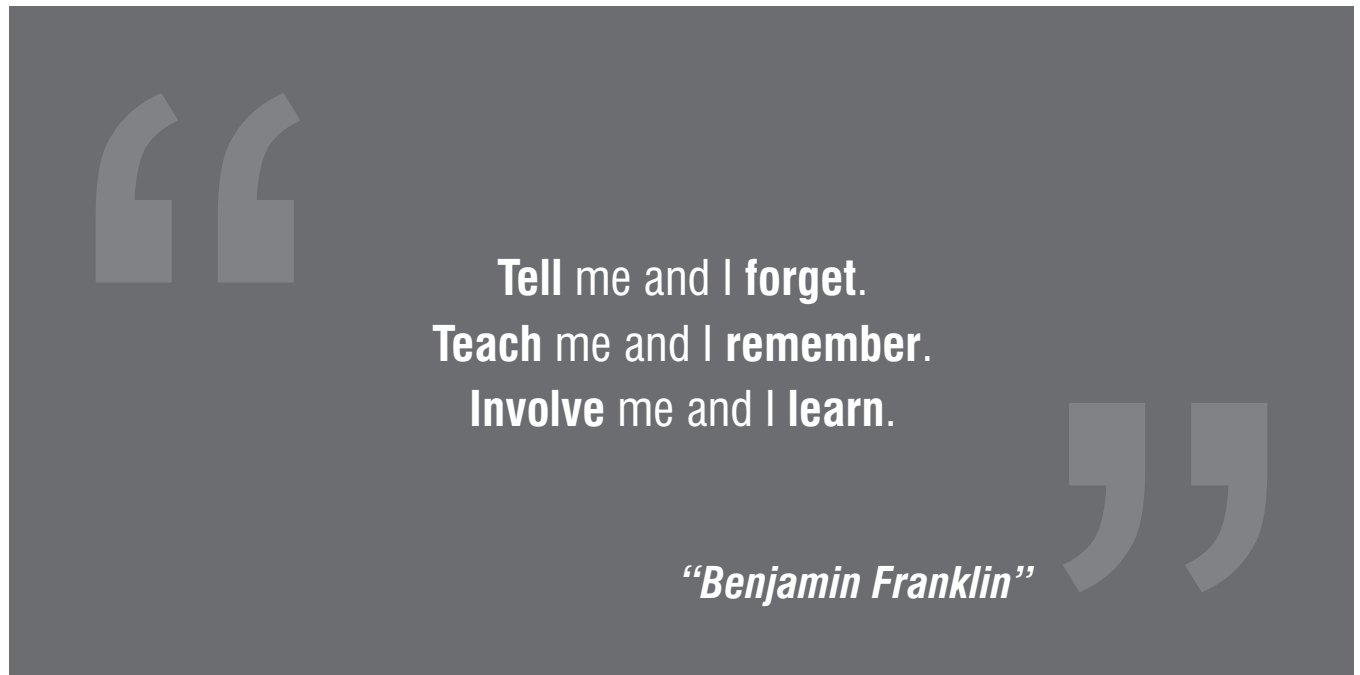
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1	Zakia Zaheen	Designed the research assessed the vases / wrote the paper.	
2	Reema Akhter	Collected the data, did the literature search, drafted the manuscript assisted in writing the paper.	
3	Misha Khalid	Involved in data collection, analyzed the data revised the manuscript.	
4	Rozina Mujeeb Sahito	Involved in data collection, Interpretation of discussion and data entry in SPSS.	
5	Rekha	Revised the original manuscript, reviewed the cases.	
6	Yasmeen Joyo	Revised the original manuscript, reviewed the cases, analyzed the data and assisted in writing the paper.	