

Management of Full Term Births in Women with Prior Cesarean Section in a University Maternity of Cotonou-Benin (CUGO/CNHU-HKM) in 2015

Angéline Josiane Tonato Bagnan¹, Tchimon Vodouhe¹, Achille Awadé Afoukou Obossou², Christiane Tshabu Aguemon¹, Issifou Takpara¹ and René Xavier Perrin¹

¹Department of Mother and Child, University of Abomey-Calavi, 01BP188 Cotonou, Benin

²Department of Mother and Child, University of Parakou, BP 123 Parakou, Benin

*Corresponding author: Dr. Awadé Afoukou Achille Obossou, Obstetrician-Gynecologist, Assistant Professor, Faculty of Medicine, University of Parakou, 03 P.O.BOX 18, Benin, Tel: (229) 95853279/97067852, E-mail: awadefr2000@yahoo.fr

Received date: September 19, 2016; Accepted date: November 6, 2016; Published date: November 13, 2016

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Abstract

Introduction: Increased prevalence of uterus with prior cesarean sections is due to rising rate of cesarean births worldwide. Birth management after a prior cesarean section is a challenging issue, since medical practices are divergent.

Objectives: Analyze pregnancy outcome and management of childbirth from a uterus with one cesarean scar.

Setting and method: It was an observational, descriptive and cross-sectional study carried out from December 15, 2014 to September 14, 2015 in the University Clinic of Gynecology and Obstetrics (CUGO) of the National University Teaching Hospital (CNHU-HKM) of Cotonou. It involved 132 female patients. The data were analyzed with Epi Info 7 software.

Results: The prevalence of childbirth on uterus with one prior C-section is 7.57%. Patients' mean age was 30 years. Most of them were admitted for second childbirth. Most pregnancies were singleton ones (94.70%). The interval between cesarean section and current childbirth is higher than 24 months in most cases (83.76%). The rate of uterine contraction is low (29.55%); the same applies to the one of vaginal birth (25%). The main indications for repeat cesarean section were narrowing of the pelvis (19.19%), acute fetal distress (14.14%) and renal vascular diseases (11.11%). The maternal and perinatal prognosis for vaginal birth had been better than the one of repeat cesarean section.

Conclusion: The challenging issue of childbirth management in women with one prior C-section is still a matter of concern in Cotonou. Some efforts still have to be made to improve technical medical equipment so as to extend the indications for uterine contraction during labor, thereby contributing to reduce the rate of repeat cesarean section.

Keywords: Uterus with one cesarean section; Uterine contraction during labor; Repeat cesarean section

this study was to describe the management of high-risk delivery in Cotonou where technical medical equipment is limited.

Introduction

Cesarean birth has become a common obstetrical procedure in the developed as well as in developing countries. In many countries, its rate is well above 15%, a threshold defined as optimal by the WHO [1,2]. The high increase of this surgical intervention over the past 20 years a fait augmenter the rate of scarred uterus. In fact, with a rate of cesarean section estimated at 20.8% in 2010, the prevalence of uterus with prior C-section was 11% among parturients in France [1,3]. Or, the presence of a uterine scar is associated with increase in maternal, fetal and neonatal morbidities, in proportion to the number of scars and this, regardless of the mode of delivery [1]. The practices related to management of childbirth from uterus with one C-section scar are different from one country to another and from a maternity to another in the same country. The threat of uterine rupture makes repeat C-section easy for many medical practitioners. The purpose of

Study Material and Methods

This study was carried out in the University Clinic of Gynecology and Obstetrics (CUGO) of the Hubert K Maga National University Teaching Hospital (CNHU-HKM) of Cotonou. It is an observational, descriptive and cross-sectional study, conducted from December 15, 2014 to September 14, 2015. The target population consisted of pregnant women at term with uterus bearing a single cesarean section scar, attended for childbirth in the CUGO as well as their newborns. We included any pregnant woman totaling at least 37 WA, who previously benefitted from only one cesarean section, admitted or referred to CUGO and who gave her informed consent for participating to the study. Sampling was exhaustive; it enabled to recruit 132 patients. The study variables were patients' sociodemographic profile, indication for prior cesarean section, length of time between prior cesarean section birth and current delivery, pregnancy monitoring, delivery care and modes of delivery. The data

were collected using specifically designed and validated forms. Each patient recruited underwent an interview followed by a clinical examination for data collection. Then, we followed up the labor process with a partograph in case of uterus contraction, by collecting data related to childbirth. In case of repeat cesarean section, we participated to the operation for collection of peroperative data. Data processing and analysis was performed using EPI Info 7, WORD 2010 and EXCEL 2010 softwares. The statistical analyses were performed with a 95% confidence interval and a 05% tolerable risk of error.

Results

Prevalence of childbirths in uterus with one C-section scar

The prevalence of full term childbirths in uterus with one C-section was 7.57% (n=132/1744).

Patients' sociodemographic profiles

- Age

The patients' mean age was 30+/-5.6 years [19-44 years]

Patients aged 25 to 35 years accounted for 57.56%

- Patients' obstetrical status

Most patients were with few pregnancies (46.97%) and pauciparous (81.82%). Average pregnancy bearing is 3 +/-1.4 [2-7]. Average parity is 1.7 +/- 1.1 [1,6]

Data related to current pregnancy

- Number of fetus

Among the women in our sample, 94.70% had singleton pregnancy and 5.30% a twin pregnancy

- Pregnancy monitoring

Most pregnancies benefitted from an appropriate follow-up. In fact, most patients i.e. 88% received at least 4 sessions of antenatal care (Figure 1)

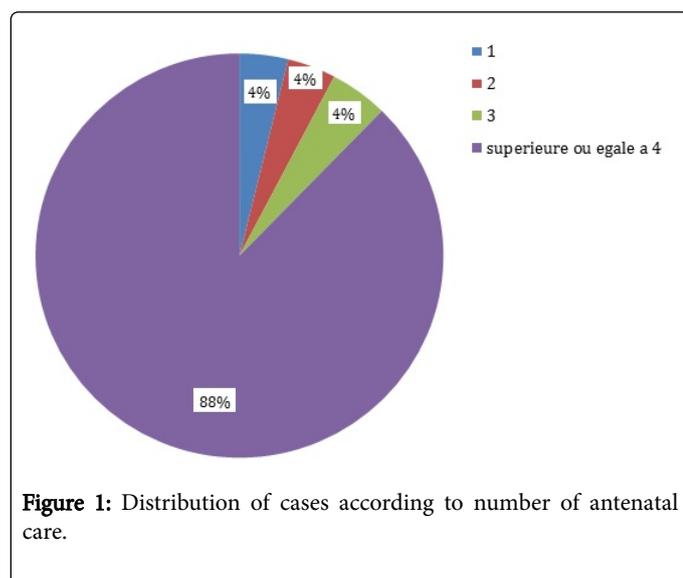


Figure 1: Distribution of cases according to number of antenatal care.

History of vaginal birth

In our sample, 56 patients (42.42%) had experienced a previous vaginal birth, including 35 (62.50%) before cesarean section, 15 (26.78%) after cesarean section, 6 (10.71%) before and after cesarean section.

Context and indication for prior cesarean section

Prior cesarean section was planned in 18.94% of patients (n=25/132) and performed in a situation of emergency in 81.06% (n=107/132). Among the scheduled cesarean sections, SS and SC hemoglobinopathies were the main indication, with a rate of 56%. Among indications of emergency cesarean section, fetal indications were predominant with a rate of 44.86% on top of which there was acute fetal distress with a 18.69% rate (n=20/107) (Table 1).

Indications	Number	Percentage
Planned	25	100%
Maternal indications	19	76%
Abnormalities of the pelvis	4	16%
SS and SC sickle cell disease	14	56%
HBP and pregnancy	1	4%
Fetal indications	4	16%
Abnormalities of presentation	2	8%
Fetal macrosomia	2	8%
Uterine appendages	2	8
Placenta previa	1	4%
Oligoamnios	1	4%
In a situation of emergency	107	100%
Maternal indications	41	38.32%
Abnormalities of the pelvis	11	10.28%
Mother's life-saving treatment	2	1.87%
Cervical dystocia	12	11.21%
HBP and pregnancy	12	11.21%
Fetal indications	46	42.99%
Acute fetal distress	20	18.69%
Abnormal fetal presentation	13	12.15%
Failing Manning score	13	12.15%
Fetal macrosomia	9	8.41%
Uterine appendages	40	37.38%
Placenta previa	10	9.34%
PRM	15	14.02%
Umbilical cord prolapse	6	5.61%

Table 1: Indications of prior cesarean section.

Data related to current pregnancy

- Number of fetus

Among the women in our sample, 94.70% had a singleton pregnancy and 5.30% a twin pregnancy

- Pregnancy monitoring

Most pregnancies benefitted from an appropriate follow-up. As a matter of fact, most patients i.e. 88% benefitted from at least 4 sessions of antenatal care (Figure 1)

Interdelivery interval

In our sample 15 women delivered by vaginal birth after cesarean section; this gave an evidence of uterus scar. The current pregnancy occurred just after cesarean section in 117 patients. In the latter, the length of time between prior cesarean section and current childbirth was higher than or equal to 24 months in 83.76% of cases (Table 2).

Time in months	Number	Percentage
<12	5	4.27%
12-24	14	11.97%
24-36	32	27.35%
36-48	32	27.35%
≥48	34	29.06%
Total	117	100%

Table 2: Distribution of cases according to elapsed time between prior cesarean section and current childbirth.

Variables	Number	Percentage
Fundal height in cm	132	100%
[30 to 36]	107	81.07%
≥37 cm	25	18.94%
Pelvic condition	132	100%
PF	4	3.03%
CNP	110	83.33%
GCP	10	7.58%
TNP	8	6.06%
Fetal presentation	132	100%
Cephalic	124	93.94%
Oblique/Transverse	6	4.53%
Breech presentation	2	1.51%
On-going labor	78	59.09%

PF: Pelvic Floor; CNP: Clinically Normal Pelvis; GCP: Generally Contracted Pelvis; TNP: Transversely Narrowed Pelvis

Table 3: Distribution of cases according to clinical examination data.

Data related to examination on admission

The essential elements of examination on admission were fundal height lower than 37 centimeters (81.07%), clinically normal pelvis (83.33%) and cephalic presentation (93.94%) (Table 3).

Modes of delivery

Among the 132 patients, 93 (70.45%) had benefitted from systematic repeat cesarean section and 39 (29.55%) were subject to uterus contraction. Among them, 33 (84.61%) delivered by vaginal birth and 6 benefitted from emergency cesarean section during labor. A total of 99 (75%) patients gave birth through cesarean section and 33 (25%) delivered their baby by vaginal birth.

Uterine contraction

Uterine contraction was indicated in pregnant women who benefitted from appropriate antenatal care. Among them, 20 (51.28%) had followed up their pregnancy in the CUGO.

Onset of labor

All the 39 women subject to uterine contraction went into labor spontaneously.

Labor monitoring

- Partograph: The monitoring of fetal heart sounds was discontinuous; Pinard stethoscope served to perform it. External tocometry was manual before, during and after uterine contractions.

Outcome and management of labor

43.59% of the parturient women subject to uterine contraction had benefitted from management of labor. The main instrument of management was administration of antispasmodic drug combined (35.29%) or not with calcium infusion (35.29%). The main indication for labor management was cervical dystocia (35.29%) followed by hypokinesias (23.53%). Oxytocin infusion was not used (Table 4).

Results of uterine contraction

Delivery: We performed an actively managed delivery (Active Management of the Third Stage of Labor - AMTSL) in 90.91% of our patients, an induced or artificial delivery in 6.06% and a natural one in 3.03%.

Uterus cleaning was systematic in 90.91% of the new-delivered women; 9.09% refused it. The latter were among the women who benefitted from AMTSL. Uterus cleaning highlighted dehiscence of uterus scar in a patient (3.03%).

Repeat cesarean section

Childbirth was performed by cesarean section in 75% of patients. Cesarean section was systematic in 70.45% of the cases and planned in 28.03% of the cases; it was performed as an emergency before labor in 13.64% of the cases and during labor in 33.33% of the cases.

Maternal indications were predominant (58.58%); on top of them there are narrowing of the pelvis (19.19%) followed by renal artery stenosis (11.11%). Fetal indications accounted for 34.34% of cesarean

section indications, on top of which there is acute fetal distress - AFD (14.14%) (Table 5).

Implementation of cesarean section

Most repeat cesarean sections (96.97%) were performed under spinal anesthesia. Hysterotomy was a lower segment section in 94.95% of the cases, a T-shaped incision in 4.04% of the cases, corporeal in 1.01% of the cases. The main peroperative difficulties were adhesions and hemostasis (10,30%).

Associated procedures were adhesiolysis in 29.29% of the cases, hemostasis hysterectomy in 3.03% of the cases of which 2.02% for placenta previa and 1.01% for postpartum hemorrhage on polymyomatous uterus, insertion of peroperative intrauterine device (IUD) (2.02%) and tubal ligation (2.02%).

Variables	Number	Percentage
Management of labor	39	100%
Yes	17	43.59%
No	22	56.41%
Management tools	17	100%
ATS*	6	35.29%
ATS, P.Ca**	6	35.29%
ATS, ARM***, P.Ca	1	5.88%
P.Ca	2	11.76%
ARM, P.Ca	2	11.76%
Indications	17	100%
Dystocia at onset of labor	2	11.76%
Incomplete dilatation of cervix	2	11.76%
Cervix thickening	6	35.29%
Acute fetal distress (AFD in the active phase)	3	17.65%
Hypokinesias	4	23.53%
*ATS: Antispasmodic drugs; **P.Ca: Calcium infusion ; ***ARM: Artificial rupture of membranes		

Table 4: Distribution of parturient women according to management of labor.

Indications	Number	Percentage
Maternal	58	58,58%
Narrowings of pelvis	19	19,19%
RAS*	11	11,11%
Dystocia at onset of labor	1	1,01%
Incomplete dilatation of cervix	2	2,02%
PMTCT**	1	1,01%
SS/SC sickle cell disease	10	10,10%

Prophylactic	3	3,03%
Pre-labor rupture of membranes	1	1,01%
Short SAE	6	6,06%
Secondary infertility	3	3,03%
Fetal	34	34,34%
Fetal macrosomia	5	5,05%
Transverse presentation	4	4,04%
Failing Manning score	2	2,02%
AFD	14	14,14%
Twin pregnancy	7	7,07%
Post-term pregnancy	2	2,02%
Uterine appendages	7	7,07%
Placenta praevia	4	4,04%
PRM ≥ 24 h	3	3,03%
Total	99	100%

*RAS: Renal Artery Stenosis: 3 cases of severe gestational hypertension and 8 cases of severe pre-eclampsia,

**PMTCT: Prevention of Mother-to-Child Transmission of HIV/AIDS. SAE: Serious Adverse Event.

Table 5: Indications of repeat cesarean section No.1.

Discussion

Epidemiological and clinical aspects

The prevalence of full term births in uterus with one C-section scar is 7.57%. The rate of repeat cesarean section is 75% whereas the one of vaginal births is estimated at 25%.

The prevalence of childbirths in uterus with one C-section scar in the CUGO, according to a study conducted by Adisso in 2006, is 6.78% [4], whereas Dembele found a 5.31% rate in Burkina Faso in 2008 [5]. In France in 2010, 16% of multiparous parturient women had uterus with one C-section scar [1]. This higher prevalence is associated with higher rates of cesarean sections in the western countries.

The mean age of our cohort's patients is similar to the one found by Adisso i.e. 30.5 years [4]. For McMahon, an age above 35 years increases the risk for failure of uterine contraction [6] whereas for SHIPP, risk for uterine rupture is multiplied by three in women above 30 years of age [7]. But literature does not provide efficient evidence to determine a maternal age threshold beyond which prophylactic repeat cesarean section would be preferable to uterine contraction [8].

Most patients were pauciparous women. Our results are close to those obtained earlier by Adisso i.e. an average parity of 1.9 with extremes from 0 to 6 [4]. By contrast, dembele obtained a higher average parity i.e. 4.3 in Burkina-Faso [5]. According to some authors, the successful outcome of uterine contraction is not influenced by parity [8]. For others, multiparity would be a good prognostic factor of uterine contraction [9].

History of vaginal birth

42.42% of our patients had experienced at least one vaginal birth, including 35 before, 15 after and 6 before and after cesarean section. Most authors agree on the fact that history of vaginal birth represents a good prognostic factor for uterine contraction, particularly if that childbirth occurred after cesarean section [3,10,11].

Interbirth interval in relation to cesarean section and mode of delivery

The elapsed time between cesarean section and current childbirth was higher than 24 months in 83.76% of patients. Most of the latter had delivered by vaginal birth whereas those having a period lower than 12 months had given birth by cesarean section. According to Dicle, an optimal period of six months is necessary for anatomic reconstitution of the incised uterine area [12]. The reduction of time between cesarean section and childbirth is associated with increased risk for uterine rupture; however an accurate time limit may not be set [3,7,10,13]. For CNGOF, uterine contraction may be authorized even if that length of time is lower than 6 months if obstetrical conditions are good [3].

Modes of delivery

The main mode of delivery was cesarean section (75%). A similar result was found by ADISSO i.e. 73.53% of cesarean section and 26.47% of vaginal birth [4]; as well, Dembele found 62.39% of repeat cesarean section and 37.61% of vaginal birth [5]. In France, vaginal birth rate is 43% in case of uterus with one C-section scar, and cesarean section rate is 57% [1]. In the United States of America, vaginal birth rate increased from the end of the 80s until the mid-1990s, from 20 to 28% but declined since 1996 to reach less than 7% in 2007, further to publication of the results of the study on risk for complications associated with uterine contraction [1,8,14]. Cesarean section is almost everywhere the main mode of delivery in a context of uterus with prior C-section.

Management and conduct of uterine contraction

In our research work, the requirements for acceptance of uterine contraction were similar to those of Adisso and Dembele, characterized by the absence of disease contraindicating vaginal birth, single segment scar, time between cesarean section and childbirth of at least 12 months, singleton pregnancy with fetus in cephalic presentation, fundal height lower or equal to 37 centimeters and clinically normal pelvis [4,5]. In the countries with advanced technology, uterine contraction is extended to uterus with two C-section scars, twin pregnancies, fetal macrosomia, hydramnios, breech presentation, pelvic floor and to transversely narrowed diameter of the pelvis [3,10,15,16].

Like Adisso and Dembele, we did not induce any labor as it is done in countries with advanced technology. The unavailability of prostaglandin E2 and limited use of Oxytocin in several countries with limited monitoring resources are grounds for this observation. Besides, whereas labor monitoring is mainly carried out using partograph in countries with limited technology, it is performed by means of electrocardiotocography and also internal tocometry in developed countries [1,4,5,15,16].

The success rate of uterine contraction was high i.e. 84.61%. It is significantly higher than the one found by Adisso and Dembele [4,5].

In France, the success rate of uterine contraction is about 75% like in the USA where the rate of uterine contraction is still lower [1,3,10].

Almost all our new-delivered women had benefitted from actively managed delivery (AMTSL) followed by systematic uterus cleaning (90.91%). The purpose of the latter is to verify the integrity of uterine scar. The same remark is made by Adisso and Dembele. ACOG and CNGOF advise against uterus cleaning in the absence of symptom suggestive of scar dehiscence [3,10].

Repeat cesarean section

Maternal indications were predominant (58.58%), on top of which there are narrowing of the pelvis (19.19%) followed by renal artery stenosis (11.11%). By contrast, in the study carried out by ADISSO, prophylactic repeat cesarean section was predominant (32.40%); the one conducted by ABBASSI in Casablanca (Morocco) also observed a predominance of narrowing of the pelvis (46%) [17].

The procedures associated with cesarean section were adhesiolysis, hemostasis hysterectomy, insertion of an IUD and tubal ligation.

Conclusion

This research work was concentrated on childbirth management in women with one C-section scar in 2015 at the CUGO. The prevalence of deliveries on uterus with one C-section scar was estimated at 7.57%, with 25% of vaginal birth and 75% of cesarean section. The pregnant patients were pauciparous women with about thirty years of age. The length of time between prior cesarean section and current childbirth was higher than 24 months in most patients (83.76%). Most pregnancies were singleton (94.70%). The main mode of delivery was cesarean section (75%). The uterine contraction rate was low (29.55%) because of the limitation of technical medical equipment for optimal monitoring of labor. The main indications for repeat cesarean section were narrowings of pelvis (19.19%). Improvement of technical medical equipment may help extend uterus contraction to patients with fetus in breech presentation, twin pregnancies, pelvic floor or transversely narrowed pelvis, as the case is in countries with advanced technology as is the case in countries with advanced technology.

References

1. Deneux C, Tharaux (2012) Uterus with prior C-section: epidemiological aspects. *J Gynecol Obstet et BiolReprod* 41: 697-707.
2. World Health Organization (2015) WHO statement on cesarean section rates. Human reproduction programme Abrupto placentae.
3. National College of French Gynecologists and Obstetricians (2012) Childbirth from uterus with prior C-section: recommendations for clinical practice. 36th national days. Paris pp: 605-619.
4. Adisso S, da-Gbadji Gnansounou F, Houedjissin S (2011) Pregnancy outcomes in women with prior C-section in the University Clinic of Gynecology and Obstetrics of Cotonou; SOGGO Annals 17: 93-98.
5. Dembele A, Tarnagda Z, Ouédraogo JL (2012) Outcome of pregnancies in uterus with prior C-section in a university teaching hospital of Burkina-Faso. *The Pan Afr Med J*.
6. McMahon M, Luther E, Bowes W (1996) Comparison of a trial of labor with an elective second cesarean section. *N Engl J Med* 335: 689-695.
7. Shipp T, Zelop C, Rekpe J (2002) The association of maternal age and symptomatic uterine rupture during a trial of labor after prior cesarean delivery. *Obstet Gynecol* 99: 585-588.
8. Lydon-Rochelle M, Holt V, Easterling T (2001) Risk of uterine rupture during labor among women with a prior cesarean delivery. *N Engl Med* 345: 3-8.

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9. Hibbard J, Ismail M, Wang Y (2001) Failed vaginal birth after cesarean section: how risky is it? *Am J Obstet Gynecol* 184: 1365-1371.
 10. Bonneau C, Nizard J (2012) Management of pregnancies in women with a prior C-section: state of knowledge. *J Gynecol Obstet et Biol Reprod* 41: 497-511.
 11. Lehmann M, Hedelin G, Sorgue C (1999) Predictive factors for modes of delivery in women with prior cesarean section. *J Gynecol Obstet Biol Reprod* 28: 358-368.
 12. Dicle O, Kucukler C, Pirnar T (1997) Magnetic resonance imaging evaluation of incision healing after cesarean sections. *Eur Radiol* 7: 31-34.
 13. Bujold E, Gauthier RJ (2010) Risk of uterus rupture associated with an interdelivery interval between 18 and 24 months. *Journal of Obstet and Gynecol* 115: 1003-1006.
 14. Cahill A, Stamilio D, Odibo A (2006) Is vaginal birth after cesarean (VBAC), or elective repeat cesarean safer in women with a prior vaginal delivery? *Am J ObstetGynecol* 195: 1143-1147.
 15. Jastrow N, Cantero P, Bouvain M (2010) Vaginal birth after cesarean section in 2010. *Rev Med Suisse* 268: 2000-2004.
 16. Society of Obstetricians and gynecologists of Canada (2005) Guidelines for vaginal birth after cesarean birth 2005: 2155.
 17. Abbassi H, Aboufalah A, El Karroumi M (1998) Childbirth after prior cesarean section: can uterus contraction be extended? *J Gynecol Obstet Biol Reprod* 27: 425-429.