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Vaginal Birth after a Cesarean Section at Good Shepherd Mission Hospital at Tshikaji in Democratic Republic of the Congo (DRC)

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Abstract

Background: The success rate of vaginal birth after cesarean section with a single cesarean scar is greater than 50%, the lack of the information about the safety of vaginal birth after cesarean delivery pushes most of obstetricians to increase the num ber of cesarean sections following a previous cesarean section. Guidelines for Vaginal birth after cesarean (VBAC) indicate that TOLAC offers women with no contraindications and one previous transverse low-segment cesarean. The objective of the current study was to study the outcome of trial of labour after caesarean section (TOLAC), the indications for emergency repeat cesarean section and to determine the maternal and fetal prognosis in vaginal birth after caesarian section (VBAC) at Tshikaji Mission Hospital. **Patients, Material and Methods:** This is a retrospective study of the records of 126 women were selected to undergo the TOLAC in the department of gynecology and obstetrics at the Tshikaji Mission Hospital over the period from January 1st to December 31st, 2021. The data on demography, antenatal care, labour and delivery and outcomes were collected from the maternity unit of this hospital. The data were analyzed using SPSS version 2.0. **Results:** The TOLAC in 126 studied women. The course of work allowed vaginal delivery 107 parturient women, a success rate of successful VBAC of 85% after the TOLAC. The repeat emergency cesarean section was necessary for delivery in 15% of cases for failed TOLAC. There was no maternal mortality, but we recorded one fetal death or 0.8% of perinatal mortality, 2 cases of cicatricial dehiscence, the incidence of 1.6%. Maternal morbidity after delivery on cicatricial uterus was dominated by postpartum hemorrhages, with 19 cases or 15.1% of cases. Cervical dilatation of more than 3 cm at the time of admission, the parity more than 3 and were the significant factors in favor of a successful VBAC. Birth weight of more than 3500 g, fetal distress and malpresentation were associated with a lower success rate of VBAC. The

TOLAC in selected cases has great importance in the present era of the rising rate of primary CS especially in rural areas. **Conclusion:** Pregnancy on a cicatricial uterus represents a high-risk pregnancy. Trial of VBAC in selected cases has great importance in the present era of the rising rate of primary CS especially in rural areas. There is a significantly high vaginal birth after caesarian section (VBAC) success rate among selected women undergoing trial of scar in Tshikaji Hospital. TOLAC remains the option for childbirth in low resource settings as Kasai region in DRC. Adequate patient education and counselling in addition to appropriate patient selection for TOLAC remain the cornerstone to achieving high VBAC success rate.

Keywords

Lower Segment Cesarean Section, Scar Dehiscence, Trial of Labor, Vaginal Birth after Cesarean Section, Tshikaji Hospital

1. Introduction

A trial of labor after cesarean (TOLAC) is a trial of labor for the current pregnancy to achieve a vaginal birth after a previous cesarean section scar (VBAC). Guidelines for VBAC indicate that TOLAC offers women with no contraindications and one previous transverse low-segment cesarean. For most women who had a cesarean section, VBAC is a reasonable and safe choice [1].

Pregnancy and childbirth are special moments in life and pose a vital risk to both the mother and the newborn. This risk that strikes every Obstetrician explains the ongoing research to achieve the best conditions for a favorable outcome of pregnancy and childbirth [1]. The quote "caesarean one day, caesarean always" stated by D Craigin in 1916 still weighs on any woman with a prior cesarean section when she begins a new pregnancy [2] [3]. The main cause of the cicatricial uterus is a history of cesarean delivery. The increase in the rate of cesarean delivery in the last 20 years is a phenomenon widely shared in developed countries. In most of these countries, this rate is well above 15%, a threshold long defined as optimal by the WHO. This rate varies from around 15% in the Netherlands, Finland and Iceland to more than 40% in Mexico, Turkey, China and Brazil [2] [4] [5]. In France, the rate of caesarean section was 20.8% in 2010 against 15.5% in 1995. Simultaneously, the prevalence of the cicatricial uterus increased from 8% to 11% among parturients and from 14% to 19% among multiparous women, between 1995 and 2010. The delivery patterns of women with previous cesarean sections are very variable from one country to another. According to the 2010 national perinatal survey in France, 51% of these women have a caesarean section before labor; of those who begin labor, 75% give birth vaginally. In total, 36.5% deliver vaginally [2] [5]. The cicatricial uterus is, in developed countries, the main risk factor for uterine rupture with a global incidence estimated between 0.1% and 0.5% in women with previous caesarean section.

Although the cesarean section is one of the most performed operations worldwide, it is far from trivial and generates an increased risk of morbidity and mortality with, on one hand, a hemorrhagic risk at the action time, and on the other hand, a higher rate of infections and venous thromboembolic complications in the postpartum. Finally, in the long term, during a future pregnancy, parturient women with a history of cesarean section are at greater risk of placental localization abnormalities, adhesion formation but also and especially uterine rupture, the most common complication because of the high mortality associated with it. The risk of complete uterine rupture is significantly increased when attempting a vaginal delivery after cesarean section [2] [6] [7] [8] [9]. The choice of the safest possible delivery route not only for the mother but also for the child, considers several parameters relating both the characteristics of the current pregnancy such as the strength of the caesarean section scar and the cephalopelvic confrontation, but also the age or the weight of the parturient woman as well as her obstetrical antecedents.

Thus, our work aims to determine the epidemiological and clinical profile of delivery on a cicatricial uterus at the general hospital of reference of Tshikaji (Kananga, DRC).

Specific objectives:

- Identify the epidemiological profile of the women who have given birth on a cicatricial uterus;
- Evaluate the maternal and fetal prognosis of birth on a cicatricial uterus;
- Identify the most common mode of delivery on a cicatricial uterus in our environment;
- Identify the determinants of outcome of TOLAC in the studied women.

2. Patients, Material and Methods

We conducted a analytic study, at the Tshikaji Mission Hospital from January 1 to December 31, 2019.

All women with a single previous transverse lower uterine segment scar (LCSs) with no more contraindications for vaginal birth were included in this study. Cases with previous classical cicatricial on the uterus, previous two or more LCSs, with history of previous rupture of the uterus or scar dehiscence or cephalopelvic disproportion, and those having other medical or obstetrical complications associated with pregnancy were excluded from the study. A total of 126 women who fulfilled the selection criteria were enrolled in the study. Data were collected from delivery records, operative records and obstetrical records.

The population of this study was women with one previous CS scar who tried for a vaginal birth for current pregnancy. It was an exhaustive sample.

The variables of interest collected were age, parity, interpregnancy interval, indication of previous caesarean section, term of pregnancy, cervical dilation, amniotic sac, fetal presentation, mode of delivery, indication of current cesarean section and the maternal and fetal status and. The data were analyzed using SPSS

version 20 to determine the outcome of TOLAC in the studied women.

Descriptive analysis was presented using tables and figures.

The relationship between the dependent variables, success or failure of vaginal birth after trial of labor (VBAC), and independent variables, such as socio-demographic factors and labor-delivery history, was determined by a chi-square test with 95% confidence intervals (CI) and $p < 0.05$. we used the logistic regression.

3. Results

During our study period from January 1, 2017 to December 31, 2019, we identified 126 deliveries on a cicatricial uterus among 1944 deliveries, a frequency of 6%.

Socio-Demographic date

This table shows that the age of parturient women ranged between 17 and 43 years with a clear predominance of the age group of 20 to 40 years, representing 95.2% of cases, The mean age was 28 ± 6 years old. Most of the women had no job (66.7%), 76.2% were married and 28.6% had no formal education.

Obstetrics characteristics

It was observed from this table that the interval between a previous CS and the present pregnancy was more than two years in 71.4% of the cases. Eighty-five

Table 1. Distribution of the studied women according to their socio-demographic characteristics.

	n = 126	%
Age (Years)		
<20	6	4.8
≥20	120	95.2
Mean ± SD	28 ± 6	
Occupation		
Working	42	33.3
House Wife	84	66.7
Education level		
None	36	28.6
Primary	46	36.5
Secondary	38	30.1
University	6	4.8
Marital Status		
Divorced	4	3.2
Married	96	76.2
Estranged	12	9.5

Table 2. Distribution of the studied women according to the obstetrics data.

Obstetric History		
Parity	n = 126	%
≤3	56	44.4
>3	70	55.6
Mean ± SD	3.2 ± 1.8	
Gestational age		
37 - 41	108	85.7
>41	18	14.3
Duration between previous CS and current pregnancy (years)		
<2	36	28.6
≥2	90	71.4
Indications of previous CS		
Indication	n = 126	%
Fœtal distress	56	44.4
Malpresentation	31	24.6
Haemorrhage	20	15.9
Macrosomia	5	3.2
Failure of labour progress	14	10.3
Local factors at admission		
Factors dilatation (cm)	n = 126	%
<3	84	66.7
≥3	42	33.3
Membranes		
Intact	74	58.7
Ruptured	52	41.3
Mode of delivery		
Vaginal	107	85
Repeated cesarean	19	15
Post partum complications		
Post partum haemorrhage	19	15
Cicatricial dehiscence	3	2.4
Parietal infection	2	1.6
Apgar score (5 minutes)		
0	1	0.8
<7	6	4.8

Continued

≥7	119	94.4
Weight (grams)		
<2500	16	13
2500 - 3500	95	75
>3500	15	12

percent women had gestational age between 37 and 41 weeks, 55.6% women had carried more than 3 pregnancies.

In 59% of cases cervical dilatation was less than 3 cm.

For all newborns on a cicatricial uterus, there were 107 cases (85%) with a good Apgar score between 7 and 10 at birth.

We identified 16 newborns with hypotrophy (13%) and 15 newborns with macrosomia (12%) while 95 newborns were eutrophic (75%).

Table 3 presents the distribution of the studied sample according their mode of the present delivery. Eighty-five percent of women had successful VABC and 15% of the sample had ERCS due to either fetal distress (47.4%), failure of labor progress (21.0%), dehiscence of scar and cervical dystocia were present in 10.5% each.

Table 4 shows the factors influencing the success of the TOLAC in women who had successful VBAC. The successful VBAC were more likely to have more than 3 births (0.0001) and who had more than 3 cm at the admission (0.0001).

The indications of the previous CS influenced the TOLAC success, likely the fetal distress (0.0004), the malpresentation (0.0006) and the macrosomia (0.0009) influenced positively the TOLAC success.

4. Discussion

Rates of caesarean section have been steadily increasing in recent years, leading to an increased incidence of cicatricial uterus [10] [11] [12] [13].

In response to this change in caesarean section rates, the World Health Organization (WHO) recommends a caesarean section rate of less than 15% [14] [15] [16] [17] [18].

We compared our incidence of cicatricial uterus (6%) with those in the literature which ranged from 0.97% to 13.6% [19] [20] [21] [22].

This rate is a function of the distribution of care facilities for obstetric emergencies. In our study, the TOLAC was authorized in 126 parturient women at a rate of 65% of all cicatricial uteri from the specific criteria. The course of labor allowed vaginal delivery in 107 women, which represents a success rate of 85% at the TOLAC (Table 5).

The study of the series of literature shows very disparate results. The uterine test is allowed in 27.8% to 88.2% and its success is between 45% and 92.5% [2] [23]. The disparity in results reported in the literature is due to the difference of medical conditions, and the lack of a uniform approach among obstetricians

Table 3. Distribution of the studied women according to their mode of the present delivery and the indications of repeated cesarean section in the cases of failed TOLAC.

Mode of delivery	n = 126	%
Vaginal delivery	107	85
Repeat emergency cesarean	19	15
Indication of repeated emergency CS	**(n = 19)**	**%**
Fetal distress	09	47.4
Failure to progress	04	21.0
Scar dehiscence	02	10.5
Cervical dystocia	02	10.5
Undiagnosed CPD	01	5.3
Occipito posterior	01	5.3

CS: cesaraen section; CPD: Cephalopelvic disproportion.

Table 4. Determinants of success of the TOLAC in the studied women.

Variable	Adjusted OR	IC (95%)	p
Dilatation > 3 cm	4.6	3.2 - 10.6	0.0001
Parity > 3	1.6	1.2 - 2.1	0.0001
Indication of previous cesarean fetal destress	2.4	1.9 - 6	0.0004
Malpresentation	2.8	1.2 - 5	0.0006
Birth weight	1.4	1.1 - 2.6	0.0009

Table 5. Incidence of the cicatricial uterus.

Author	Country	%
Picaud	Gabon, 1990	0.97
Chibani	Tunisia, 1996	2.6
Wasef	Netherlands, 2000	3.49
Bais	Belgium, 2001	3.2
Neuhaus	Germany, 2001	7.16
Myles	EUA, 2003	13.6
Aisien	Nigeria, 2004	7.5
Shi wuwen	Canada, 2004	10.5
Our study	DRC, 2017	6

when dealing with a cicatricial uterus [25] [26].

We noted the emergency repeated caesarian section in 19 women (15%), including 6 (47.4%) for the fetal distress, 21 (21%) after failure of progress of labor

and 2 (10.5%) for cervical dystocia.

Factors influencing the mode of delivery

Parity: We found that parity more than 3 influenced significantly the rate of vaginal delivery. Many authors believe that multiparity is a weakening factor of the uterine scar and note that this risk is major among multiparas [26]. This difference depends on the lack of a uniform approach among obstetricians when dealing with a cicatricial uterus, the criteria for selection of cases is different between different authors [25] [26].

In terms of maternal prognosis, it appears from our study that maternal morbidity after delivery on a cicatricial uterus is dominated by postpartum hemorrhage in 15% of cases. The maternal morbidity rate after vaginal delivery affected 3.96% of cases represented by postpartum hemorrhage, uterine rupture and cicatricial dehiscence. Postoperative infection, however, represents a morbidity of 7.14%.

Mahon, M.C. *et al.* found that maternal morbidity in cases of a cicatricial uterus is usually minor and that it occurs more in the caesarean delivery group. They noted 63.6% of major complications in case of failure of the uterine test [25].

However, our data are not consistent with those in the literature and this high maternal morbidity rate after cesarean delivery is due to caesarean sections of second intention after failed uterine test.

In our series, we recorded 6 (5%) premature deliveries. Our results are consistent with those of the literature. According to Poulain *et al.*, prematurity accounts for 5% of births and is responsible for more than 75% of perinatal mortality [23].

We noted an Apgar test between 4 and 7 at the 10^{th} minute of extrauterine life in 6 (15%) newborns via vaginal way against 3 (4.2%) via caesarian section. Our results are different from those in the literature as some authors point out that the percentage of depressed children (Apgar < 7) is greater (14%) in the group of children born by caesarean section than in the group of children born vaginally (7.9%). This difference in the results is due to the variance in the approaches among obstetricians when facing a cicatricial uterus. In our study we deplored 3 fetal deaths corresponding to an overall mortality of 2.2%. Our rate is similar to those found in the literature: Delary *et al.* revealed a mortality of 2.40%, Peter *et al.*, 2.6%, and Picaud *et al*, 1.6% [27]. This mortality is a function of the technical platform for the resuscitation of the newborn.

5. Conclusion

Pregnancy on a cicatricial uterus is a high-risk pregnancy. The most important risks are dehiscence of the scar, uterine rupture and placenta previa. These are rare but serious events that may cloud the maternal and fetal prognosis. Thus, informing women about the need for a new caesarean section is of paramount importance. The awareness of the health personnel especially in remote areas is

to be improved, because most of the iterative cesarean sections are performed urgently due to a lack of planning.

Conflicts of Interest

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

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