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Delivery on Scarred Uterus at the Reference Health Centre of Commune VI, Bamako, Mali

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Abstract

Introduction: The last two decades have coincided with a rapid increase in the caesarean rate in most countries, including developing countries. A previous caesarean section constitutes an obstetric morbidity in late pregnancy. The objective of our work was to study childbirth in women with uterine scars at the Health Centre of Reference in Commune VI (CSRéf-CVI) of the district of Bamako. **Materials and Methods**: It was a transversal and analytic study with the collection of prospective data, which took place over a period of six months from January 1 to June 30, 2022. It was carried out in the gynecological-obstetric section of the Reference Health Center of Commune VI (CSRéf-Cvi), Bamako. **Results:** Our study recorded 710 deliveries on scarred uterus out of 6347 deliveries at the maternity of Csréf, Commune VI, District of Bamako, representing a prevalence of 11.2%. The number of uterine scars varied between one and four. Caesarean section was the major cause of uterine scar (97%). Women who had four (4) or more prenatal consultations accounted for 56% of cases, whereas those who had fewer than four (4) prenatal consultations

accounted for 42%. Delivery was by iterative caesarean section in 82.7% of cases and by natural birth in 17.3% of cases. The most frequent indication for iterative caesarean section was scarred uterus on limited pelvis (16.1%), followed by bi-scarred uterus (13.3%) and failure of work test (13.1%). The uterine test was performed in 28.5% of cases (200/710), with a success rate of 61.5% (123/200). The maternal prognosis was marked by simple sequelae in 80.6% of cases and complicated sequelae in 19.4%, including surgical area infection (7.8%), postpartum haemorrhage (3.2%), endometritis (0.7%) and evisceration (0.2%). Laparotomy revealed an intact uterus in 97.8% of cases, dehiscence of the uterine scar in 1.7% and uterine rupture in 0.5%. No maternal deaths were recorded. The fetal prognosis was marked by live newborns in 98.5% of cases; 15 newborns were breastfed and resuscitated, three (3) without success. Overall, 92.2% of newborns weighed between 2500 and 3999 g and 2.3% weighed ≥ 4000 g. **Conclusion:** Delivery on a scarred uterus is frequent; the existence of a uterine scar influences the decision on iterative caesarean. Uterine breaking is a major complication that can jeopardize the obstetrical prognosis of women as well as the vital prognosis of the mother-child couple. Prenatal consultation is essential in cases of pregnancy on a scarred uterus. It allows early screening for and healing of the maternal-fetal morbidity linked to a scarred uterus.

Keywords

Delivery, Scarred Uterus, Uterine Test, Maternal, Fetal Caesarean Prognosis

1. Introduction

Riskless maternity is the major challenge of all actions aimed at enhancing maternal and infant health, which is one of today's priorities. The behavior to be taken before a scarred uterus is one of the most debated subjects in modern obstetrics, due to the considerable growth of delivery rates by caesarean [1].

The last two decades have coincided with a rapid growth in the caesarean rate in most countries, including developing countries. Thus, obstetricians are increasingly faced with problems of delivery on a scarred uterus [2]. The occurrence of pregnancy on a scarred uterus is characterized by its high incidence, multiple complications, and significant morbidity and maternal-fetal mortality rates. Among these complications, we can cite dynamic dystocia, delivery haemorrhages due to the presence of placenta praevia or accreta, and dehiscence of the uterine scar [3]. The existence of a uterine scar also has a non-negligible psychological impact on these women. Pregnancy and delivery on a scarred uterus are considered high risk, especially in developing countries where tocography, fetal monitoring, and radiologic pelvimetry are lacking; the indication for the uterine scar, the type of incision, and the past operative sequences are most often unknown [4].

At the reference health centre of Commune VI, natural birth for parturients carrying a scarred uterus is favoured after the elimination of all permanent causes

for caesarean (narrowed pelvis) [5]. Caesarean is systematic after two previous caesareans. However, after all, interest is given to maternal and prenatal health in Mali. Delivery on a scarred uterus has never been studied at the reference health centre of Commune VI; this is why we have initiated this work in order to enhance the maternal-foetal prognosis.

2. Patients and Method

We carried out a transversal and analytic study on scarred uterus delivery in the gynecological-obstetrical service of the (csref) of Commune VI, District of Bamako, over six months, from January 1st to 30th June 2022.

The first reference centre is at the hospital in the district of Bamako, according to the health pyramid organization. In Mali, the CSREF is located in the vaguest commune of Bamako and welcomes some parturients coming from many peri-urban quarters. Our study was on all the pregnant women who delivered in the gynecological-obstetric service of the reference health centre of Commune VI during the period of study.

We proceeded with an exhaustive selection of all women with pregnancies in scarred uteri (one or more uterine scars). The inclusion criteria included all patients carrying one or more uterine scars of gynecological or obstetrical origin who delivered at the Reference Health Centre of Commune VI, District of Bamako, during the study period.

2.1. The Conduct of Uterine Test

The uterine test was conducted in all parturients under rigorous conditions with strict monitoring using partography after eliminating all contraindications and in the absence of any oxytocic perfusion. The data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 2021, and the tests used for comparison were Pearson's chi-square and Fisher's test. The difference is considered significant if the probability (P) is less than 0.05.

2.2. Limitations of the Study

The relatively short time frame of the study;

The absence of a cardiotocograph in our delivery room could mean that some fetal distress goes unnoticed; the absence of pelvimetry before delivery.

The absence of pelvimetry before delivery;

These elements may be taken into account in future studies.

3. Results

The frequency of delivery on a scarred uterus:

Our study recorded 710 deliveries on scarred uterus in a total number of 6347 deliveries, a frequency of 11.2%.

3.1. The Age of the Pregnant Women

The age group most represented is from 20 to 36, with about 80% of cases (**Table 1**).

Table 1. Sharing out of gestating women according to age group.

age	number	percentage
<19 years old	30	4.2
20 - 34 years old	567	79.9
>35 years old	113	15.9
total	710	100

Limit ages: 16 and 44. Medium age: 28.6 years old (5.05).

3.2. The Inter-Pregnancy Interval in Years

The pregnant women had an IIG of two years or more in more than 95% of cases (**Table 2**).

Table 2. The sharing out of women according to the inter-pregnancy interval in years.

IIG	Number	Percentage
<2	27	3.8
2 and more	679	95.6
Nulliparous	4	0.6
total	710	100

3.3. The Surgical Antecedents

About 97% of pregnant women had a surgical antecedent of Caesarean section (**Table 3**).

Table 3. The sharing out of pregnant women according to surgical antecedents.

antecedent	number	percentage
myomectomy	11	1.5
GEU	2	0.3
RU	2	0.3
caesarean	689	97
Appendicectomy	2	0.3
kystectomy	4	0.6
total	710	100

The realization of prenatal consultations:

The women have had 4 or more prenatal consultations in more than 56% of cases, and in 42% of cases they have had fewer than 4 prenatal consultations. Among them, 2% have not had any prenatal consultations (**Figure 1**).

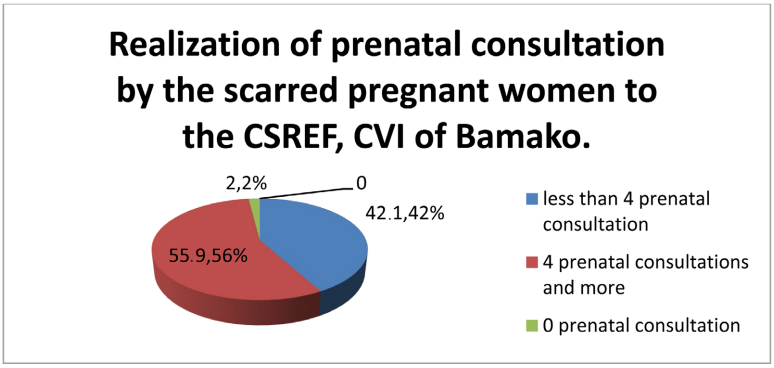

Figure 1. Sharing out of pregnant women according to the number of scars.

3.4. The Number of Uterine Scars

One-scarred uterus in 62.9% of cases (Table 4).

Table 4. Sharing out pregnant women according to the number of scars.

Number of caesarean	number	percentage
1	446	62.9
2	141	19.9
3 and more	123	17.3
total	710	100

3.5. The Obstetrical Conduct at Admission

Prophylactic caesarean was indicated at admission in 42% of cases, emergency caesarean in almost 30%, and uterine test in 28% of cases (Table 5).

Table 5. Sharing out of pregnant women according to obstetrical conduct at admission.

Conduct to admission	number	percentage
Prophylactic caesarean	300	42.2
Uterine test	200	28.2
Emergency caesarean	210	29.6
total	710	100

The success rate of the uterine test is 61.5% (Table 6).

Table 6. The sharing out of pregnant women according to the result of the uterine test.

Result of the uterine test	number	percentage
success	123	61.5
failure	77	38.5
total	200	100

3.6. The Delivery Route

The parturients have delivered by iterative Caesarean in 82.7% of cases and naturally in 17.3% (Table 7).

Table 7. The sharing out of pregnant women according to the delivery route.

Delivery route	Number	Percentage
naturally	123	17.3
caesarean	587	82.7
total	710	100

3.7. Post-Partum Complication (Table 8)

Table 8. The sharing out of pregnant women according to postpartum complications.

Post-partum complication	Number	Percentage
non	625	88.1
Operatory area infection	55	7.8
HPP	23	3.2
endometritis	5	0.7
evisceration	2	0.2
total	710	100

3.8. Maternal Mortality

Our study has not recorded any cases of maternal death (Table 9).

Table 9. The sharing out of pregnant women according to their health after delivery.

Condition of the mother	Number	Percentage
living	710	100
dead	0	0
total	710	100

3.9. Neonatal Mortality

The dead newborns represented 1, 5, or 11 cases (Table 10).

Table 10. Sharing out of newborn babies according to their state at delivery.

New born	Number	Percentage
Living	699	98.5
Dead	11	1.5
total	710	100

The fetal deaths represented in utero represent 81.8% of deaths (Table 11).

Table 11. Sharing out pregnant women according to the death causes of newborn babies.

Death Causes of Newborns	Number	Percentage
Delivery in the context of HRPg Rade llla de sher.	1	9.1
Delivery in the context of SFA	1	9.1
in utero fetal death	9	81.8
total	11	100

4. Discussing

4.1. Frequency

Our study has recorded a frequency of 11.2% delivery on a scarred uterus. Our frequency is higher than that of Bengaly M [6] in 2014 and of SIDIBE B [7] in 2010, who respectively found a frequency of 3.9%, and comparable to that of Fomba [8], at 11.79%.

4.2. Age

The big majority of our parturients were aged 20 to 34 years old (79.9%); this age gap is lower than that of Coulibaly M (9), who found 82.33%.

The medium age was 28.6 years, with extremes of 16 and 44 years. The young age of the parturients could be explained by early marriage, which exposes women to pregnancy with an immature pelvis, causing caesarean sections.

4.3. Inter-Pregnancy Interval

The quasi-totality of our parturients (95.6%) who were admitted to the hospital for delivery with a scarred uterus had an inter-genetic gap of 2 years or more. This situation might be explained by good collaboration between the hospitalization unit and that of family planning in order to obtain better contraceptive coverage in women who have caesarean delivery.

4.4. Surgical Antecedents

The surgical antecedents were dominated by caesarean sections in 97% of cases. This rate is similar to that of Fomba [8]; myomectomy was found in 1.5% of cases, and uterine breaking in 0.3%. One-scarred uterus represented 62.9%, bi-scarred uterus 19.9%, and tri-scarred uterus and more 17.3%. Fomba [8] found 79.4% one-scarred uterus, 23.5% bi-scarred uterus, and 7.1% tri-scarred uterus and more. Ouattara A [4], in 2004 at the CSREF of Commune V, found 79.1% one-scarred uterus, 17.7% bi-scarred uterus, and 3.2% tri-scarred uterus.

Previous caesarean sections were performed for a bi-scarred uterus on a limited pelvis in 7.6% of cases, contrary to Fomba [8] and Ouattara A [4], who found fetal-pelvic disproportion and macrosomia in 24.7% and 60% of cases, respectively. The

indication for the previous caesarean section was still unknown in 24%, which can be explained by the low level of literacy of parturients, who do not attach much importance to the medical form in which the indication for the previous caesarean section is noted, but also by problems linked to the conservation of obstetrical files in the health service (filling, classifying, conservation) [9].

4.5. The Admission Conditions and the Obstetrical Conduct at Admission

The majority of our pregnant women (93.5%) have come by themselves; this could be explained by the fact that this unit in our service takes care of pregnancies at risk.

The references and evacuations are minority (5.2% of cases and 1.3%); these rates are lower than those of Fomba [8] and MALLE Amadou B [10], who found 21% and 9.5%. The references and/or evacuations came from community health centres (CSCOMs) in 63% of cases and from private health structures in 37%. CSCOMs are the first health centres consulted by the population in the Malian health pyramid and are affiliated with the private health sector. The private health structures are surgeries, some clinics, and some private polyclinics. The most represented motive was a scarred uterus (37%).

The obstetrical conduct at admission has been the indication for prophylactic caesarean (42%), emergency caesarean (29.6%), and uterine test (28.2%). The success rate of the uterine test was 61.5%, and its failure rate was 38.5%.

4.6. Prenatal Consultation

The antenatal follow-up of carrier women of a scarred uterus has brought out a set of problems regarding its quality. In fact, the centered antenatal consultation is an established pillar in the fight against morbidity and maternal-fetal mortality [11]. It has therefore been the major lever to modify the recommendations of the World Health Organization (WHO) of November 2016, which now include eight minimum visits recommended within the framework of the Sustainable Development Goals (SDGs). The majority of our parturients had four prenatal consultations or more (56%) in accordance with the recommendations of the World Health Organization, the norms, and the Malian procedures in reproductive health (PNP-SR). On the other hand, nearly a quarter of pregnant women carrying a scarred uterus in our series (24.4%) completed all the antenatal consultations in health facilities that should only provide first aid, which are structurally not recommended to take care of high-risk pregnancies.

In our series, many women have not had 4 prenatal consultations, the minimum recommended by the World Health Organization (42.1%), and a minority of parturients (2%) have not had any prenatal consultations.

The centered antenatal consultation allows, in fact, to detect and to treat precociously the maternal-fetal morbidity, the promotion of health, the volet during which the complications associated with a scarred uterus could have been

mentioned and delivering plan which indicates the most appropriate place for this one, the competent health care provider who must take care of the delivering on a scarred uterus.

4.7. The Delivery Route

The majority of our carrier parturients with a scarred uterus have delivered by iterative caesarean section (82.7%). These include prophylactic caesareans, emergency caesareans, and some caesareans due to failure of the uterine test. A minority have delivered by the normal or lower route (17.3%); these correspond to cases of successful uterine test.

The prophylactic caesarean must be performed in all parturients who have a surgical pelvis or a scarred uterus. Confirmation of a narrowed basin must be obtained through clinical mensuration, and especially radiologic pelvimetry. Many authors recommend radiologic pelvimetry only in cases of doubt before suspicion of a basin defect [12].

Others, otherwise, pretend that it is essential during pregnancy to assess the dimensions of the basin and eliminate all causes of dystocia, even weak ones that can go unnoticed.

In our study, the limit basin on a scarred uterus accounts for 27.9%, and the generally narrowed basin accounts for 1.1%. Our structure is not equipped with radiologic pelvimetry materials, which is why we have not done any radiologic pelvimetry.

The commonly adopted attitude before the association of a scarred uterus and a form other than cephalic well flexed is the achievement of a systemic iterative caesarean [2] [13] [14]. However, this attitude is not accepted by some authors, who report that the uterine test in seat presentation gives a good result with a low complication rate [15] [16]. In our section, prophylactic caesarean was carried out for breech birth on a scarred uterus. Indeed, this presentation exposes women to a risk of dynamic dystocia.

Due to the increasing incidence of scarred uterus and the contradictions of modern obstetrics in recent years, the obstetrician is therefore frequently required to decide the most appropriate type of delivery for the mother and her fetus.

Concerning the delivery conditions, our frequency of uterine test, or 28.2%, was comparable to that found in the literature, with a success rate of 61.5% and a delivery frequency by natural birth after caesarean of 17.3%, despite the reference/evacuation of one fifth of cases. In fact, the uterine test is indicated in 27.8% to 88.2% of cases, with a success rate that varies from 45% to 92.2% [17].

Our data are lower than the median and can probably be explained by the proportion of multi-scarred uteri in our section, at 37.2%. These remain an indication for the upper route in circle. Tahsen S [18] found in a meta-analysis a lower-route birth rate of 71.1% with a relatively low frequency of uterine rupture (1.36%) in cases of bi-scarred uterus [19]. The same observation was made by a recent meta-analysis, which estimated that a bi-scarred uterus, or one associated

with twin pregnancy and the absence of recurrent indication, were no longer contraindications to the lower route [19]. The assessment of the quality of the scar by medical imaging must, in these cases, be a prerequisite [7]. These images show that the uterine test on a scarred uterus can be managed correctly in a maternity hospital that does not have cardiotocographic electronic monitoring. This electronic monitoring certainly provides additional safety in labor management; it allows the early screening of fetal pain or contractile anomalies that can favor uterine rupture, but it is not essential.

The clinical monitoring that we use is not very reliable, especially concerning the ultra-immature diagnosis of fetal pains; but in our conditions of labour the problem is more one of precocious reference of patients to proceed to a rigorous selection. It is also that of the effective availability of a competent worker devoted to the moment of delivery. Among our deliveries, natural births: 87.8% were expelled spontaneously and 12.2% were delivered by cupping glass with indications as follows: insufficient expulsive effort, SFA. This is lower than those of Fomba [8] and of SIDIBE B [7], which found, respectively, 29.4% and 18.4% instrumental extraction.

In our section, the predictive factors of a successful uterine test are the same as those encountered in the literature [20]-[23], which are:

- The antecedent delivery of the parturient, before and previous to the first caesarean, was by natural delivery.
- The delivery antecedent was a natural birth after the caesarean.
- The first Caesarean indication: a previous Caesarean, the indication of which is not linked to a pelvic obstacle.
- The presentation engagement at the end of the pregnancy.
- The good development of the neck of the womb.

Emergency iterative caesarean sections were the most represented in our series, at 42.2%, compared with 40.5% for iterative prophylactic caesarean sections.

The constraints linked to obstetrical practice in a developing country such as ours (low level of coverage and quality of prenatal care, lack of radiotocograph, lack of information on previous caesarean indication and the type of uterine scar), and the risk of uterine rupture, sometimes conduct us to perform prophylactic caesarean sections of prudence, maybe excessively. Ouattara A [4] and SIDIBE B [8] in Mali found respectively 10.7% and 7% of prophylactic caesarean on scarred uterus against 17.2% and 14.7% emergency iterative caesarean. Our high level of emergency iterative caesarean is linked to the fact that most cases are admitted or referred when delivery is in progress, or that some scheduled parturients go into labor before the expected day because of some pathology of pregnancy and echography.

Our iterative caesarean indications do not differ from those of other authors. The principal indications were: bi-scarred uterus or more, scarred uterus with limit basin and acute fetal pain, the presentation of seat on a scarred uterus, and immature breaking of membranes on a scarred uterus.

Under our labour conditions, we indicate caesarean for weak narrowing of the pelvis (limiting pelvis and scarred uterus); this is not the case for many authors [21]. In our series, this situation was found in 16.1% of cases.

In the presence of a bi-scarred uterus, the dogma of systemic iterative caesarean is called into question. In the West, Magnin [22] believes that under good conditions, it is possible to achieve delivery by natural birth in 50% of cases [23]; however, in Black Africa, Megafu [24] reports an experiment with a 19% rate of uterine rupture and advocates a systemic iterative caesarean. We have carried out 123 cases of tubal and resection ligature, representing 17.3%. Tubal and resection ligature require informed consent from the couple, but also depend on the status of the uterus during the operation. This result is higher than those of Ouattara A [4] in 2004 at the CSREF of District V and Fomba I [8] in 2018 at the CSREF of Dioila, who found 10.8% and 8.3%, respectively.

4.8. Maternal Prognosis

In our series, the majority of the women had simple repercussions after delivery (80.6%); this might be explained by the high level of prophylactic caesarean (42.2%). On the other hand, we noted some complications in 19.4%. These complications were composed of surgery-area infection (7.8%), HPP (3.2%), endometritis (0.7%), and evisceration (0.2%).

The laparotomy found an intact uterus in the quasi-totality of women (97.8%), followed by uterine rupture (0.5%). These rates are inferior to those of Ouattara A [4] and Hamet TA [4], who found, respectively, 19% and 6.2% uterine rupture in scarred uteri. We did not record any cases of maternal death. Ouattara A [4] and Hamet TA [4] reported 3 and 2 cases of maternal death, respectively.

4.9. Fetal Neonatal Prognosis

In our section, the quasi-totality of newborn babies were alive (98.5); the Apgar score equal to or greater than 8 at the first minute represented 91.4% and 97.8% at the fifth minute. The resuscitated newborn babies at birth were 15, with 3 unsuccessful resuscitations. The newborns had a weight at birth from 2500 to 3999 g, representing 92.2%. Fomba I [8] and Ouattara A [4] had found, respectively, 80% and 85.7%. This could explain the fact that the majority of pregnancies were at full term.

The newborn babies had a weight greater than or equal to 4000 g in 2.3%, i.e., 16 cases, all caesarean deliveries. CISSE CT [2] and Ouattara A [4] found 4.5% and 3% of macrosomia, respectively. This could be explained by the level of prudence before an excessive uterine height.

5. Conclusion

The incidence of scarred uterus is clearly increasing and is due to the multiplication of caesarean indications. Knowledge of the gynecological and obstetrical antecedents of parturients carrying a scarred uterus is essential for the choice of an appropriate

delivery method. The success of the uterine test is linked to previous caesarean indication and natural birth antecedent. Uterine breaking is a principal complication that can compromise the obstetrical prognosis of the woman as well as the vital prognosis of the mother-child couple. Prenatal consultation is fundamental in cases of pregnancy with a scarred uterus. It allows early screening for and treatment of maternal-fetal morbidity linked to a scarred uterus.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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