

B- Lynch suture as prophylaxis measure or therapeutics measure in management of postpartum haemorrhage

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Abstract-*The main objective of this study is to explain to what extent B-Lynch suture is a therapeutic technique that helps in controlling and maintaining uterine bleeding and thus maintaining fertility. In this paper, I will discuss the effectiveness of B-Lynch suture and its success in controlling the pulse of the pelvis and applying it to several cases without any problems or complications. A study was conducted on observation and monitoring of 20 patients who underwent B-Lynch stitching in the obstetrics section. It was noted to what extent patients needed to transfer blood or hysterectomy due to the loss of a large amount of blood during the birth. Later, patients were followed up to see how far the complications might have been, and whether there were health problems related to the mother's condition or infertility problems. B- Lynch suturing was 100% successful as a preventive measure or therapeutic measure in managing postpartum haemorrhage. No patients were found to need a hysterectomy and all women had a mild puerperium not troubled. There is no evidence of serious complications for patients during the follow-up period. B-Lynch is an important and effective technique that can save the lives of many patients and protect them from large-scale blood loss or hysterectomy. This is an important procedure in surgery science and fertility in women. B-Lynch should be used when medical management fails before seeking hysterectomy.*

Keywords-*B- Lynch, hysterectomy, postpartum haemorrhage.*

I INTRODUCTION

Postpartum haemorrhage is one of the most serious medical procedures for women. One of statistics found that about 13% of women die from postpartum hemorrhage in developed countries. The situation was even worse for developing countries with mortality reaching 34% ¹. It was found that about 125000 women were dying from postpartum hemorrhage around the world each year ³. So many protocols and preventive procedures are put to control postpartum hemorrhage. Among these procedures: oxytocins (Injection of muscle or vein), bi-manual compression and others, but the results were not satisfactory enough as they required high skill is not available in many doctors, especially in emergency deliveries. In addition, surgical treatment with postpartum hemorrhage requires knowledge of the location of the bleeding, the degree of stability of the patient's heart and the general health of the patient ².

The definition of postpartum haemorrhage is determined by the loss of blood. In cesarean delivery, postpartum hemorrhage begins with the loss of more than 1,000 ml, while vaginal delivery begins with the loss

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of more than 500 ml. The indicators indicate that the rate of postpartum hemorrhage is 6.4% in the case of caesarean delivery and 3.9% in the case of vaginal delivery ⁴.

One of the causes of postpartum hemorrhage is due to a failure to contract the uterus muscle and return to its normal shape after birth. Despite the traditional treatment used by doctors to stop bleeding of the uterus, it is possible that the bleeding does not respond and continues and threatens the life of the mother. As a last resort, doctors tend to hysterectomy until the mother's life is preserved. This procedure has a major defect and affects later on the mother, where it is deprived her of fertility, and hysterectomy is a medical procedure is not easy, it requires high medical skill ⁵.

Recently, medical treatment with postpartum hemorrhage has begun to improve, and an attempt is made not to resort to hysterectomy. The interest of doctors and research medical centers in uterine compression sutures has increased as a way to deal with postpartum hemorrhage. The surgical scientific idea in the use of uterine compression sutures is that it makes additional pressure on the wall of the uterus to control the bleeding and prevent it from continuing. These sutures are in full thickness of the uterus (anterior sutures and posterior sutures) ⁶.

These stitches can be inserted as a single or multiple depending on the medical procedure taken. Depending on how the stitches are inserted, they can be called B-Lynch, Cho or Hayman ⁷. The most widely used and proven its effectiveness is B-Lynch suture. The scientific technique on which this suture is based is the mechanical pressure on the vascular sinuses of the uterus, which in turn prevents bleeding and control ⁸. With this literary review I find that B-Lynch suture technique is an effective way to control bleeding and has satisfactory results where, when used it, we avoid hysterectomy and preserve the mother's life ⁹.

II MATERIALS AND METHODS

This study collected a total of 20 cases in the delivery process. The cases were followed to ascertain the stability of their post-operative health status and whether complications were found in the use of B-Lynch suture. The observational study was based on data collection of pregnant women who were stitched to B-Lynch to stop and control postpartum hemorrhage. The data were collected through the clinical documents of the hospital. The study included all cases of childbirth if the mother was detained by the hospital or as an emergency. The cases were randomized between January 2016 and December 2016.

The study was based on recording the age of the patient, the type of birth, whether vaginal or caesarean, gravidity: express the number of times that pregnancy, Parity n gestation (weeks), pregnancy in which B-Lynch was performed and postpartum hemorrhage. The medical record of each case was examined to determine the general health status of the mother.

The B-Lynch procedure was used only in the case of failure to manage the bleeding in the usual way, such as oxytocin, misoprostol and others. Treatment began when the uterus continued flaccid after 5 minutes of delivery began pumping 10 units followed by 20 units of oxytocin with continuous bleeding is used to methylergometrine 0.25 mg (muscle). If the bleeding lasts for 15 minutes, misoprostol is used for 1000 µgm. After 20 minutes if the bleeding continues, use a B-Lynch suture to control the bleeding. During this period, hemoglobin deficiency,

clotting time and bleeding time are calculated (HB%, CT, BT). Transportation was lost based on hemoglobin during surgery.

The cases were followed after the postpartum and registration of complaints that focused on abdominal pain, change in duration of menstrual or the presence of unpleasant odors. With the comprehensive examination of the mother to ensure that there is no harm to health like as pyometra or necrosis of the uterus.

The SPSS program was used in the statistical analysis of the cases collected for the study. Results were presented in numbers and percentages to illustrate more accurately the qualitative data. With mention mean and standard deviation of the quantitative data. The value of $p < 0.05$ was adopted.

III RESULTS

Table 1: Demographic characteristics and clinical profile.

Characteristics	Numbers (n=20)	Percentage (%)
Age (years)		
<=20	3	15%
21:25	4	20%
26:30	11	55%
>30	2	10%
Weight (kg)		
40:50	6	30%
51:60	10	50%
61:70	3	15%
>70	1	5%
Gravidity		
G1	10	50%
G2	7	35%
G3	3	15%
Gestational age (weeks)		
<32	1	5%
32.1:34	3	15%
34.1:37	5	25%
37.1:40	8	40%
40.1:42	3	15%
Birth (baby) weight (kg)		
<2	3	15%
2:3	9	45%
3.1:4	7	35%
>4	1	5%

A total of 20 random samples were studied which they underwent to B-lynch suture. Table 1 shows the demographic characteristics of patients and the clinical data collected from their clinical files. In those selected cases, the average age of 26 to 30 years was 55%, and the average weight was 51 to 60 kg by 50% .

For the gravidity:" express the number of times that pregnancy" the first pregnancy was 50% followed by 35% for the second pregnancy and 15% for the third pregnancy with a gestational age of 37.6 weeks. 45% of the babies were between 2 and 3 kilograms, and babies weighing more than 3 kg were 35% of these cases. In these cases, the overall mean for baby weight at birth was 2.75 kg.

Table 2: Factors causing postpartum hemorrhage.

Factors	Numbers (n=20)	Percentage (%)
Prolonged labour	7	35%
Abruption Placenta/Placenta Previa	6	30%
Prolonged PROM	4	20%
Big baby	1	5%
Multiple pregnancy	1	5%
Chorioamnionitis	1	5%

The most factor causing postpartum hemorrhage is prolonged labour with 35%, followed by abruption placenta/placenta previa with 30% then Prolonged PROM with 20%.

Table 3: Distribution according to type of delivery (caesarean delivery, vaginal delivery).

Type of delivery	Blood loss (in ml)	Numbers (n=30)	Percentage (%)
vaginal delivery	500:800	0	0%
	1000:1500	15	75%
	1501:2000	3	15%
Caesarean delivery	2001:2500	1	5%
	>2500	1	5%

We also mentioned that in the case of vaginal delivery, postpartum hemorrhage begins when loss about 500 ml of blood and caesarean delivery are lost at 1000 ml. The average blood was lost 1290.95 ml; the majority 75% was lost in the range (1000 to 1500) while the proportion of women who lost blood above 2000 ml was 5% .

Table 4: Blood loss rate according to gravidity.

Gravidity	No.	Mean	SD	Min.	Max.	P-value
Primi (G1)	10	1110	168.39	1000	1600	

Multi (G2 & G3)	10	1490	530.1	1100	2800	0.00015
Total	20	1290.95	416.53	1000	2800	

Mean blood loss in primi was 1110 ml (range between 1000 ml and 1600 ml) and in 1490 ml, and there was great difference ($p < 0.05$) in mean blood loss.

Table 5: Mean hemoglobin before and after operation

	No.	Mean (gm%)	SD	Mean dif.	P-value
Before op.	20	10.2	1.8	2	0
After op.	20	8.2	1		

The average blood loss before the operation was 10.2 gm% and after the operation was 8.2 gm%. P-value < 0.01, it was significant.

Table 6: Distribution of units of blood transfusion.

No. of units	Number (N=20)	Percentage (%)
No units	3	15%
1 unit	8	40%
2 units	4	20%
>= 3 units	5	25%

The need for blood transfusion in the delivery process depends on the proportion of hemoglobin before the operation and the amount of blood loss during the operation. 15% of women do not require blood transfusion units, which confirms the actual technique used to control bleeding, B-Lynch suture.

Table 7: Measure the success of controlling postpartum hemorrhage.

Result	Number (N=20)	Percentage (%)
Successful	20	100%
Failure	0	0%

The procedure for saving the mother's life and maintaining the uterus with control of bleeding was 100% successful in the study samples. This shows how effective B-Lynch suture is in controlling postpartum hemorrhage.

During the follow-up period for selected patients, no complications were reported. This shows the efficiency of B-Lynch stitching in maintaining the uterus and preventing the occurrence of uterine necrosis.

IV DISCUSSION

Postpartum hemorrhage was more common in emergencies. In many cases, hysterectomy was used as a solution to stop the bleeding until the patients' lives were maintained. Therefore, new methods were found to stop postpartum hemorrhage, maintain the uterus and maintain fertility for patients by introducing compression sutures in the surgical suturing process. In this paper, B-Lynch technique was used to achieve uterine compression and uterine retention.

What distinguishes B-Lynch suture technology?

Through this study we have continued to the most important features that characterize the use of B-Lynch suture technology, they include:

- Preserving the uterus and thus continuing fertility for patients in the future.
- Achieve safety and maintain the lives of patients.
- This technique reduces the need for blood transfusions to patients.
- Ease of application does not require high medical skill.

The mean age of women who underwent B-lynch stitching was 26.5 years, which was close to the results of the Neelam et al study's¹⁰ where the mean age was 28 years and the success rate was 97.3%. Conversely, in the study of Koh et al¹¹, the mean age was 35 years and the success rate was 86%. From this we conclude that the higher the rate of life in women in childbearing, the greater the postpartum hemorrhage and its consequences.

The mean age of pregnancy was not much different from many other studies. In this study, the mean was 37.6 weeks. In the Allahdin et al study's¹², the average gestational age was 38 weeks. In Koh et al study's¹¹, the average gestational age was 36.8 weeks.

As for the rate of blood loss in the study of Allahdin et al¹², the mean blood loss was 3500 ml and the success rate was 72%. In our study, the mean blood loss was 1290.95 ml with a success rate of 100%. From here we conclude that the use of B-Lynch stitching in a timely manner reduces the rate of blood loss and controls the bleeding, which helps to achieve the safety of the patient.

As for the weight of the baby, the mean weight of the baby in our study was 2.75 kg with a success rate of 100%. Conversely, in the Allahdin et al study's¹², the average weight of the baby was 3.5 kg with a success rate of 72%. This confirms that the higher the weight of the baby, the more the mother will be exposed to postpartum hemorrhage. Therefore, a good examination of the mother should be performed during the last weeks of pregnancy to ascertain the weight of the baby and to know whether or not bleeding is possible during birth. It is worth mentioning in this section that in our study there was a case of postpartum hemorrhage due to the large size of the baby.

The success rate of using B-Lynch stitching technique to control postpartum hemorrhage and avoid hysterectomy while maintaining the safety of a patient was very satisfactory. The success rate in our study was 100%, the same in both of Pal et al¹³, Vachani et al¹⁴ and Nidhi et al¹⁵. The success rate ranged from 97.3% to 93.56% in Nalini et al¹⁰ (97.3%), Tariq et al¹⁶ (95%) and Ghodake et al¹⁷ (93.56%). The lowest success rate was

in the study of Allahdin et al¹² with 72%. This emphasizes the effectiveness of B-Lynch suture in stopping bleeding and maintaining the mother's life.

V CONFLICT OF INTEREST

There are no common interests between any of the bodies or organizations related to the research topic. There is no financial or non-financial interest that led the research to the conclusions drawn. This study is based on observation and random samples.

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