

Planned Cesarean Section at Term (≥ 37 Weeks of Amenorrhea), Indications and Relevance at the Mali Bamako Hospital

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DOI: <https://doi.org/10.36348/sijog.2024.v07i08.004>

Received: 07.07.2024 | Accepted: 13.08.2024 | Published: 16.08.2024

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Abstract

Introduction: Planned full-term cesarean section is part of a set of priority targeted procedures due in particular to their frequency, the disparity of practices and a dynamic of increase. The decision on the mode of delivery (planned cesarean or natural delivery) is re-evaluated throughout the pregnancy depending on medical and obstetrical elements concerning the woman. The mode of delivery may ultimately be different from that initially planned. There has not been an evaluation of our indications for planned cesarean sections, hence the interest in initiating this work. **Objective:** Our aim was to determine the rate of planned cesarean section at term according to clinical practice recommendations. **Methods and Materials:** This was a descriptive, cross-sectional study with retrospective recruitment of files over a period of eighteen months, taking place from January 1, 2023 to June 30, 2024 in the obstetrics and gynecology department of the hospital. from Mali to Bamako. The target population was women seen in prenatal consultations during the study period. The inclusion criteria were all patients with an indication for planned cesarean section at our department during the study period. The non-inclusion criteria were indications for cesarean sections during labor in our department during the study period. Data entry and statistical analysis were carried out using SPSS software. The Pearson chi-square test as well as the Fisher exact test with a significance threshold of 5% ($p < 0.05$) were used for the interpretation of the data. **Results:** Our cesarean section rate was 12.3% ($n=64/520$). The main indications were respectively multi-scarred uterus, diabetic macrosomia, scarred uterus + borderline pelvis, severe preeclampsia and pregnancy and immature pelvis with respectively 4%, 1.5%, 1.2%, 1.2% and 1.2%. At the end 12% ($n=12/520$) of primiparous women had undergone a cesarean section compared to 10% ($n=52/520$) of multiparous women. **Conclusion:** It is important to communicate internally with all professionals concerned for the decision-making of planned cesarean section, in order to choose the most appropriate mode of delivery while avoiding unjustified cesarean sections, thus reducing the number of scarred uteri linked to Cesarean section can cause multiple scarring of the uterus.

Keywords: Planned cesarean section at term, indications, relevance.

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INTRODUCTION

Caesarean section is a surgical procedure allowing delivery through an incision in the abdomen and uterus, when conditions, in the mother or in the child (ren), are not favorable for delivery by natural means [1]. The procedure is most often performed under

locoregional anesthesia (epidural or spinal anesthesia); only the lower body is anesthetized, allowing you to be conscious at the time of birth. The abdominal scar from cesarean section is most often horizontal [1]. A planned full-term cesarean section is a cesarean section whose performance is planned, at term (≥ 37 weeks), generally

Citation: Seydou Mariko, Alou Samaké, Kalil Sangho, Modibo Mariko, Brahima Bamba, Mamadou Haidara, Amaguiré Saye, Abdramane Togo, Mamadou B. coulibly, Issa Ongoiba, Alpha Gakou, Alassane Traoré (2024). Planned Cesarean Section at Term (≥ 37 Weeks of Amenorrhea), Indications and Relevance at the Mali Bamako Hospital. *Sch Int J Obstet Gynec.* 7(8): 337-344.

around 39 weeks, not linked to an emergency situation, whether outside of work or at during labor, even if the decision is late, for example due to a late term on a scarred uterus with the impossibility of triggering [1-6]. Cesarean section is a surgical procedure on the abdomen and uterus which allows childbirth. The procedure is most often performed under locoregional anesthesia (spinal or epidural anesthesia); only the lower body is anesthetized, which allows the mother to be conscious at the time of birth [1-3, 6]. The consequences of a cesarean section and the duration of hospitalization are a little longer than those of a natural birth. However, you will be able to care for your child (ren) as after a vaginal birth and the choice of food (maternal or artificial) will not be impacted. Cesarean section does not prevent other pregnancies later. However, it is prudent to wait about a year before starting a new pregnancy [1-3, 6]. The decision on the method of delivery (planned cesarean section or natural delivery, also called vaginal delivery) is re-evaluated throughout the pregnancy based on the medical and obstetrical elements concerning you. The mode of delivery may ultimately be different from that initially planned [1-3, 6]. A planned cesarean section at term (> 37 weeks of amenorrhea (SA) is indicated in the following cases [1-3, 6]: Complete or partial placenta previa (the only absolute indication); - History of two cesarean sections, - Twin pregnancy for which the first twin is not presenting cephalic the data do not allow us to recommend one route rather than another, - Macrosomia (estimated fetal weight \geq 4,500 g) in the presence of diabetes, - Suspicion of dystocia and history of shoulder dystocia complicated by elongation of the brachial plexus; - Primary genital herpes infection within 6 weeks before the start of labor (even if the patient is on acyclovir); - HIV infection, if the viral load is > 400 HIV copies/ml In the case of breech presentation, after evaluation of the criteria for acceptability of the vaginal route, it is recommended to perform a planned cesarean section in the following situations: Criterion 3a: unfavorable comparison between pelvimetry and estimation of fetal measurements; Criterion 3b: persistent deflection of the fetal head; Criterion 3c: non-cooperation from the patient [2, 3, 6]. The planned cesarean section at term is part of a set of priority targeted procedures due in particular to their frequency, the disparity of practices and a dynamic of increase. Since the beginning of 2013, this program to improve the relevance of care has been implemented in the region as part of the "insurance" risk management program [4-6]. Optimizing the relevance of elective cesarean section at term involves focusing not only on elective cesarean sections at term, but on all women likely to have one. Considering a vaginal delivery in the event of a situation exposing to a planned cesarean section will avoid a certain number of scarred uterus requiring consideration of the mode of delivery during the following pregnancy. Sharing the decision regarding the mode of delivery between colleagues in the event of a risk factor contributes to reducing the heterogeneity of practices [5, 6]. Faced with the heterogeneity of full-term scheduled

cesarean section practices, a program to optimize the relevance of the journey of pregnant women who may require a full-term scheduled cesarean section was developed. The program includes: The production by the High Authority of Health (HAS) in 2012 of recommendations for good practice, information documents intended for pregnant women, and a guide for analysis and improvement of practices [5-7]. In our obstetrics and gynecology department, through our disciplinary consultations between colleagues, we strive, depending on the level of our technical platform, to comply in our decision-making with the recommendations for the clinical practice of planned cesarean section. No study had been carried out on these recommendations for the clinical practice of planned cesarean section at term in our department. Our objective was to evaluate the level of conformity of our practices regarding the main indications for planned cesarean sections at term in our department by highlighting their respective prevalence during our study period.

METHODS

As part of Mali's sectoral health policy, the Mali hospital is a fourth reference health structure according to the Mali health pyramid, one of our main missions of which is the care and/or prevention of obstetric complications in the context of reducing maternal and neonatal mortality in our country. The department had 3 hospitalization rooms with 4 beds each and two VIP rooms. The nursing staff included five obstetrician-gynecologists, six midwives, and an obstetrician nurse. Furthermore, the department did not have a delivery room. A Medically Assisted Reproduction Unit (AMP) was recently opened with a gradual start-up of artificial insemination techniques, in vitro fertilization and intracytoplasmic motile sperm injection (ICSI). Our observational study was descriptive of a cross-sectional type with retrospective recruitment of patients through the files. The study period extended over a period of eighteen months from January 1, 2023 to June 30, 2024 in the obstetrics and gynecology department of Mali hospital. The target population was women followed in prenatal consultations in our department during the study period. The inclusion criteria were all patients followed in prenatal consultations and presenting one of the main indications for planned cesarean section at term according to clinical practice recommendations. The non-inclusion criteria were indications for cesarean section at the beginning and/or during labor. The variables retained were as follows: - **General characteristics** (maternal age; level of education), - **Obstetric history:** (Parity, history of united or multi-scarred uterus, breech presentations, macrosomia, twin pregnancy with first non-cephalic twin, intrauterine growth retardation, elderly primiparous), - **The characteristics of the course of the pregnancy:** (Number of prenatal consultations (ANC), the occurrence of obstetric pathologies such as gestational diabetes and hypertensive disorders). Data entry and statistical analysis were carried out using SPSS software.

The Pearson chi-square test as well as the Fisher exact test with a significance threshold of 5% ($p < 0.05$) were used to interpret the results.

RESULTS

In total we collected 520 prenatal consultations during the study period. The average age of the patients was 28.87 ± 6.89

We had performed 64 cases of planned cesarean section at term, i.e. 12.3% ($n= 64/520$) compared to 87.7% of vaginal delivery.

Table I: Distribution of patients according to age

Age (year)	Frequency	Percentage (%)
15	2	0.4
16	4	0.8
17	16	3.1
18	11	2.1
19	16	3.1
20	23	4.4
21	26	5.0
22	20	3.8
23	22	4.2
24	18	3.5
25	12	2.3
26	15	2.9
27	26	5.0
28	37	7.1
29	19	3.7
30	37	7.1
31	13	2.5
32	20	3.8
33	25	4.8
34	30	5.8
35	30	5.8
36	17	3.3
37	22	4.2
38	21	4.0
39	6	1.2
40	13	2.5
41	4	0.8
42	6	1.2
43	3	0.6
44	6	1.2
Total	520	100.0

The mean age was 28.87 with a standard deviation of 6.89 Women aged 28 and 30 were the most represented with respectively 7.1% and 7.1% of cases.

Teenage pregnancies accounted for 4.3% ($n=22/520$).

Table II: Distribution according to level of education

Level of education	Frequency	Percentage (%)
Out of school	283	54.4
Primary	66	12.7
Secondary	139	26.7
Superior	32	6.2
Total	520	100.0

Out-of-school women were the most represented with 54.4% of cases.

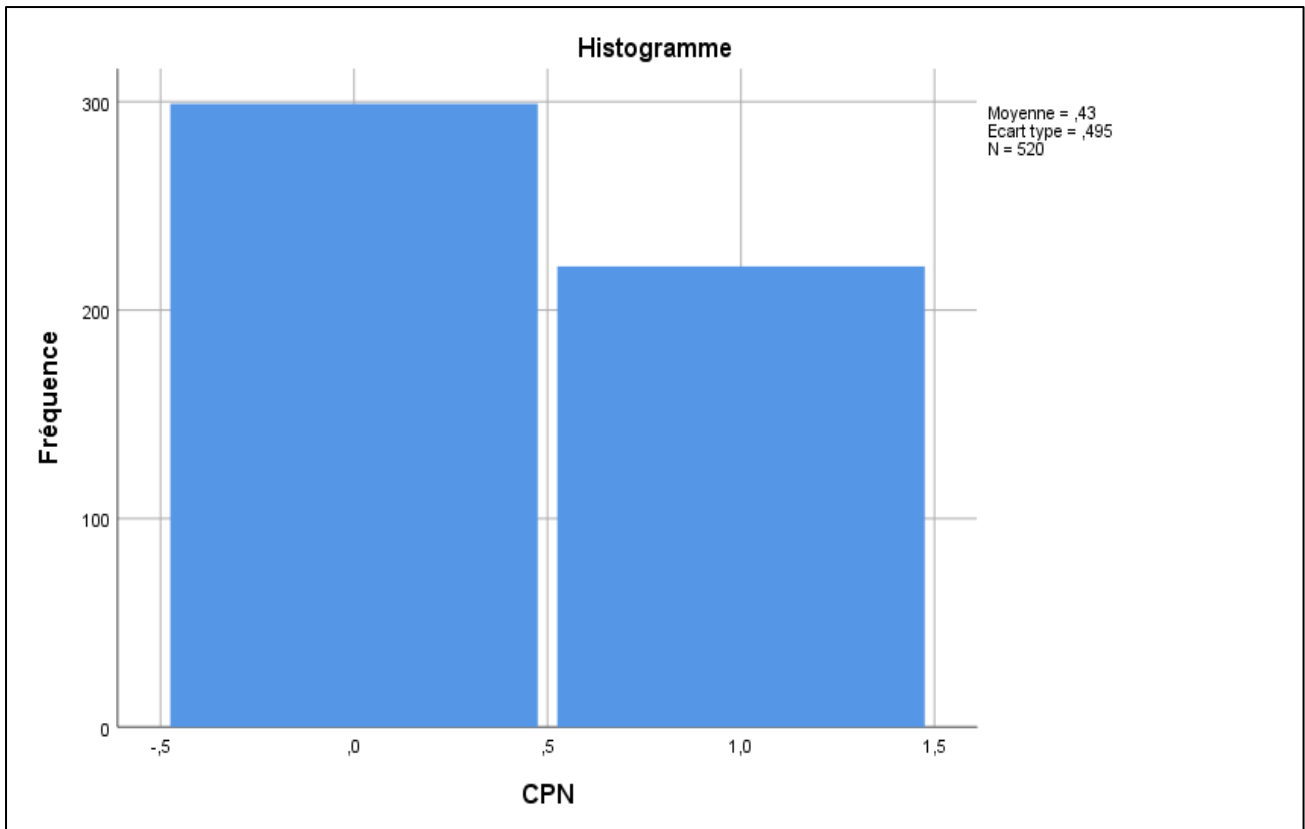


Figure 1: Distribution according to prenatal consultations

Table III: Distribution according to prenatal consultations

Prenatal consultations	Frequency	Percentage
CPN<4	299	57.5
CPN>4	221	42.5
Total	520	100.0

Prenatal consultations of less than 4 times were the most represented, i.e. 57.5%

Table IV: Distribution according to indications for cesarean section

Cesarean section indications	Frequency	Percentage
Multi-scarred uterus	21	4.0
Headquarters presentation	4	0.8
Cross-sectional presentation	2	0.4
Twin pregnancy D1 in breech	4	0.8
Diabetic macrosomia	8	1.5
Severe preeclampsia	6	1.2
Elderly first-time parent	4	.8
Low voice delivery	456	87.7
Scarred united uterus + borderline pelvis	6	1.2
Intrauterine growth restriction (IUGR)	3	0.6
Immature pelvis	6	1.2
Total	520	100.0

Multi-scarred uteri were the most common indications for planned cesarean sections 40% (n=21/520)

We had performed a total of 64 cesarean sections or 12.3% (n=64/520) compared to 87.7% deliveries (n=456/520).

The main indications were respectively multi-scarred uterus, diabetic macrosomia, scarred uterus + borderline pelvis, severe preeclampsia and pregnancy and immature pelvis with respectively 4%, 1.5%, 1.2%, 1.2% and 1.2%.

Table V: Distribution of indications for cesarean sections according to Parity

Caesarean section	Parity		Total
	Primiparous	Multiparous	
Multi-scarred uterus	0	21	21
Headquarters presentation	3	5	8
Cross-sectional presentation	2	2	4
Twin pregnancy D1 in breech	2	2	4
Diabetic macrosomia	0	8	8
Severe preeclampsia	2	4	6
Elderly first-time parent	2	2	4
Low voice delivery	71	385	456
Scarred united uterus + borderline pelvis	0	6	6
Intrauterine growth restriction (IUGR)	1	2	3
Total	83	437	520

Table VI: Distribution of planned cesarean section according to parity

Scheduled cesarean	Primiparous	Multiparous	Total
Yes	12	52	64
No	71	385	456
Total	83	437	520

Pearson chi-square = 0.42, df = 1, p = 0.50

Table VII: Distribution of cesarean section according to level of education

Caesarean section	Out of school	Primary	Secondary	Superior	Total
Multi-scarred uterus	10	3	7	1	21
Headquarters presentation	2	1	5	0	8
Cross-sectional presentation	4	0	0	0	4
Twin pregnancy D1 in breech	1	0	1	2	4
Diabetic macrosomia	4	0	3	1	8
Severe preeclampsia	1	3	1	1	6
Elderly first-time parent	2	1	1	0	4
Low voice delivery	254	56	120	26	456
Unicatricial uterus + border pelvis	3	1	1	1	6
Intrauterine growth retardation	2	1	0	0	3
Total	283	66	139	32	520

Fisher's exact test = 39.18, df = 27, p = 0.06

Non-schooling women had benefited from more planned cesarean sections followed by secondary school women with 5.6% and 3.6% respectively.

Table VIII: Distribution of cesarean sections according to prenatal consultations

Caesarean section	CPN		Total
	CPN<4	CPN>4	
Multi-scarred uterus	8	13	21
Headquarters presentation	4	4	8
Cross-sectional presentation	3	1	4
Twin pregnancy D1 in breech	0	4	4
Diabetic macrosomia	3	5	8
Severe preeclampsia	4	2	6
Elderly first-time parent	2	2	4
Low voice delivery	268	188	456
Unicatricial uterus + border pelvis	4	2	6
Intrauterine growth retardation	3	0	3
Total	299	221	520

Fisher's exact test = 13.66 df = 9, p = 0.13

The planned cesarean section rate was approximately equal to 6% in the two prenatal consultation groups (CPN < 4 or ≥ 4).

DISCUSSION

Faced with the overall increase in cesarean section rates, our objective in initiating this work was to evaluate the indications for cesarean sections according to the recommendations of good clinical practice. Our hospital establishment, the fourth reference structure in the health pyramid, lends itself well to this study. However, one of the limitations of this study would be the absence of a birthing room despite the opening of a Medically Aided Reproduction unit.

According to the World Health Organization (WHO), which estimates that the “good” rate – that which makes it possible to limit perinatal mortality without veering into excess – is between 10% and 15% [10].

“If we look at the African curves in the light of this global progression, there is a strong risk of ending up with the same epidemic of cesarean sections as elsewhere within fifteen years,” diagnoses Alexandre Dumont [8-10]. Our rate was consistent with this result but we forgot that cesarean sections at the start and/or during labor were not counted because in the absence of a delivery room our indications concerning the latter are very weak.

High Authority for Health (HAS) / Practice evaluation and improvement service / November 2014 [5-7]

Maternities involved in the process analysis and improvement of relevance (ordered according to the rate of Caesarean sections planned at term)	Regions	Number of Caesarean sections Scheduled eventually in 2013	Number of Caesarean sections Scheduled eventually Our study in 2024	% of cesareans Scheduled / Caesarean sections eventually in 2013	% cesarean sections Scheduled (≥ 37SA) Our study in 2024
CH of Mont-de-Marsan	Aquitaine	32	64	25.2	12.3
CH of GRASSE	Provence-Alpes-Côte	54		29.8	
CH of Bagnols-sur-Ceze	Languedoc-Roussil	37		31.1	
CHI of EAUBONNE-MONTMORENCY	Ile-de-France	87		24.3	
COTE-BASQUE CH in Bayonne	Aquitaine	78		33.6	
CH du MANS	Loire Country	140		27.9	
CHI SUD-GIRONDE in Langon	Aquitaine	29		23.4	
CH of SELESTAT	Alsace	45		32.4	
CH d'ANCENIS	Loire Country	36		39.1	
CH of CHAUMONT	Champagne-Arden	26		32.1	
CHI du HAUT-ANJOU in Château-Gontier	Loire Country	41		36.6	
GH EST-REUNION in Saint-Benoît	The meeting	57		24.8	
CHU REUNION in Saint-Pierre	The meeting	252		28.4	
FONTAINEBLEAU CH	Ile-de-France	65		27.4	
CH of SAINT-DENIS	Ile-de-France	167		21.1	
CH of PERIGUEUX	Aquitaine	79		28.3	
CH of CAHORS	Midi-Pyrenees	33		31.4	
CHI des PORTES-de-l'OISE in Beaumont	Ile-de-France	50		26	
LA-SAGESSE Clinic in Rennes	Brittany	150		33.6	
ANGERS CHU	Loire Country	180		32.9	
ALBI CH	Midi-Pyrenees	59	31.4		
CH ARIEGE-COUSERANS in Saint-Giron	Midi-Pyrenees	11	30.6		
BORDEAUX University Hospital	Aquitaine	215	34		

The prevalence of cesarean sections in different hospitals or university hospitals varies from 11 to 252 with rates of planned cesarean sections at term oscillating between 39.1% to 21.1%. Our study finds

results that contrast with the data from these centers: 64 cases of planned cesarean sections at term and a rate of 12.3% of planned cesarean sections at term. The explanations could be the level of technical platform

between these centers and ours. There may be the expected number of births per center compared to ours and finally there may be the insufficient size of our sample.

Relevance Criteria

The objectives of the good practice recommendation were targeted, on gestational age and on the major indications for planned cesarean section, 18 clinical criteria of relevance were defined as follows [4-6].

Regarding gestational age, due to neonatal morbidity (notably respiratory distress), it is recommended not to have a planned cesarean section before 39 weeks of gestation for singleton pregnancies or before 38 weeks of gestation for twin pregnancies. bichorionic diamniotics. Our had not been able to scrupulously respect this. The gestational age for cesarean section was 37 weeks of amenorrhea and above. The scheduling waiting times and the number of time slots required us to respect the lower limit for performing scheduled cesarean section. In case of a history of three or more cesarean sections, it is recommended to offer a planned cesarean section [5, 6]. Our practice was consistent with this recommendation. All cases of multi-scarred uterus had benefited. Scheduled cesarean section. Concerning bi-scarred uterus or single scarred uterus plus limited pelvis or elderly primiparous women (maternal age $35 \geq$ years), our technical conditions did not allow us to attempt vaginal delivery. This is how those had also undergone the planned cesarean section after having decided on their case in a collegial manner and after informing the patient who had always given her agreement. In the case of a twin pregnancy with the first twin (J1) in breech, current data do not allow us to recommend one method of delivery over another. Also in the case of breech presentation, after evaluation of the acceptability criteria of the vaginal route, a planned cesarean section is ordered in the following situations: unfavorable comparison between pelvimetry and estimation of fetal measurements; persistent deflection of the fetal head; and finally non-cooperation from the patient [5, 6]. OUR attitude was consistent with these two recommendations with a more favorable trend towards planned cesarean section in cases of twin pregnancies with D1 in breech and cases of transverse presentation. In the presence of diabetes and due to the uncertainty of estimating fetal weight, for suspected macrosomia between 4,250 g and 4,500 g, planned cesarean section must be discussed on a case-by-case basis, taking into account other factors. Criteria linked to pathology. Our attitude was quite similar but with a systematic tendency towards planned cesarean section for this indication taking into account our working conditions (Table IV). It is recommended to perform a planned cesarean section in the event of a viral load greater than 400 HIV copies/ml, in the case of a viral load between 50 and 400 HIV copies/ml a discussion between the obstetrician-gynecologist and the infectious

disease specialist is necessary if the kinetics of the viral load is increasing, likewise a planned cesarean section is proposed in the case of HIV/HCV co-infection, planned cesarean section is recommended due to the increase in the rate of maternofetal transmission of HCV. In our study we did not have a case of primary HIV/HSV/HCV infection [6]. We also did not have any cases of placenta paevia (Table IV).

However, the three cases of intrauterine growth retardation and the cases of severe preeclampsia had benefited from scheduled cesarean section at 35 weeks of gestation given the absence of a birth room equipped with a cardiotocograph for IUGR and the severity of the hypertensive disorder. Despite unsuccessful medical treatment (Table IV).

CONCLUSION

Compliance with the recommendations for good clinical practice of the indications for planned cesarean section would make it possible to reduce unjustified abusive cesarean sections and consequently to reduce the surgical complications linked to this act, all of which increases the chances of reducing maternal and neonatal mortality.

Conflict of Interest: The authors declare no conflict of interest

Contribution of Authors

Seydou Mariko and Alou Samaké are the designers of the study. Seydou Mariko, Alou Samaké Kalil Sangho had validated the manuscript through methodology, statistical analysis and writing of the manuscript. All authors had read and approved the final version of the document.

THANKS

Our thanks go to the co-authors and all the authors for their substantial contribution to the production of this work.

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