

Prognosis of Misgav-Ladach Caesarean Sections in an African Environment: Case of the Banfora Regional Hospital in Burkina Faso about 110 Cases

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Abstract

Objective: To analyze the caesarean section prognosis aspects according to Misgav-Ladach versus classical technique in the regional hospital of Banfora.

Materials and Methods: This is about a randomized clinical test of 2 groups carried in the regional hospital in Banfora on a two-month period from 1st October to 30 November 2015. In the first group, 66 patients had benefited from a caesarean section by the Misgav-Ladach technique. In the control group, 44 patients had benefited from a caesarean in the conventional technique. Were included in our sample all patients having benefited from a caesarean in the study site during the study period and who had consented to participate in the study. All patients were followed until the postpartum healing of the surgical wound. All prognostic elements have been compared. The results were analyzed with Epi Info 3.5.1 software and the significance level was set at 5%. **Results:** The indications for cesarean section were dominated by maternal causes in 70 cases (63.6%). The average duration of the surgical procedure was 27.98 mm for Misgav-Ladach technique versus 28.27 mm for the conventional technique ($p = 0.49$). The evaluation of blood loss by the change in hemoglobin pre- and post-operative did not find statistically significant differences between the two techniques ($p = 0.6$). The evaluation of the number of intraoperative suture used, was in favor of the technique of Misgav-Ladach ($p = 0.007$). The evolutionary trend in the intensity of postopera-

tive pain was in favor of the technique of Misgav-Ladach. The average time of wound healing was 16.33 days for group 1 versus 21, 27 days for group 2 ($p = 0.0001$). Postoperative morbidity was greater with the conventional technique in comparison to Misgav-Ladach's ($p = 0.046$). There was no statistically significant differences in length of hospital stay ($p = 0.056$). **Conclusion:** The Misgav-Ladach cesarean section reduces operative risk. The adoption and diffusion of this technique to the national level and its effective integration into training curricula should contribute to reducing maternal morbidity and mortality of abdominal delivery.

Keywords

Cesarean, Misgav-Ladach, Morbidity, Banfora

1. Introduction

In Burkina Faso, maternal mortality is high. It was estimated in 2010 to 341 per 100,000 live births [1]. Among the multifactorial causes of maternal mortality, there was a deficiency in covering the supply of obstetric and neonatal emergency care and cesarean section is an essential component [2] [3].

Cesarean section consisting of artificial birth surgically opening the pregnant uterus [4]; involves significant risks if it is not controlled [5]-[11]. In order to reduce maternal and fetal risks associated with this procedure, Mr. STARK has developed a simplified technique called "Caesarean of Misgav-Ladach" [10] [12].

In Africa comparative studies between conventional technique (CC) known and the Misgav-Ladach's (MLC) have already been made by colleagues in the region confirming the interest of the extension of the Misgav-Ladach-technique because of reduced financial cost and simplicity in surgical procedure with fewer maternal and fetal complications [13] [14] [15] [16]. But it should be noted that the socio-cultural, economic and environmental context of these countries differ from that of Burkina Faso and an extrapolation of the results of these studies would not be possible at first sight.

Also through this study the authors propose to analyze comparatively prognostic aspects of the technique of Misgav-Ladach versus conventional technique in a referral hospital with large carrying capacity in an urban area that to say the regional hospital of Banfora.

2. Materials and Methods

2.1. Type of Survey and Sampling

It came from a randomized clinical test with two arms which took place over two months from 1st September to 30 October 2015. The obstetrics and gynecology department of the regional hospital of Banfora served us as framework study. This department employs 2obstetricians' doctors, 28 midwives, 10 nursespecialized in anesthetists, 13 nurses specialized in surgery. The regional hospital cov-

erage area includes an urban area and a rural part for a total population of about 1,200,000 persons.

Were included in our study all patients who underwent a caesarean on a pregnancy age greater than 28 weeks gestation, during the study period. Were excluded from our sample, cesareans for eclampsia, sickle cell SS, SC, fetal death, lost sight of patients, as well as those in which consent was not obtained. After consent, the randomization was to simple random sampling without replacement of the study group in the ratio of 2/3 in favor of Misgav-Ladach's technique.

2.2. Data Collection and Analysis

We used an individual record of data collection informing on epidemiological, clinical, therapeutic and prognostic of patients. The admission records, clinical records, prenatal consultation booklets, the operative report records, anesthesia records resuscitation, records bandages and postoperative follow-up were also exploited. The data were entered into computer and analyzed using EpiData and SPSS. Data collected in intraoperative and postoperative in both groups were compared. Statistical tests of Student and Khi2 were used to compare the respective average and proportions. The significance level adopted was 5%.

2.3. Evaluation and Management of Postoperative Pain

The visual analog scale (VAS) was the reference tool. Pain considered low for VAS lower to 3 did not receive support. The one considered moderate by a VAS between 3 and 6 was supported by analgesics level 1, orally. The one considered strong by VAS greater than 6 were supported by painkillers level 2, parenterally.

2.4. Assessment of Blood Loss

The blood loss was indirectly assessed by the calculated difference in hemoglobin between the before and after cesarean 24 hours. This change in hemoglobin was an indirect assessment of blood loss.

2.5. Antibiotic

All patients benefited from bolus antibiotic, ceftriaxone during the cesarean and with amoxicillin after the cesarean.

3. Results

3.1. Epidemiological Aspects

3.1.1. Frequency

During the study period, 532 births were registered including 157 caesarean sections (29.51%). Among these patients 30 were lost during postoperative care and 17 were excluded for eclamptic syndrome, sickle cell and fetal intrauterine death. The sample was then composed of 110 patients or 70.06% of all caesarean sections.

3.1.2. Profile of Patients

The average age was 27.24 years (16 - 44). The age groups 15 - 20 years and 20 - 25 years accounted for 79.09% of women who had a caesarean.

The average number of childbirth was 2.12 (1 - 7). Those having 3 to 5 childbirth were the most represented with 48.18% of cases.

In our sample, 66.36% of patients had no economic activity.

3.2. Caesarean Indications

3.2.1. Fetal Indications

The distribution of patients according fetal indications of the cesarean has been shown in **Table 1**.

3.2.2. Maternal Indications

The distribution of patients according to maternal indications of cesarean was represented in **Table 2**.

3.3. Prognostic Aspects

3.3.1. Caesarean Timing

The average duration of the conventional technique was 28.27 minutes (20 - 58). That of Misgav-Ladach was 27.98 minutes (15 - 48). Furthermore 61.36% of the conventional technique have a duration less than 34 min and 78.79% of Misgav-Ladach have a duration less than 34 min ($p = 0.49$).

3.3.2. Blood Loss

During the study period, only 02 patients or 1.8% of the patients received a blood transfusion during surgery. The distribution of patients according to the change in hemoglobin was presented in **Table 3**.

3.3.3. Number Suture Threads

The number of suture threads used during the intervention by type of cesarean section was presented in **Table 4**.

3.3.4. Type of Anesthesia

In our study 8 patients or 7.27% have benefited from a general anesthesia, 97 or 88.18% have received regional anesthesia. A regional anesthesia secondarily

Table 1. Distribution of patients according to fetal mandatory information.

Fetal Indications	Number	Pourcentage
	(n)	(%)
dystocic presentation	21	19.1
- breech	15	13.64
- Transverse	4	3.64
- Face/Forehead	2	1.82
Macrosomia	15	13.64
Funicular abnormality	4	3.64
Total	40	36.4

Table 2. Distribution of patients according to maternal indications.

Maternal indications	Number	Pourcentage
	(n)	(%)
Obstructed labor	32	29.1
- Basin generally narrowed	20	18.18
- Asymmetrical basin	5	4.55
- Immature basin	1	0.91
- Immature Basin	1	0.91
- rectovaginal fistula	1	0.91
- Myomasprevia	3	2.73
- renal tumor	1	0.91
Dynamic dystocia	19	17.27
- start dystocia	11	10
- hyperkinesia	5	4.55
- hypokinesia	3	2.72
soft tissue dystocia	15	13.64
- Anomaly of expulsion period	6	5.46
- expansion stop	9	8.18
Bleeding	4	3.64
- Retro-placental hematoma	2	1.82
- previa placenta	2	1.82
Total	70	63.6

Table 3. Changes in hemoglobin depending on the type of caesarean.

Changes in Hemoglobin (g/dl)	Type of Caesarean			
	CC		MLC	
	(n)	%	(n)	%
0 to 2	29	65.91	49	75
2.1 to 4	13	29.55	15	23.44
4.1 to 6	2	4.54	1	1.56
Total	44	100	64	100

P = 0.6.

Table 4. Distribution of the patients according to the number of sutures and the type of caesarean.

Number of suture used	Type of caesarean			
	CC		MLC	
	(n)	%	(n)	%
2 sutures	19	43.18	49	74.24
3 sutures	21	47.72	16	24.24
4 sutures and more	4	10.1	1	1.52
Total	44	100	66	100

Khi-deux de Pearson: 12.112; DDL: 3; P: 0.007.

converted into general anesthesia was performed into 5 patients or 4.54%.

3.3.5. Control of Post-Operative Pain

The evolution of the control of postoperative pain using the technique was shown in **Figure 1**.

3.3.6. Healing of the Surgical Wound

The distribution of patients according to the period of the healing of the wound has been presented in **Table 5**.

3.3.7. Postoperative Morbidity

The distribution of patients according to postoperative morbidity was presented in **Table 6**.

3.3.8. Hospitalization Stay

The mean hospital stay was 2.75 for the conventional technique against 2.27 days for Misgav-Ladach's ($p = 0.056$).

4. Discussion

4.1. Caesarean Section Timing

In our series, we found an average timing of 28.27 minutes for the conventional technique and 27.98 minutes for Misgav-Ladach's with a non-significant p-value

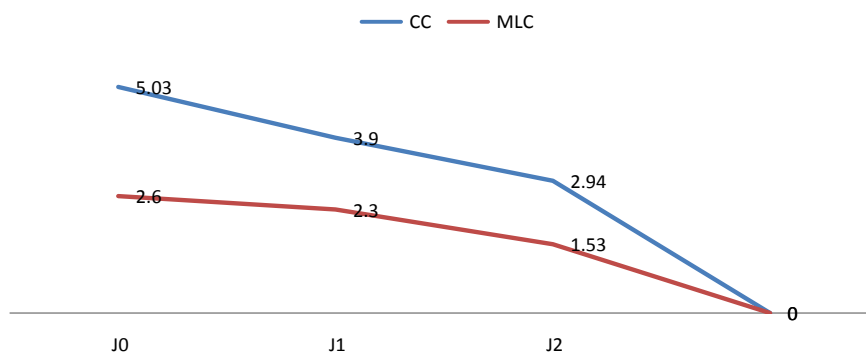


Figure 1. Evolution of the post operative pain in time according to the technique used.

Table 5. Distribution of patients according to healing time and the type of caesarean.

Healing time (days)	Type of caesarean			
	CC		MLC	
	(n)	%	(n)	%
7 - 14	11	25	31	46.97
15 - 21	13	29.54	26	39.39
22 - 29	13	29.54	8	12.12
30 and more	7	15.91	1	1.51
Total	44	100%	66	100%

$p = 0.001$.

Table 6. Distribution of patients according to the postoperative morbidity and the technique.

Morbidity	CC	MLC	p
Parietal suppuration			p = 0.046
• no	36 (81.36)	62 (93.94)	
• yes	8 (18.18)	4 (6.06)	
Postoperative anemia			p = 0.167
• non	25 (56.82)	46 (69.7)	
• oui	19 (43.18)	20 (30.3)	

of 0.49. We cannot conclude that the practice of Misgav-Ladach is faster than the conventional. This could be explained by the fact that most young practitioners do not respect more rigorously all the time described for conventional, the closing time of the parietal and visceral peritoneum were dropped. The influence of the non-closure of the visceral peritoneum on operative time was analyzed by Nagele [17]. From a randomized study it showed that the non-closure of the peritoneum allows a considerable reduction in operative time (56.9 minutes versus 50.6 minutes with $p < 0.001$).

The average duration of Misgav-Ladach in our series is lower than that reported by Moreira, 36 minutes [16] and greater than that of 20.4 mm reported respectively by Studzinski [18] and Ansaloni [19]. The differences noted between the series could be explained by the number of years of practical experience. Several studies comparing the Misgav-Ladach and the conventional have found a reduction in the operating time with Misgav-Ladach [13] [15] [18] [19] [20] [21]. Reducing the chirurgical intervention times described in Misgav-Ladach may be explained by several factors [18] [19] [21]:

- the speed of the incision of Joel Cohen,
- the non-separation of segmental pre peritoneum allows uterus faster opening,
- non closure of visceral peritoneum and the parietal peritoneum,
- closure of the fascia with a running suture,
- skin closure without reconciliation subcutaneous tissue with only 4 to 5 points of Blair Donati.

During the conventional caesarean 6 tissue layers are closed while in the caesarean of Misgav-Ladach only three layers are sutured (Uterus, fascia, skin), so explaining the timeliness of this latest.

4.2. Blood Loss

In our series, we found a mean change in hemoglobin concentration of 1.69 g/dl for the conventional versus 1.37 g/dl for Misgav-Ladach with a value of $p = 0.6$ insignificant. Our series using an indirect assessment reports no difference in blood loss using the technique. Other authors like Dar J [22] and Studzinski [18]

by direct quantification of blood loss, showed that the Misgav-Ladach is less bleeding than the conventional. This difference in blood loss between the two techniques, could be explained by the fact that in the Misgav-Ladach's different layers of the wall are stretched and not severed and that the vessels are not harmed reducing the risk of major bleeding.

4.3. Number of Threads of Suture

In our series, the average number of threads of suture used was 2.84 and 2.27 for CC for MLC with a value of $P = 0.007$, significant. We can conclude that the MLC uses less thread than the CC. Our results are similar to those of Koné A [14] reported a mean number of 2.5 and Moreira [16] which reported a number of 2.92. The gain of thread with MLC may be explained by the difference in the number of layers to be sutured in both types of cesarean (CC: 6; MLC: 3).

4.4. Healing Time

In our series the mean healing time was 16.33 days to 21.97 days for MLC versus the CC with a value of $p = 0.001$, significant. The healing time of the MLC is shorter than that of the CC. This is easily understood since the MLC, one avoids tearing the tissue, the spacing being the golden rule.

4.5. Postoperative Parietal Suppuration

In our series, we recorded a suppuration rates in parietal CC 18.18% against 6.06% in MLC with a value of $p = 0.046$, significant. The CC is a more provider of suppuration than the MLC. This difference can be explained by the type of suture. Extra-running sutures dermal and intradermal are source of inflammatory response by their presences in situ until it they are resolved.

5. Hospitalization Stay

In our series the mean hospitalization stay of patients was 2.75 for the CCL against 2.27 days for CML with a value of $p = 0.056$, not significant. We cannot say that the CML shortens hospitalization time. Similarly, Moreira [16] in his series reported no significant difference (7.92 days to 8.05 days).

However it should be noted that the average length of hospitalization in our series is better than 5.2 days reported by Sawadogo Burkina Faso, those 9.3 days and 11 days respectively reported by Tégueté in Bamako [23] and Annie in Cotonou [24]. This short stay of our patients could be explained by head of department's decision to ensure early lifting of patients by allowing them to come out the second or third day in the absence of maternal complications.

6. Conclusion

Caesarean section by Misgav-Ladach is a reliable technique, it is fast and simple. This technique eliminates unnecessary time of surgery and limits the risk complications. It is nowadays an interesting alternative in the practice of emergency

caesarean under-medicalized and low-income countries. Its dissemination at national level will let us benefit from secure delivery in our context of poverty.

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