

# Subsequent Evolution of Fertility after Surgical Treatment of Delivery Haemorrhage using the B-Lynch Technique at the Chumefje in Libreville (Gabon)

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## ABSTRACT

**Introduction:** B-lynch suture is effective in controlling delivery haemorrhage due to uterine atony that is resistant to medical and obstetric measures. However, there are still concerns about the potential complications resulting from poor uterotubal perfusion.

**Patients and Methods:** This was a retrospective descriptive study of patients who underwent a B-Lynch technique at the Centre Hospitalier Universitaire Mère-Enfant Fondation Jeanne Ebori (CHUMEFJE) from January 1, 2019 to June 30, 2021.

**Results:** The mean age was  $28.9 \pm 3.7$  years. The B-Lynch technique stopped haemorrhage in 20 (83.3%) patients. Immediate or short-term post-operative complications were dominated by haemorrhagic shock in 5 (20.8%) patients. No deaths were recorded. Return of childbirth was observed in 18 (90%) patients. Eight (40%) patients became pregnant spontaneously. None presented major complications during pregnancy.

**Conclusion:** The B-lynch technique is effective in cases of delivery haemorrhage caused by uterine atony that is resistant to medical and obstetric measures. It reduces maternal mortality while generally preserving subsequent fertility.

**Keywords:** Delivery Haemorrhage, B-Lynch, Subsequent Fertility

## Introduction

According to the WHO, 830 women die every day worldwide as a result of complications related to pregnancy or childbirth [1]. In Africa, the leading cause of maternal death is delivery haemorrhage (DH), with a frequency of 24% [2]. In Gabon, the frequency of maternal deaths linked to HDD rose from 15% to 25% between 2013 and 2015 [3]. Delivery haemorrhage requires management based firstly on prevention, and secondly on medical and obstetric management. In Africa, in the event of failure of medical treatment and obstetric measures, surgical management plays a predominant role [4,5]. Nowadays, haemostasis hysterectomy is still common in our African context [6]. However, various conservative surgical techniques have been described. These techniques succeed in avoiding hysterectomy in 70 to 100% of cases [7]. Uterine compression and plication techniques are the recommended first-line treatment in cases where medical treatment fails during caesarean section [8]. The major advantage of these uterine compression techniques

lies in their simplicity and speed of execution compared with other surgical vascular ligation techniques. In addition, unlike arterial embolisation procedures, they do not require any special technical facilities [9]. The B-lynch technique was first described by Christopher B-lynch in 1997 [10]. Since then, this innovative technique has become popular for controlling haemorrhage due to uterine atony [10]. While it is recognised from numerous reports that the B-lynch suture is effective in controlling uterine atony, there are concerns about potential risks such as occlusion of the uterine cavity leading to endometritis, sometimes uterine synechiae and necrosis resulting from poor uterotubal perfusion [11]. In this study, we report the results of a cohort of patients followed after the B-lynch technique was performed following a delivery haemorrhage due to uterine atony at the Centre Hospitalier Universitaire Mère Enfant Fondation Jeanne Ebori (CHUMEFJE).

## Patients and Methods

This is a retrospective descriptive study of patients followed for a period of thirty months from 1 January 2019 to 30 June 2021 at the CHUMEFJE. Our study concerned all women who presented

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an obstetrical complication in favour of a delivery haemorrhage due to uterine atony and who refused medical and obstetrical treatment. Our study included all women who had undergone surgical treatment for delivery haemorrhage using the B-Lynch technique during the study period. Patients whose records were unusable were excluded from the study. Data were collected using a survey form consisting of elements provided by the obstetric gynaecology records (medical observation, partograph, delivery record, maternity hospitalization record, operating theatre operative record, obstetric gynaecology outpatient record) and a questionnaire relating to the gynaecological and psychological outcome of these women. The files were analysed and some women were called back to ask for answers to questions when certain information was missing from the files. All women were examined by an obstetric gynaecologist. Women who showed clinical signs of complications from the B-Lynch technique, or of pregnancy, underwent further investigations. These were mainly pelvic ultrasound and hysterosalpingography. The following variables were analysed: socio-demographic characteristics (age, profession, level of education, marital status); return from childbirth; cycle disorders such as amenorrhoea, hypermenorrhoea, oligomenorrhoea, menorrhagia or menometrorrhagia; presence of synechiae; desire for pregnancy; pregnancy; maternal psychological state. The data were entered and analysed using Epi Info® Version 7.2 statistical software. Qualitative variables were described as percentages and quantitative variables as averages. Confidentiality of data was guaranteed in strict compliance with the 1964 Helsinki Charter of the World Medical Association (WMA). The names of the parturients did not appear in any document relating to the results of this study. The protocol required informed consent from the participants, who were assured of the confidentiality of the data collected.

## Results

During the period of our study, we recorded 13612 deliveries at the CHUME FJE. Among these deliveries, we recorded 58 cases of delivery haemorrhage, i.e. a prevalence of 0.42%. Of the 58 cases identified, 24 (41%) had benefited from the B-Lynch technique. The mean age was  $28.9 \pm 3.7$  years, with extremes of 15 and 44 years. The most common age group was between 25 and 34 (83.3%).

**Table 1: Distribution of patients according to socio-demographic, clinical and prognostic characteristics**

Parameters	N=24	
	n	%
<b>Age</b>		
15-24	1	4,2
25-34	20	83,8
35-44	3	12,5
<b>Profession</b>		
Oui	9	37,5
Non	15	62,5
<b>Marital status</b>		
Married	15	62,5
Single	9	37,5

<b>Parity</b>		
Primiparous	6	25
Pauciparous	13	54,2
Multiparous	3	12,5
Large multiparous	2	8,3
<b>Delivery route</b>		
Vaginal route	6	25
Caesarean section	18	75
<b>Type of caesarean section</b>		
Placental abruption	14	77,6
Eclampsia	1	5,6
Narrowed pelvis	1	5,6
Fetal suffering	1	5,6
Presentation of Bregma on scar uterus	1	5,6
<b>Post-operative complications</b>		
Haemorrhagic shock	5	20,8
Endometritis	1	4,1

The B-Lynch technique stopped the haemorrhage in 20 (83.3%) patients. Haemostasis hysterectomy was performed in 3 (12.5%) patients immediately after failure of the technique in the operating theatre, and in 1 (4.1%) after a 24-hour stay in the intensive care unit. Immediate or short-term post-operative complications were dominated by haemorrhagic shock in 5 (20.8%) patients. No deaths were recorded. The return of childbirth was observed in 18 (90%) patients, while 2 (10%) presented with persistent amenorrhoea.

We found that the menstrual cycle was regular in 15 (75.0%) patients. However, 5 (25.0) had cycle disorders. Menstruation in patients with cycle disorders was characterised by menorrhagia (10%), non-pregnant amenorrhoea (10%) and menometrorrhagia (5%).

Of the patients who underwent hysterosalpingography, 2 (33.3%) had uterine synechiae.

At the end of our survey, 4 (20%) patients had refused to conceive again. Eight (40%) had become pregnant spontaneously. Of these, five (62.5%) patients had given birth vaginally and three (37.5%) vaginally. None of the patients presented major complications during pregnancy.

**Table 2: Distribution of patients according to subsequent functional prognosis of the uterus**

Parameters	N=20	
	n	%
<b>Return of nappies</b>		
Yes	18	90
After 1 month	6	30
After 2 months	11	55
After 3 months	1	5
No	2	10
<b>Characteristics of the menstrual cycle Normal</b>		

Normal	15	75
Abnormal	5	25
Non-gravidic amenorrhoea	2	10
Menorrhagia	2	10
Menometrorrhagia	1	5
<b>HSG result</b>		
Normal	3	15
Synechia	2	10
<b>Spontaneous pregnancy</b>		
Yes	8	40
No	12	80
<b>Psychological repercussions</b>		
Yes	4	20
No	16	80

## Discussion

The limitations of this study are those of a retrospective study, since the medical records were poorly preserved and archived, and the registers were poorly kept, sometimes with several missing values for certain variables, making them difficult to use.

The mean age of the patients was  $28.9 \pm 3.7$  years, and 83.3% were aged between 25 and 34 years. Several African authors report a predominance of the same age group [12-15]. This age group corresponds to the period of increased fertility for women in African countries [2,12,13]. However, Moustaidé H et al report that women aged between 30 and 40 were the most represented in their study [16]. These results show that HDD can occur in any woman of childbearing age [12-17].

In our series, pauciparous women represented 54.2% of the total. Assoumou et al reported in the same department in 2020 that the most represented parturients were primiparous (57.1%) [18]. Coulibaly et al found that 45% were primiparous and 33.6% pauciparous [12]. Woromogo et al reported 37.7% pauciparous, 32.8% primiparous and 25.6% multiparous [3]. These results show that the risk of childbirth complications is as high in pauciparous women as in multiparous women.

The B-lynch technique is simple and easy to perform in an emergency, once it has been mastered. It is a procedure which should be part of the surgical repertoire of all obstetricians in order to avoid hysterectomies [18]. It is used as a first-line procedure in our department for any delivery haemorrhage due to uterine atony that is not controlled by medical and obstetric measures [19]. To date, this suturing technique, when applied correctly, has been successful without any apparent problems or complications [20].

The particular advantage of this innovative technique is that it offers an alternative to major surgical interventions to control pelvic arterial pressure differential or hysterectomy [20]. In our study, the procedure enabled bleeding to be controlled with uterine conservation in 83.3% of cases. A cessation of haemorrhage was noted after this technique was performed in 92.8% of cases by Assoumou et al in 2020 [18]. The decision to perform a hysterectomy remains very difficult psychologically

for the obstetrician, especially in our African socio-cultural context where the function of procreation is primordial for the woman [21].

At the end of our study, 18 (90.0%) women returned from childbirth in the weeks following the uterine plication technique. Assoumou and Tadakawa reported a return of labour in all their patients and no change in menstrual volume [18,22]. Doumouchsis et al reviewed six studies reporting fertility results after uterine compression sutures. Overall, 553 women out of 606 (91.25%) resumed menstruation within 6 months of delivery [23]. Sentilhes and Fenomanana report that 91% of the women followed had resumed menstruation 6 months after the uterine plication procedure [24,25].

The menstrual cycle was regular in 15 (75.0%) women. However, 5 (25.0%) had cycle disorders such as non-pregnant amenorrhoea (10%), menorrhagia (10%) and menometrorrhagia (5%). Fenomanana and Zohra described cases of amenorrhoea in their respective studies, but rarely abundant menstruation [11,91]. Regular monitoring would be desirable at 3, 6 and 12 months after treatment to check for recurrence of childbirth and the regularity and abundance of menstrual periods [18,22,24,25].

The women who had cycle disorders (25%) had their uterine cavity examined by hysterosalpingography after nine months. Two (10%) of them developed uterine synechiae. Poujade O et al. reported that the median time between delivery and hysteroscopy or hysterosalpingography was 9.3 months in order to assess the presence or absence of synechiae [26]. Hysterosalpingography, hysteroscopy and abdomino-pelvic ultrasound should be performed to check for complications and tubal patency [24].

We recorded 8 (50.0%) cases of pregnancy after B-lynch out of the 16 women who did not refuse to conceive again. In fact, at the end of our survey, 4 (20%) patients had refused to conceive again, linked to the trauma of the events that took place during childbirth. Tadakawa et al report 12 (63.2%) pregnancies out of the 19 patients who wanted another child during an average follow-up period of 52.1 months [22]. Doumouchsis et al reported that 183 out of 235 women (77.87%) who wanted another pregnancy were able to conceive [23]. Moustaidé et al. described at least 14 cases of pregnancy after B-Lynch without obstetric complications [16]. Fenomanana et al reported in their study that 72% of women became pregnant naturally [24].

These results suggest that uterine compression does not compromise patient fertility [24]. It is necessary, especially in our African regions where the technical facilities are not highly developed, to master this type of surgical technique which is easy to perform and does not require any particular technical facilities apart from a functional operating theatre. Radical surgical treatment of vaginal haemorrhage can have repercussions at family level (difficulties in starting a family, divorce), at psychological level (anxiety, depression) and at social level (difficulty in conceiving), thus altering the quality of life of African women [18]. However, for a couple in sub-Saharan Africa, having a child is a key factor in their stability and longevity, as a child perpetuates the family and the lineage.

## Conclusion

Delivery haemorrhage is life-threatening for the mother and compromises the patient's obstetrical future if it is not treated early and appropriately in Gabon. It is therefore an extreme obstetric emergency. In the event of failure of medical treatment and obstetric measures, early recourse to conservative surgical techniques, such as the B-Lynch technique, is recommended. This technique is used as first-line treatment in our clinic and is successfully performed in the majority of cases. It does not compromise patients' subsequent fertility. It should therefore be preferred to haemostasis hysterectomy, as it offers hope for the marital and obstetrical lives of many young women in our country. It is essential for gynaecologists and obstetricians in training to learn this technique.

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