

COMPARATIVE STUDY OF INTRAUTERINE PACKING AND B-LYNCH PROCEDURE FOR CONTROLLING POST PARTUM HAEMORRHAGE IN OBSTETRICS

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Article Details

ABSTRACT

Keywords

intrauterine packing, B-lynch, pph, and maternal outcome.

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Objective: To compare the success rate of intrauterine packing and B Lynch suture for the management of postpartum hemorrhage in an emergency.

Methodology: In total, 130 people between the ages of 14 and 49 who were experiencing postpartum hemorrhage in an emergency and who were between 28- and 42-weeks gestation were included in the study. Individuals with bleeding diseases, genital lacerations, conception retirements, and burst uteruses were not accepted. Targeted participants were randomly assigned to Groups 1 and 2 (intrauterine packing with big bandages and B Lynch suture, respectively) using the lottery procedure. Success criteria, such as bleeding control within 15 minutes of the surgery, were noted.

Results: The group-1 ladies had a mean age of 27.69 ± 3.68 years and group 2 showed 27.60 ± 3.65 years of mean age. The mean gestational age in both of the groups (1 and 2) was 39.98 ± 1.57 weeks and 40.04 ± 1.68 weeks respectively. Success rates in both of the groups (intrauterine packing and B Lynch suture) were noted as 78.78% and 89.39% respectively; with a p-value of 0.009. No maternal deaths were recorded.

Conclusion: It was concluded that B-Lynch suture's success rate is high in managing the PPH, and improved maternal outcome.

1. INTRODUCTION

The most prevalent type of significant obstetric bleeding is PPH postpartum hemorrhage. M R is one among the top 27–30 killers of women in labor. In a typical vaginal delivery, 500 ml of blood are lost; in a cesarean section or twin pregnancy, 1000 ml are lost. Postpartum

hemorrhage is defined as any blood loss that causes women to symptomatically decline in hematocrit 10% following birth (1).

Following delivery, the uterus typically contracts (uterine muscles tighten) and expels the placenta. These contractions aid in compressing the blood vessels in the vicinity of the placenta's attachment after delivery. Hemorrhage happens when the uterus contracts insufficiently, a condition known as uterine atony, causing these blood vessels to bleed uncontrollably. The most frequent reason for postpartum bleeding is this. Bleeding is also likely if little placental fragments are still connected (2)

Primly post-partum hemorrhage: It occurs when a baby is born and the vaginal tract loses 500 milliliters or more of blood in a 24-hour period. Major blood loss (> 1000 ml), moderate blood loss (1000-2000 ml), severe blood loss (> 2000 ml), and mild blood loss (500-1000 ml) are the four categories of PPH. A lower degree of vaginal blood loss may be clinically significant and pose a threat to women's lives in those with lower body mass indices (<60 kg) (3).

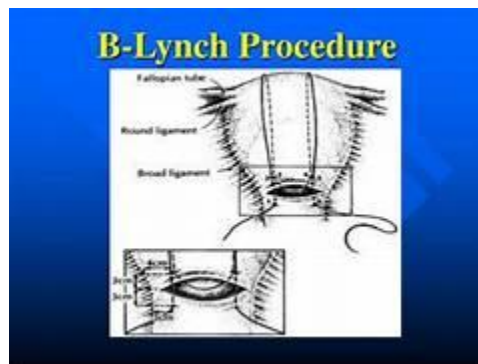
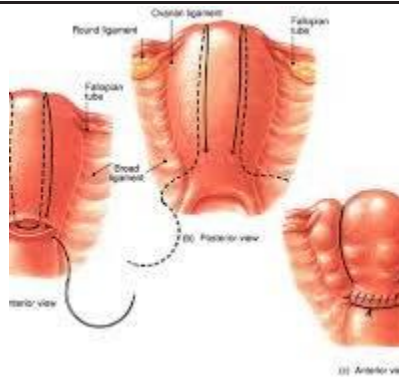
Secondary post-partum hemorrhage: It is the unusual or severe bleeding that occurs in the birth canal or vagina between 24 hours and 12 weeks after delivery. Postpartum hemorrhage is more common in women who take therapeutic anticoagulants or have pre-existing medical conditions (4).

The most common causes of PPH are 4 T means tone of the uterus, trauma, tear, tissue, and thrombosis. Up to 70% of cases are caused by the atonic uterus, making it the most prevalent. Retained RPOCS tissues, uterus inversion, uterine rupture, coagulopathy, and genital tract laceration trauma rank second and third, respectively, among the causes (5). Approximately 25% of all maternal pregnancy-related deaths are caused by PPH, which is a major cause of maternal mortality and morbidity worldwide.

PPH risk factors

Atonement. Because of several pregnancies, a macrocosmic baby, polyhydramnios, induction of labor, and oxytocin augmentation of labor, the uterine muscle has distended excessively. Retained the placenta. Acute bleeding after delivery, improper placentation, and placenta accrete, several cesarean sections, anemia, surgical treatments, and aided vaginal births are among the complications that may arise from childbirth (6).

B-lynch suturing: (brace sutures): The uterus is physically compressed with the B-Lynch suture technique, which is the most often used compression suture method. The uterus loops from the cervix to the fundus. Its ease of use, potential for saving lives, relative safety, and ability to prevent the uterus and hence fertility make it potentially very helpful. Hemostasis can be evaluated right away after application. If everything else fails, the mother's life may be saved from severe PPH bleeding by undergoing an obstetrical hysterectomy. Up to now, there have been no issues or obvious concerns while using this suturing technique (7).



Intrauterine packing: Once more, the intrauterine surgery is a lifesaver for women who develop PPH. In order to ensure that the bleeding from the placental bed was stopped, numerous sterile gauze bandages were tightly applied through the vagina, cervix, and up to the uterus intrauterine cavity and filled cavity. If this method was unsuccessful, a surgical procedure (cesarean hysterectomy) may then be necessary (8).

In both industrialized and developing nations, obstetric hemorrhage continues to be one of the top causes of maternal mortality. The second most common cause of direct maternal death, according to the report, is obstetric hemorrhage (9).

Finding and stopping the bleeding source as soon as possible is the goal of postpartum hemorrhage treatment. Among the possible therapies for postpartum bleeding are:

- Medication (to induce contractions of the uterus)
- Manual uterine massage (to induce contractions)
- Elimination of placental fragments that are still inside the uterus
- uterine and other pelvic tissues are examined
- One possible treatment for intrauterine hemorrhage is to use a Foley catheter or a Bakri balloon. Should a Bakri balloon or Foley catheter not be available, sterile materials and sponges can be used to pack the uterus.
- sutures used to squeeze the uterus to seal off leaking blood veins
- Laparotomy. To identify the source of the bleeding, the abdomen will be opened during surgery.

- Hysterectomy. Uterine excision with surgery; this is typically a last option.

It's critical to replenish lost fluids and blood when managing postpartum hemorrhage. Blood and blood products, as well as intravenous (IV) fluids, can be administered quickly to avoid shock. Additionally, the mother may use a mask to get oxygen (10).

The present investigation aims to examine the advantages of intrauterine packing and the B-lynnch method in managing postpartum hemorrhage and preventing maternal death. Patients from distant places with few resources, limited awareness, and a lack of education about the effects of minor blood loss during childbirth on anemia and hematocrit levels may be the reason for patients from different cities who are close to the district. However, patients from major blood loss in PPH experience unconsciousness, reduced blood pressure, and ultimately, poor primigravidas or multigravida patients must fight for their lives. Some will live, and some will pass away, leaving behind little, weeping children in her wake (11).

This investigation will be useful in determining the best course of action to minimize maximum blood loss and the approach that will control PPH.

There is a deficiency in the body of knowledge regarding the prevention and mitigation of maternal mortality in women. Our research will enable appropriate patient selection, the identification and diagnosis of PPH's cause, the selection of critical and serious laboring mothers with varying degrees of blood loss, and the appropriate management of these patients through either B-lynnch surgery or intrauterine packing to control PPH.

Investigating these women in labor will yield data-based evidence that will help us manage critically ill women who are experiencing vaginal bleeding and will tell us the best course of action when it comes to treating pph patients by doing a study that compares B-lynnch operations and intrauterine packing using all available protocols.

MATERIAL AND METHODS:

Material required for intrauterine packing is

O T or labor room table, light source, sterilized guz bandages, maintained intravenous line with cannula and drip, syntocinon in infusion, administration of painkiller, selection of patient's lithotomy position for doing the packing, and expertise are required.

For B –lynnch surgical procedure will be done in O T table with anesthesia either general anesthesia or spinal anesthesia, and using delay absorbable suture material that is vicryl, and sometimes absorbable suture material that is catgut, supine position of patient, always after open abdominal incision, selection of patients that all pph patients with open abdomen during ceasearon section, or after failed intrauterine packing or primary procedure in critical massive bleeding from uterus in pph mother.

Selection of patients including all laboring mothers who developed pph either primary or 2ndary pph, primigravidas or multigravida, locally from a nearby city, from faraway pts from the city, and referral pts from other hospitals. All patients with per vaginal bleeding have mild, moderate, and excessive degrees of hemorrhage.

Saving fertility of women by saving the uterus either by intrauterine packing or by B-lynnch technique, and these methods alternate methods rather than surgical obstetrical hysterectomy.

Inclusion Criteria

The following inclusion criteria were considered in this meta-analysis: (a) only full-text articles about B-Lynch compression suture; (b) articles about B-Lynch suture published in the English language; (c) only original articles; (d) only studies in which B-Lynch suture was applied after

the failure of oxytocin/uterotonic group of drugs; and (e) articles providing sufficient information to calculate pooled proportion.

Exclusion Criteria

The following exclusion criteria were considered in this meta-analysis: (a) articles published in other languages; (b) preprint studies; (c) conference proceedings; (d) letters to the editor; (e) duplicate studies; (f) studies in which other compression sutures were used (other than B-Lynch suture) to control atonic PPH; (g) insufficient information about the outcomes (obstetric and maternal); (h) case studies; and (i) uterine balloon tamponed cases.

Results:-

The total number of obstetrical admissions was **6670** from July 2022 to July 2024, there were a total of **5437** deliveries, and **2986** women were cesarean or abdominal deliveries (**54.91%**). And remaining **2451** (were spontaneous vaginal deliveries (**45.08%**) respectively. Total women went in **p-ph 400 (p-p-ph)** patients, and women with 2ndary pph were **66**, and out of 400 p-ph women **304 (76.00%)** were with uterine atony as the cause of p-ph (. All pph women treated by medical treatment to control PPH (taxemic acid, oxytocin, mifepristone) and **172 (43.0%)** were successful but those pph women who did not respond to medical treatment were (**132**). These patients received the uterine compressor sutures B-lynch / modified from the B-Lynch uterine compression sutures were **66** and intrauterine packing was **66** women, as shown in table 1.

Table 1. Statistics

s.no.	Statistics	N (%)
1.	Total obstetrics admission (July 2022 to July 2024)	6670
2.	Total deliveries (svd/c/s)	5437 (81.51%)
3.	Total abdominal deliveries (ceasearon section)	2986 (54.91%)
4.	Total vaginal deliveries (SVD)	2451 (45.08%)
5.	Total pph (primary pph) % from total deliveries	400 (7.35%)
6.	Total pph women with atony uterus (304 out of 400)	304 (76.00%)
7.	Pph women respond to medical treatment (172 from 400)	172 (43.00%)
8.	Pph women with medical failure went to surgical management (132 from 400)	132(33.00%)
9.	Total pph (2ndary pph) % from total deliveries	66 (1.21%)
10.	Total b- lynch applied for controlling pph (from total pph)	66 (16.55%)
11.	B- lynch success rate (59 out of 66)	(89.39%)
12.	Intrauterine packing for controlling pph (from total pph)	66 (16.55%)
13.	Intrauterine packing success rate (52 out of 66)	(78.78%)

Total abdominal and vaginal deliveries of women treated by active management of 3rd stage of labor.

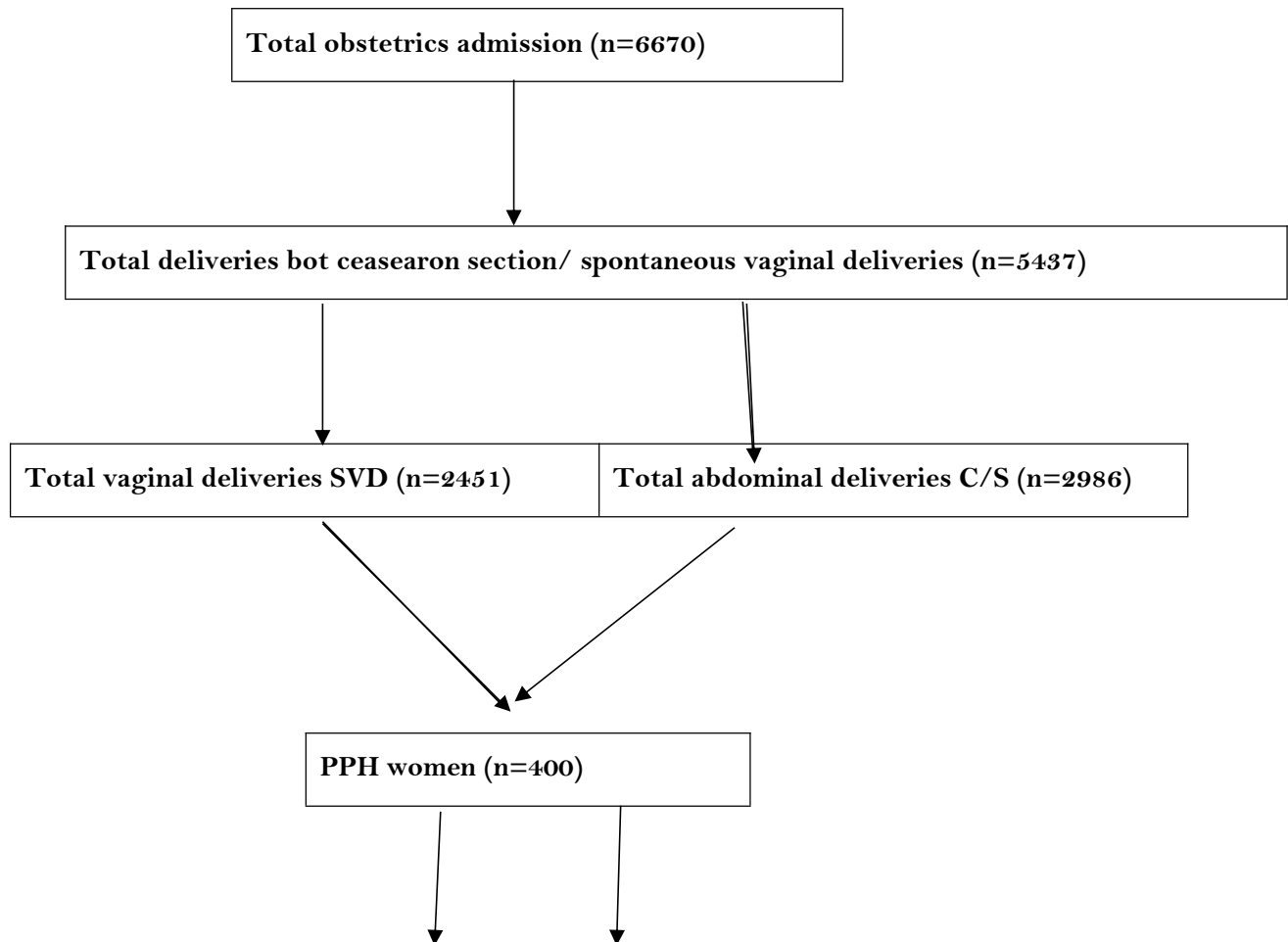
Table 2. Clinical profile and demographic areas of women with B- lynch suture /intrauterine packing application (n=132 pp women 66/66).

Characteristics of women (132)	N (%)
Age (years)	
17-20 y	20 (15.15%)

21-30 y	55 (41.66%)
31-40 y	50 (37.87%)
41-50 y	7 (5.30%)
parity	
primigravida	53 (40.15%)
2 nd and 3 rd gravida	30 (22.72%)
4 th and 5 th gravida	32 (24.24%)
6 th and 7 th gravida	12 (9.09)
8 th to 14 th gravida	7 (5.30%)
Gestational age (weeks)	
< 32 wks.	4 (3.03%)
32-37 wks.	32 (23.24%)
37-40 wks.	88 (66.66%)
40-42 wks.	12 (9.09%)
Birth weight (kg)	
<2	10 (7.57%)
2-2.9	94 (71.21%)
3-3.9	23 (17.42%)
≥4	5 (4.80%)

Table 3. The compression of bleeding time, operation time, blood transfusion of B-lynch, and intrauterine packing.

	N=132
Operation time (min)	72.4 ± 16.7
Intrauterine packing	3-6 min
B-lynch	3-5 min
Ceasaron section followed B-lynch, if failed then Hysterectomy	72.4 ± 16.9
Intrauterine packing failed followed hysterectomy	60.45
Intraoperative blood loss (ml)	936 ± 245
Mild to moderate 500-1000 ml (88 out of 132)	88
Moderate to massive 1000 to 15000 ml (32 out of 132)	32
Massive to v massive 15000 to 25000 ml (12 out of 132)	12
24- h postoperative blood loss (ml)	187 ± 40
Blood transfusion n (%)	100
Whole blood	4 units in 90 women 3 units in 31 women 2 units in 11
FFP (fresh frozen plasma)	4 in 100 women
Platelets (transfused in thrombocytopenic pph women)	4 in 30 women



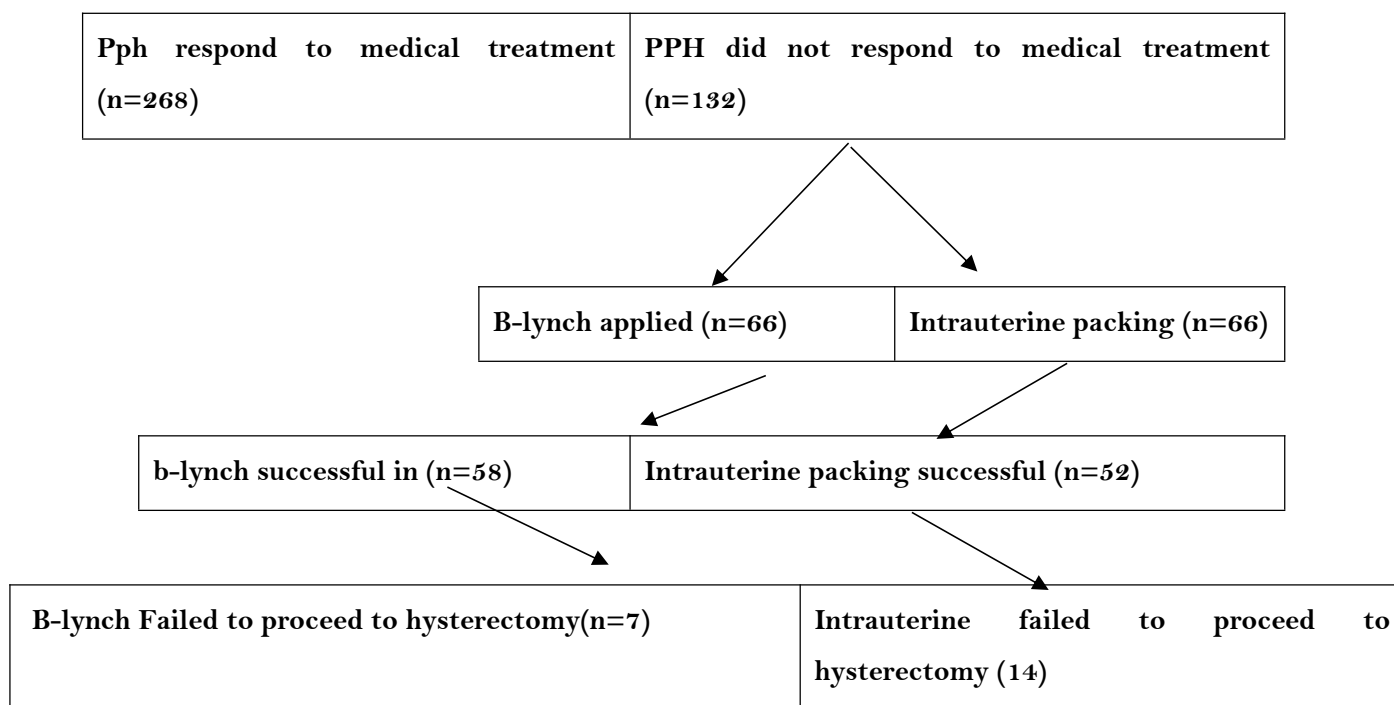


Figure. 3. Statistics.

Table .4. Postoperative findings in patients who had B-lynch application/ intrauterine packing (132)

Postoperative findings	N (%)
Uterus salvage: bleeding controlled/reduced after application (59 out of 66)	59 (89.39%)
Ceasearon hysterectomy done after B -lynch failed	7 (10.60%)
Intrauterine packing (66 done)	52 (78.78%)
Ceasearon hysterectomy done after intra uterine packing failure (52 out of 66)	14 (21.21%)

Among pph, pt wo failed medical treatment procedure for surgical treatment by using uterine compressor sutures that is B-lynch. Vicryl no 1 or 2 is used in this procedure which delays absorbable suture material up to 3 months.

TABLE 5. The outcome and postoperative recovery.

	N (132)
POST OPERATIVE HOSPITAL STAY	7± 0.8

PURPURAL MORBIDITY	8
PYOMETRA	2
Duration of lochia (d)	35.5 ± 4.2
Intrauterine adhesion	0
Change in menstrual flow n (%)	
No change	189
reduced	6
increased	16
No bleeding (because a hysterectomy was done)	21

DISCUSSION AND CONCLUSION:

This study will demonstrate the efficacy of the B-lynch method as well as intrauterine packing, as well as the preference for choosing the procedure that will work best in comparison. Using alternative procedures will reduce the risk of cesarean/obstetrical hysterectomy following cesarean section and vaginal birth in all PPH patients with severe bleeding.

In order to cause the myometrium and endometrium to contract and shrink into a small uterus, intrauterine packing and the B-lynch method (uterine compressing sutures) were used in conjunction (11).

The purpose of intrauterine packing is to reduce blood loss by compressing all sinuses and blood vessels from the placental bed within the endometrium within the uterine cavity. It is an inexpensive, simple, and quick procedure that can be performed in the lithotomy position on an OT table with sufficient light and exposure. Another benefit of this procedure is that anesthesia is not required. However, side effects include endometritis, uterine cuts, technique failure, and uterine necrosis as a result of inadequate perfusion to endometrial tissues (12).

In certain situations, the B-lynch surgical method may be performed prior to intrauterine packing. The B-lynch sutures requires general or spinal anesthetic, an OT table, an OT, vicryl suture material, and the surgeon's experience. They also always need to be placed in the open abdomen during a cesarean section. Using suture material to compress the myometrium and bind it securely, the uterus is made smaller and the bleeding is controlled. This technique is used to compress the myometrium by putting sutures anteriorly and posteriorly from outside the uterus. There was no more bleeding, the blood loss ceased, and there was no PPH (13).

When comparing the B-LYNCH group ladies to the intrauterine packing group, the former had a considerably lower rate of puerperal morbidity, postoperative hospital stay, pain score, shorter operating times, and infection rate. Reducing postoperative uterine tenderness is

associated with a decrease in postpartum fever cases, shorter recovery times following surgery, lower rates of puerperal morbidity and pain scores, and a reduction in the amount of time spent operating on the fundus and a portion of the corpus uteri due to the convenience of using modified B-Lynch sutures. Since the sutures did not penetrate the uterine cavity, the endometrium was retained, which may account for the dramatic reduction in lochia duration observed in Group A relative to Group B. The incidence of long-term postoperative complications did not significantly differ between the two groups; however, one patient in Group B who underwent bilateral ascending uterine artery ligation and received an intraoperative classic B-Lynch suture 10 days after surgery developed an infection and suppuration of the uterine incision, which was treated with anti-infection medication and ultrasound-guided puncture. This could be due to ischemic necrosis of the uterine incision from severe compression from uterine artery ligation and the typical B-Lynch suture (14).

Since it was initially presented by Dr. B-Lynch in 1997, the B-Lynch suture has been the go-to technique for treating postpartum hemorrhage because of its affordability and ease of use. This has resulted in several treated refractory hemorrhages and avoided hysterectomy. Throughout the past twenty-five years, a number of variations on the B-Lynch uterine compression suture have been documented. But recent research has documented a number of long-term side effects of B-lynch sutures, including myometrium necrosis and damage, uterine rupture in the middle to late stages of pregnancy, intrauterine adhesions, irregular menstruation, and secondary infertility, which may be connected to excessive uterine compression and uterine cavity penetration by sutures (15).

The fundus and a portion of the corpus uteri's modified B-Lynch suture were created by modifying the classic B-Lynch suture, which can effectively compress the uterine wall's arcuate vessels by mechanically compressing the smooth muscle of the fundus and corpus uteri. This results in a reduced and moderated blood flow that causes local hemostasis and thrombosis. Because of this, the myometrium suffers from ischemia, which causes the uterus to contract and compress the blood sinus to halt the bleeding. Furthermore, uterine asthenia is relieved by the suture's constant pressure and enhanced contractions on the fundus and a portion of the corpus uteri, which are caused by the polar conduction of contractions, which compresses the lower uterine segment from the surface to the deep. In terms of the basic hemostasis concept, this suture is comparable to the traditional B-Lynch suture. The results of this study also showed comparable hemostasis outcomes by using both sutures, with no discernible variations in intraoperative and 24-hour postoperative blood loss or volumes of blood transfusions. Both of these techniques work better for single uterine bleeding. However, twin fetuses can cause uterine atony throughout the uterus, including the lower uterine segment. In these cases, additional hemostatic procedures—such as uterine balloon tamponade and uterine artery ligation—are often needed to produce the desired hemostatic effect. In this study, rates of uterine balloon tamponade and uterine artery ligation were not shown to differ statistically significantly between the two groups (16).

A secondary infection follows uterine enlargement due to the accumulation of menstrual blood. Pyometra and recurring vaginal infections were formed by the patient in these circumstances, despite the uterus's normal physiological volume of 5 mL and normal monthly blood discharge. Uterine adhesions and secondary amenorrhea were caused by the infection, despite the fact that these issues resolved following uterine drainage and lavage. Case 3 involved postpartum hemorrhage that stretched the uterus, and inadequate menstrual blood outflow due to uterine

wall folding and suturing. Menorrhagia caused the patient to need to be readmitted to the hospital (17.18).

However, in some mothers, these situations resulted in blood that could not be stopped, life-threatening conditions that compromised the mother's life, and ultimately, it appears that the drawback of these procedures ends in the mother losing her uterus through a cesarean hysterectomy that involves prolonged anesthesia complications, a lengthy surgical procedure, high costs for suture material and medicine, a significant amount of blood loss, a high risk of infection, increased arrangements for blood and transfusion with associated risks and allergic reactions, increased likelihood of moving to the intensive care unit, and prolonged hospital stay with postpartum complications like unconsciousness, DIC, cardiac arrest, hypovolemic shock, DVT, wound infections, peritonitis, pulmonary embolism, and ultimately the mother's irreversibly

We admit the limitation of our study, which is its inability to determine a correct or quorate estimate of patients' blood loss and restore blood volume appropriately.

The biggest series on the step-by-step treatment of PPH using either intrauterine packing or the B-lynch method is what makes our study so strong. Numerous sufferers will gain from this research trail because a number of them are high.

CONCLUSION:

The B-Lynch procedure, a uterine suture, was a rapid, simple, inexpensive, and free suture that the hospital provided. It was also helpful in treating the atonic postpartum uterus. The benefits of the B-Lynch technique outweigh those of intrauterine packing. B-Lynch sutures have a great potential for both fertility preservation and life-saving, and they can be employed in low-resource settings. However, long-term follow-up is required to determine the impact of these sutures on subsequent pregnancies and the gynecological outcomes that result from them.

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