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Original Research Article

Study of Childbirth with A Single Scar Uterus at the "Major Moussa Diakite" Reference Health Center in Kati, Mali

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Abstract: The management of childbirth in a scarred uterus is one of the most debated subjects in modern obstetrics, due to the considerable increase in caesarean section rates and many other risks of complication such as disunion of the old scar. Objective: To study childbirth with a single scar uterus at the Kati Reference Health Center. *Method*: This was a prospective cross-sectional study, which ran from 1 January to 31 December 2021. It focused on parturients with a single myometrial scar, a vertex presentation of the foetus, a clinically normal pelvis, a uterine height of less than 36 centimeters, a single foetal pregnancy and an intergenesic interval of more than one year. Results: Out of a total of 2521 deliveries, seventy (70) women met the criteria of our study, or a frequency of 28%. The average age of parturients was 30, with extremes ranging from 18 to 42. Only 20% of our parturients had completed four antenatal consultations. They were carried out in 78.5% of cases by qualified staff. Eight out of ten of our parturients (81.4%) came on their own, and in seven out of ten cases (70.0%) in the active phase of childbirth. Delivery was by natural route in almost seven out of ten cases (65.7%), compared with caesarean section in 34.3% of cases. The indications for caesarean section were dominated by dynamic dystocia (66.7%), followed by failure to engage (12.5%), acute foetal distress (12.5%) and umbilical cord prolapse (8.3%). Previous vaginal delivery prior to caesarean section was associated with a successful uterine test (P=0.019). Maternal complications were haemorrhage due to uterine atony (1 case) and disunion of the old caesarean scar (1 case). We recorded two macerated stillbirths and one case of early neonatal death linked to extreme prematurity, and six cases of neonatal suffering. Conclusion: Childbirth in a scar uterus is a high-risk delivery, and strict adherence to the conditions under which it is carried out is essential to improve the maternal and foetal prognosis.

Keywords: Childbirth, scarred uterus, maternal and foetal prognosis, Kati Reference Health Center.

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INTRODUCTION

Delivery in a scar uterus, also known as uterine testing, is an attempted vaginal delivery in a scar uterus [1]. What to do with a scarred uterus is one of the most hotly debated issues in modern obstetrics, due to the dramatic increase in caesarean section rates [2]. The last two decades have seen a rapid increase in caesarean section rates in most countries, including developing ones. Obstetricians are therefore increasingly confronted with the problems of delivery in a scarred uterus [3]. The occurrence of pregnancy in a scar uterus is characterised by its high incidence, its multiple complications, and its high rate of maternal and foetal morbidity and mortality. Complications include dynamic dystocia, delivery haemorrhage due to the presence of a placenta previa or accreta, and dehiscence of the uterine scar [4].



The existence of a uterine scar also has a significant psychological impact on these women. The anxiety experienced throughout the pregnancy will only subside after an uncomplicated delivery, either vaginal or vaginal. The woman will then have the confidence to go ahead with future pregnancies while following the advice of the obstetrician [5].

Pregnancy and childbirth in a scarred uterus are therefore considered high-risk, especially in developing countries where electronic monitoring of childbirth by tocography, foetal monitoring and radiopelvimetry are lacking.

The indications for the previous caesarean section, the type of incision and the post-operative follow-up are generally unknown [6]. The trial of vaginal delivery in a scar uterus took off in the early 1980s. Its indications have been extended with a view to reducing the rate of repeat caesarean sections. All studies currently agree on the benefits of the vaginal delivery test on a scarred uterus in terms of reducing mortality and morbidity and saving on health costs. However, the need for electronic monitoring during childbirth has long limited the use of the uterine test in African obstetric practice [2]. Caesarean section is the most frequent cause of uterine scarring [7]. The progress made in recent decades in the management of scarred uteri, thanks to the widespread use of segmental caesarean sections, has made vaginal delivery possible in patients who have previously undergone caesarean section [8].

We initiated this study at the "Major MOUSSA DIAKITE" Reference Health Center in Kati to review our practice concerning delivery on a scarred uterus. Our objectives were as follows: to determine the frequency of delivery on a uni-scarred uterus, to describe the sociodemographic profiles of parturients, and to determine the maternal and foetal prognosis of parturients who had undergone this attempted vaginal delivery.

MATERIALS AND METHODS

The study took place in the gynaecology and obstetrics department of the "Major MOUSSA DIAKITE" Reference Health Center in Kati. This is Mali's 2nd level reference health centre, which receives evacuations from 1st level facilities.

This was a prospective cross-sectional study, which ran from 1 January to 31 December 2021. It focused on parturients with a single myometrial scar with a vertex presentation of the foetus, a clinically normal pelvis, a uterine height of less than 36 centimetres, a single foetal pregnancy and an intergenesic interval of more than one year. The uterine test was carried out in all the parturients included in this study under rigorous conditions with strict monitoring using the partograph after eliminating all contraindications and in the absence of any administration of uterotonic (oxytocin). We carried out an exhaustive sampling of all parturients who met our selection criteria. We collected all our data using a survey form which was filled in from the obstetric records. We took ethical considerations into account by informing all parturients admitted to the study, asking for their acceptance and reassuring them that the information provided in their medical records would remain confidential.

We used SPSS 20 software to analyse the data, and the statistical tests used for comparison were Pearson's Chi2 and Fisher's Chi2. The difference was considered significant if P < 0.05.

RESULTS

Out of a total of 2521 deliveries, seventy (70) women met the criteria of our study, or a frequency of 2.8%.

Socio-demographic characteristics	Number N=70	Percentage %			
Age of parturient women					
< 20	14	20,0			
20-29	36	51,4			
30-39	17	24,3			
\geq 40	03	4,3			
Level of education					
Primary	08	11,4			
Secondary	10	14,3			
Superior	05	7,2			
Out of school	47	67,1			
Profession					
Housewife	57	81,5			
Public servant	08	11,4			
Pupils/students	04	5,7			
dressmaker	01	1,4			

Table I: Socio-demographic characteristics of parturients				
Socio-demographic characteristics	Number	Percentage %		

Socio-demographic characteristics	Number N=70	Percentage %
Parity		
Paucipare (2 to 3 parities)	39	55,7
Multipare (4 to 5 parities)	18	25,7
Large multiparous (≥ 6 parity)	13	18,6

The average age was 30, with extremes ranging from 18 to 42

Prognosis of delivery

Previous caesarean section represented 69/70 cases, i.e. 98.6%; on the other hand, previous myomectomy represented 1/70 cases, i.e. 1.4%.

Table II: Distribution of parturients according to previous vaginal delivery

Previous childbirth	Number	Percentage %
Before the caesarean	29	41,4
After the caesarean	18	25,7
Before and after caesarean section	04	5,7
None	19	27,1
Total	70	100,0

Table III: Distribution of parturients according to the number of antenatal consultations (ANC) carried out

Number of prenatal consultations	Number	Percentage %
0	14	20,0
1-3	42	60,0
\geq 4	14	20,0
Total	70	100,0

Table IV: Distribution of parturients according to the author of the prenatal consultation

Authors of prenatal consultations	Number	Percentage %
Medical doctor	26	37,1
Midwife	18	25,7
Obstetrical nurse	11	15,7
Matron	01	1,4
None	14	20,0
Total	70	100,0

Mode of admission: 81.4% of parturients were evacuated, while 18.6% came on their own

Stage of childbirth	Number	Percentage %
Latency stage	08	11,4
Active stage	49	70,0
Complete dilation	13	18,6
Total	70	100,0

Delivery was by natural means in almost seven out of ten cases (65.7%), compared with caesarean section in 34.3% of cases.

Table VI: Distribution of parturients according to indication for caesarean section

Indication for caesarean section	Number	Percentage %
Dynamic dystocia	16	66,7
acute foetal suffering	03	12,5
Procidence of the beating cord	02	8,3
Lack of commitment	03	12,5
Total	24	100,0

Previous Childbirth	Childbirth mode				
	Low track		Low track Caesarean secti		n section
	Number	Percentage	Number	Percentage	
Before the caesarean	17	58,6	12	41,4	
After the caesarean	17	88,9	02	11,1	
Before and after caesarean section	04	100	-	-	
No antecedents	09	41,4	10	52,6	
Total	46	65,7	24	34,3	

 Table VII: Relationship between previous vaginal delivery and current route of delivery

Fisher's exact probability = 0.017

With regard to maternal and foetal complications: we recorded one case of haemorrhage due to uterine atony and one case of disunion of the old scar. The Apgar score was good in 62/70 cases, i.e. 88.6%; on the other hand, we recorded 02 cases of death of macerated stillbirths in a context of malaria during pregnancy, one (01) case of neonatal death within 24 hours in relation to extreme prematurity and six (6) cases of neonatal suffering (Agar score < 8 at the 1st minute).

DISCUSSION

Out of a total of 2521 deliveries, seventy (70) women met the criteria of our study, a frequency of 2.8%.

This prevalence of delivery on a single scar uterus is comparable to that found by other authors such as Traoré Y et al., [9] in 2012 in Bamako: 7.8%; Diarra A.K [5] in 2013 0 Bamako (Commune II): 2.30%; Keita M. N [10] in 2019 in Bamako (Commune IV): 1.26%; Baldé IS et al., [11] in 2017 in Guinea Conakry: 14.4%; Dembélé A. [12] in 2012 in Burkina Faso: 5.92%; Amira A. [13] in 2016 in Tunisia: 2.12%; Valère MK et al., [14] in 2018 in Yaoundé: 8.8%; Michel N et al., [15] in 2021 in Lubumbashi: 8.58%. The prevalence of scar uterus deliveries varies from one facility to another in all countries and is probably related to the caesarean section rate. The disparity in the results reported in the literature is due to the difference in medical conditions and the absence of a uniform attitude among obstetricians when faced with a delivery with a scarred uterus; the difference between the methodologies used in each study, especially the mode of recruitment. Our study focused mainly on the standard conditions for performing the uterine test, taking into account our local labour conditions.

The 20-29 age group accounted for just over half of our parturients, with a frequency of 51.4%. The mean age was 30 years, with extremes ranging from 18 to 42 years. This mean age is close to authors such as: Sow O. K. [16] in 2010 in Mali (Mopti); Diarra A. K [5] in 2013 in Bamako; Dembélé A. [12] in 2012 in Burkina Faso and Valère MK *et al.*, [14] in 2018 in Yaoundé who obtained respectively 27.25% of 29.50%; 26.2% and 30.7. This age period corresponds to the period of genital activity par excellence and also the period of procreation. Nearly seven out of ten of our parturients (67.1%) had no schooling. This result is much higher than that of Baldé IS *et al.*, [11], where women with no schooling were the most represented, at 38.64%. It was also significantly different from that of Valère MK *et al.*, [14], where 84.5% of women had at least secondary or university education. This difference could be explained by the low level of schooling in Mali, particularly among girls. This is a major problem in pregnancy monitoring, as it influences the understanding and smooth running of pregnancy monitoring.

In our study, housewives accounted for just over eight out of ten cases, i.e. 81.5%; this result differs from that of Baldé IS *et al.*, [11], where professionals accounted for 42.67% of cases, followed by housewives with 32.78%. In Mali, housework is the exclusive preserve of women and is the main occupation of housewives [17].

More than half of our parturients were pauci parous, i.e. 55.7%, and large multiparous women represented 18.6% of cases. Contrary to Baldé IS *et al.*, [11], primiparous women represented 36.45% and the average parity was 2.18, with extremes of 1 and 9. This difference can be explained by the fact that in Mali, high multiparity can be explained by the large number of pregnancies among women (total fertility rate 6.1 children per woman) and the low contraceptive prevalence of 10.30% [17].

The scar from the previous caesarean section was observed in almost all of the parturients included in our study (98.6%); however, a history of vaginal delivery prior to the caesarean section accounted for 41.4%. According to almost all authors, the main cause of scar uterus is a previous caesarean section [9, 14]. The method of delivery for women with a history of caesarean section varies widely from one country to another. According to the 2010 national perinatal survey, in France 51% of these women have a caesarean section before labour; of those who go into labour, 75% give birth vaginally [18]. In our study, 20% of parturients had not attended any antenatal clinic and 20% had attended at least four antenatal clinics. According to Malian standards, doctors, midwives and obstetric nurses are qualified to provide antenatal care. Nearly eight out of ten antenatal consultations were carried out by these qualified personnel (78.5%). In contrast, Valère MK et al., [14] found that nearly half of pregnant women with a scarred uterus attended all antenatal clinics in health facilities without a doctor or midwife. In our context, the problem is the failure to carry out antenatal check-ups, the late referral of parturients and sometimes the absence of information on the indication for the previous caesarean section or the absence of a report of the previous operation. The mode of admission of our parturients was dominated by evacuations in slightly more than eight out of ten cases, i.e. 81.4%, compared with 18.6% for those who came on their own. They were admitted in the active phase of childbirth in seven out of ten cases, i.e. 70%. Contrary to Baldé IS et al., [11], 92.57% of women who attempted vaginal delivery came directly from home. This difference could be explained by the fact that almost all parturients had had at least one antenatal consultation with qualified personnel. Knowing, of course, that facilities without surgical facilities are not authorised to carry out this type of delivery on a scarred uterus, the women would, in the event of labour, have had recourse to their antenatal care centre, which evacuated them to the maternity hospital where there was a surgical facility. A vaginal birth was achieved in 65.7% of parturients, and was considered a success. This rate of successful vaginal delivery is particularly noteworthy in a department where labour monitoring is essentially clinical. These results show that uterine testing can also be used in maternity units that do not have electronic and cardiotocographic monitoring. The latter would certainly provide additional safety in the management of childbirth labour; it would enable early diagnosis of foetal distress or contractile anomalies which could favour uterine rupture. The clinical monitoring that we used with great rigour and caution on a partograph enabled us to achieve this success rate of uterine testing. Delivery was by caesarean section in 34.3%, this failure rate of uterine test is clearly lower than that of Dembélé A. [9]: 39%; but higher than those of certain authors such as Haumonté J.B. [19], Nathan S Fox. [20] who respectively found 25% and 16%. The reasons given for failure of the uterine test were dynamic dystocia, acute foetal distress, failure to engage and procidence of the umbilical cord with respectively 66.7%, 12.5%, 12.5% and 8.3%.

According to the literature, Bujold *et al.*, [21] show that a maternal age of 35 years or more is linked to a higher risk of failure of the uterine test. Haumonté J.B. [19] states that 40 years of age is predictive of an increased caesarean section rate.

We noted no cases of failure of the uterine test in parturients who had given birth before and after caesarean section. This could be explained by the psychological state of the parturients who, until there is evidence to the contrary, consider the uterine scar as a handicap. We observed a significant relationship between the history of vaginal delivery and the route of delivery (P=0.017). This relationship was in favour of a previous vaginal delivery before the uterine scar, which would favour the success of the uterine test. Numerous studies have shown that a previous vaginal delivery is a favourable factor in the success of the uterine test; Vercoustre L. [23] emphasises that the success of a vaginal delivery after caesarean section is increased in the presence of a previous vaginal delivery, even if this took place before the caesarean section. Hochler H. [24] did not find that increasing parity influenced the mode of delivery in a scarred uterus. Haumonté J.B [21], Amira A [13] think that multiparity associated with a history of vaginal delivery has a positive effect on the success of the uterine test. Uterine rupture is the major risk of pregnancy and childbirth in a scarred uterus, and it is above all the fear of its occurrence that makes the attempt at vaginal delivery inadvisable. In developed countries, a scarred uterus is the main risk factor for uterine rupture, the overall incidence of which is estimated at between 0.1% and 0.5% in women with a history of caesarean section [18]. In our study, we recorded one case of haemorrhage due to uterine atony and one case of disunion of the old scar (1.4%). The latter was diagnosed after vaginal delivery during systematic uterine revision in our department. This relatively low rate of uterine rupture can be explained by rigorous monitoring of parturients and, above all, good patient selection. This rate is superimposed on those of Amira A. [13], Calla H. [24], Sow O. K. [16] and Kharrassé T. [2] who found respectively 1.7%, 0.32%, 3.8% and 2.44%. All parturients with an inter-uterine interval of less than one year were not included in our study. According to the literature, Espsito et al., [25] found that an interval of less than six months was associated with a significant risk of uterine rupture. According to Cissé CT. [3], a scar less than one year old is an indication for a prophylactic caesarean section. It is a factor likely to influence the success of the uterine test. Dinsmoor MJ. [22] found in his study that a previous caesarean section for dystocic labour was most often associated with a subsequent failure of the trial of a vaginal route; Shipp TD. [26] confirms this idea by finding an increased rate of failure of the vaginal route in the case of stagnation of labour and a success of uterine test when the indication for the first caesarean section was a breech. In our study, no parturient had undergone hysterography to assess the scar after the previous caesarean section. However, our attitude to the uterine scar (single scar, duration greater than one year, uterine height less than 36cm, no induction of labour, no administration of uterotonic during labour) enabled us to obtain a satisfactory result. Despite the absence of electronic means of monitoring labour, the Apgar score was good in almost nine out of ten newborns (88.6%); on the other hand, we recorded two (02) cases of stillbirths in a context of malaria during pregnancy, one (01) case of neonatal death within 24 hours in relation to extreme prematurity and six (6) cases of neonatal suffering with an Agar score of less than eight at the first minute. Valère MK et al., [14] in 2018 in Yaoundé reported 12% of cases of vaginal delivery with complications such as prematurity in two (02) cases, acute foetal distress in one (01) case, neonatal asphyxia

in two (02) cases, neonatal infection in one case and perinatal death. In our study, perinatal deaths were unrelated to uterine test conditions. Overall, neonatal complications were rare, whatever the mode of delivery, in cases of previous caesarean section. In utero foetal mortality is low but increased in the case of attempted vaginal delivery after caesarean section (0.5/1,000 to 2.3/1,000) compared with scheduled caesarean section after caesarean section (0/1,000 to 1.1/1,000) [18].

CONCLUSION

Uterine testing requires better selection of parturients and strict compliance with the conditions under which it is performed. Rigorous and attentive obstetric surveillance, which is not necessarily electronic, is essential to obtain a better prognostic result. In addition, it is the most effective way of reducing the overall rate of repeat caesarean sections, thereby making a significant gain in terms of maternal morbidity and mortality, as well as healthcare savings.

Conflict of Interest: None

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