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Clinical, Therapeutic and Epidemiology Aspects of Uterine Rupture in the Gyneco-Obstetrics Departement of the Sikasso Hospital

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Abstract **Original Research Article**

Introduction: Uterine rupture is one of the main causes of maternal and fetal mortality in Mali. ***Method:*** This was a descriptive cross-sectional prospective study in the Gynecology - Obstetrics department of the Sikasso hospital from January 01, 2018 to June 30, 2019, i.e. eighteen months. The study covered all cases of childbirth recorded in the Gynecology - Obstetrics Department of Sikasso Hospital during the study period. ***Results:*** During these 18 months of study, we recorded 68 cases of uterine rupture out of a total of 4,815 deliveries, ie a frequency of 1.41%. Regarding the mode of admission, 93% were evacuated against 7% who came on their own. For the evacuated patients, 82.4% arrived by ambulance against 13.2% by personal car and 4.4% by public transport. The duration of labor was ≥ 12 hours in 22.1% of cases. Lesions were associated with rupture in 19.1% of cases. The use of uterotonics was responsible for uterine rupture in 54.4% of cases and 7.4% of patients had a generally narrowed pelvis. Simple hysterorrhaphy was performed in 30%, hysterorrhaphy associated with tubal ligation resection in 50% and subtotal hysterectomy in 20% of cases. Lack of schooling, the lack and poor quality of prenatal care have been factors that increase maternal and perinatal morbidity and mortality. The maternal-fetal prognosis was poor with 11.7% maternal deaths and 86.8% perinatal deaths. ***Conclusion:*** Better screening of populations at risk, quality ANC, early diagnosis and rapid and adequate management will improve the maternal-fetal prognosis.

Keywords: Uterine rupture, Risk factors, materno-fetal prognosis.

INTRODUCTION

Uterine rupture is a nonsurgical solution to the continuity of the pregnant uterus reaching the uterine body or the lower segment during pregnancy or labor [1]. Indeed, it is a formidable obstetric disease whose maternal-fetal prognosis can be catastrophic in terms of morbidity and mortality. It remains one of the main causes of maternal morbidity and mortality in third world countries, particularly in Mali, where obstetric assistance is often lacking. It classically occurs in these third world countries on healthy uterus, in large multiparas, or after prolonged obstructed labor. It occupies with the bleeding it causes 30% of the main causes of death in developing countries [2]. A qualitative study of the causes of maternal mortality in Bamako shows that uterine rupture ranks second with a relative frequency of 20% of deaths [3]. At Gabriel Touré Hospital, it occupies fourth place with a frequency of 8.62% of cases [4]. In Niger it represents 12% of the causes of maternal death [5]. Uterine rupture is one of the main reasons for obstetric emergencies in the Obstetrics and Gynecology department of the "G" point hospital [6]. Today, uterine rupture is exceptional in developed countries where it occurs most often in patients with a caesarean scar: in France a uterine rupture is reported for 1299 deliveries [7], in the USA a uterine rupture for 16849 deliveries [8], in Singapore one rupture for 6331 deliveries [9]. This pathology should not be inevitable in our countries. Despite Mali's political orientations in matters of reproductive health

in recent years, in particular: the organization of referral / evacuation and the free cesarean section, this tragedy remains a reality in our country. To better understand this problem, we initiated this work in the obstetrics gynecology department of the Sikasso Hospital, which is a reference center of the highest level in obstetrics in the region.

METHODOLOGY

This was a descriptive cross-sectional prospective study in the Gynecology - Obstetrics department of the Sikasso hospital from January 01, 2018 to June 30, 2019, i.e. eighteen months. The study covered all cases of childbirth recorded in the Gynecology - Obstetrics Department of Sikasso Hospital during the study period. The sample consisted of all uterine rupture cases diagnosed before, during labor or postpartum, during the study period and for which management took place in the ward. Were included in our study, all cases of uterine rupture diagnosed and treated in the department during this period. Not included in our study were all cases of uterine rupture treated in other health facilities consulting in the service for any treatment. Data was collected on a survey form established from: Delivery register; Custody register; Individual patient files; Operative report register; Maternal death register; SONU register. The data was collected by reading the aforementioned documents and recording the information on the survey form. The variables studied were: Age; the profession ; marital status; the method of admission; personal (medical, obstetric and surgical) and family history; gesture; parity ; the state of consciousness on admission; the route of delivery; maternal-fetal complications; the Apgar score and the course of the newborn; the surgical procedure performed; blood transfusion. Data entry and analysis was performed using Word 2013, Excel 2013, SPSS version 22 for Windows software. Frequencies, proportions, and percentages were calculated. The Chi 2 test was used with a significance level $P \leq 0.05$. Fisher's test for numbers less than 5.

RESULTS

From January 1, 2014 to June 30, 2015, 68 cases of uterine rupture were registered in the department. During the same period, we recorded 4815 deliveries including 1033 caesarean sections. The frequency of rupture compared to deliveries was 1.41%. The socio-demographic characteristics, history and clinical aspects are reported in Table 1, 2, 3. Regarding the mode of admission, 93% were evacuated against 7% who came on their own. For the evacuated patients, 82.4% arrived by ambulance against 13.2% by personal car and 4.4% by public transport. The duration of labor was ≥ 12 hours in 22.1% of cases. Lesions were associated with rupture in 19.1% of cases. The use of uterotonics was responsible for uterine rupture in 54.4% of cases and 7.4% of patients had a generally narrowed pelvis. Compared to anatomical lesions, 91.2% of ruptures were complete, the site was segmental in 67%, segmento-corporeal in 27% and corporeal in 6%. All of our patients underwent a laparotomy and pre, per and postoperative resuscitation and 79% received a blood transfusion. Simple hysterorrhaphy was performed in 30%, hysterorrhaphy associated with tubal ligation resection in 50% and subtotal hysterectomy in 20% of cases. Late complications were wall suppuration in 1.5% of cases and endometritis in 1.5% of cases. We recorded 8 cases of death, i.e. a rate of 11.7% and a fetal death rate of 86.8%.

Table-1: Distribution of patients according to socio-demographic characteristics

	Effective	Percentage
Age		
15-25 years	12	17,6
26-35 years	48	70,6
36-45 years	8	11,8
Residence		
Rural area	44	64,64
Peri-Urban area	5	7,4
Urban area	19	27,9
Registration level		
Primary	9	13,2
Out of school	59	86,8
Profession		
Housewife	66	97
Without profession	2	3

Table-2: Distribution of patients according to history

	Effective	Percentage
Obstetrics		
Primiparous	2	3
Pauciparous	17	25
Multiparous	36	53
Large multiparous	13	19
Surgical		
Caesarean	11	16
Myomectomy	1	1,4
Interbreeding interval		
< 2years	17	25
≥ 2 years	51	75
CPN		
Yes	46	67,6
No	22	32,4

Table-3: Distribution of patients according to clinical aspect

	Effective	Percentage
Clinical status on admission		
Well	10	14,7
fair	39	51,4
Bad	18	26,5
Death noted on arrival	1	1,5
Clinical signs		
Pallor	23	33,8
Metrorrhagia	58	85,3
Pain	67	98
Fetus under the skin	48	73,8
Lack of contraction	48	73,8
Presentation type		
Cephalic	32	49,2
Shoulder	6	9,2
Inaccessible	27	41,6
Occurrence circumstance		
Scarred uterus	12	17,6
Utero tonic use	37	54,4
Prolonged work	15	22,1
Obstetric maneuver	3	4,4
Fall from its height	1	1,5

Regarding the mode of admission, 93% were evacuated against 7% who came on their own. For the evacuated patients, 82.4% arrived by ambulance against 13.2% by personal car and 4.4% by public transport. The duration of labor was ≥ 12 hours in 22.1% of cases. Lesions were associated with rupture in 19.1% of cases. Compared to anatomical lesions, 91.2% of ruptures were complete, the site was segmental in 67%, segmento-corporeal in 27% and corporeal in 6%. All of our patients underwent a laparotomy and pre, per and postoperative resuscitation and 79% received a blood transfusion. Simple hysterorrhaphy was performed in 30%, hysterorrhaphy associated with tubal ligation resection in 50% and subtotal hysterectomy in 20% of cases. Late complications were wall suppuration in 1.5% of cases and endometritis in 1.5% of cases. We recorded 8 cases of death, i.e. a rate of 11.7% and a fetal death rate of 86.8%.

COMMENTS AND DISCUSSION

The frequency of uterine ruptures during our study was 1.41%. Our frequency is higher than those reported by NAVDIN F [10] and CAMARA S.N [11] who found 0.87% and 1.11% respectively. This high frequency could be explained by the late evacuations, poor prenatal follow-up, the shortage of qualified personnel for the monitoring of labor and the excessive use of utero-tonics. The average age of our patients was 30 years with extremes of 16 and 40 years. This has been noted by many authors [12-14]. The majority of our patients, i.e. 70.6%, were between 26 and 35 years old. This age group corresponds to the period when genital activity is intense. In fact, the immaturity of the

pelvis in women married early, the reduction of the inter-reproductive interval are factors that may lead to uterine rupture. In our series, multiparas represented 52.9%, large multiparas 19.1%, pauciparas 25%. Other authors [15, 11, 12] have found the same results to say that the frequency of uterine ruptures increases with parity due to histological changes in the uterine muscle. The socio-demographic profile of our patients was married women in general (98.5%), unemployed (97.06%) uneducated (86.8%) and living in rural areas (64.7%). The majority of these women with limited resources and uneducated have reduced access to health structures with adequate health facilities, thus constituting a delay in seeking adequate health care. This situation was affirmed by Diouf A [12]. Who finds that the low socio-economic level in our countries intervenes in the genesis of the ruptures. It reduces access to medical care. ALIHONOU E [2] finds that 60 to 70% of cases of uterine ruptures in Africa are observed in economically low-class women, mostly from rural areas or poor suburban areas. Regarding the mode of admission, 93% were evacuated against 7% who came on their own. For the evacuated patients, 82.4% arrived by ambulance against 13.2% by personal car and 4.4% by public transport. Our evacuation rate is clearly higher than those reported by Diakite Y. [15], Camara SN [11] and DIAKITE I. [16] who found 64.1%, 89.3%, and 90.5% respectively. A good organization of the referral / evacuation system makes it possible to resolve certain difficulties related to access to specialized structures and the management of obstructed births. It can therefore help reduce the frequency of uterine ruptures. In our series, patients with a scarred uterus represented 17.6%. This rate is clearly higher than that reported by LANKOANDE J. [17] who found 7.5%, but significantly lower than those reported by DIAKITE Y. [16], CAMARA SN [11] and DIAKITE I. [18], who found 28.6% respectively, 33.3%, and 37.7%. The inter-reproductive interval was less than 24 months in 17 cases, or 25%. The reduction of the inter-reproductive interval is considered to be a risk factor due to the histological changes in the uterine muscle [1]. In our series, 67.6% of patients performed at least one ANC versus 32.4% who did not perform any ANC. The number and quality of prenatal consultations seems to us to be a necessary condition in the prevention of uterine ruptures. In our series, labor took place in a health center in 76.5% of cases compared to 23.5% at home. This rate is lower than that reported by CAMARA S.N. [11] which found 70% of cases where labor took place in a health center versus 18% at home. The duration of labor was ≥ 12 hours in 22.1% of cases. This rate is higher than that reported by CAMARA SN [11] who found 27%, but significantly lower than those reported by FANE K [19] and DIAKITE Y [16] who found 62.6% and 67% respectively. On admission, 26 5% were in poor general condition. Our result is close to that reported by CAMARA S.N [11] who found 26.2%, but significantly lower than that reported by LANKOANDE J. [17] who found 50%. It is higher than that reported by DIAKITE.Y. [16] with 17.9%. Seventy-six point five percent (76.5%) of cases the rupture was discovered on clinical examination during the partum period compared with 19.1% during the operation and 4.4% during a uterine revision after a vaginal birth. This rate is lower than that reported by CHAMPAULT G. [20] in Tunisia which found 81.25% of rupture discovered on clinical examination. The use of uterotonics was responsible for uterine rupture in 54.4% of cases, prolonged labor in 22% and the pelvis generally narrowed in 7.4%. The same causes have been reported by other authors [16, 18, 11, 21]. We had recorded 82.6% of ruptures in a healthy uterus against 17.4% in a scarred uterus. Uterine scar disunions remain the most frequent causes of uterine ruptures in highly medicalized countries [1]. In our series, 91.2% of ruptures were complete and the seat was segmental in 67%, segmento-corporeal in 27% and corporeal in 6%. The study found 19.1% of cases of lesions associated with rupture. Treatment of any rupture diagnosed is first surgical to ensure proper hemostasis. It is supervised by pre, per and postoperative resuscitation. Resuscitation was provided by Ringer's infusion, oxygen therapy and transfusion of iso-rhesus iso-group blood units. In our series, 79% of patients received a blood transfusion. This rate is clearly higher than those reported by Diakite I. [18] and Camara S.N. [11] who found 47.6% and 63.1% respectively. 30% simple hysterorrhaphy, 50% hysterorrhaphy associated with tubal ligation, resection and 20% subtotal hysterectomy were performed. The surgical technique takes into account many factors, namely the age of the patient, the type of rupture, its direction, the delay, the associated lesions, the obstetric status. Our subtotal hysterectomy rate is close to that reported by Camara S.N. [11] which found 23%. It is higher than those reported by Dembele B. T. [22] and DIAKITE Y. [16] which achieved 2.6% and 13.2% respectively. Several authors [13, 14,23] believe that the speed of the diagnosis and that of the surgical treatment can save the patient. In our series, 8 cases of death were recorded, ie a rate of 11.7%. This rate is higher than those reported by Diakite I. [18] and Diakite Y. [16] who found 4.8% and 6.5% respectively. It is lower than those reported by Camara S.N. [11] and DRABO A. [24] who found 13.1% and 22% respectively. Late complications were wall suppuration in 1.5% of cases and endometritis in 1.5% of cases. We have not recorded a case of vesicovaginal fistula unlike ILOKI LH. [25] in Brazzaville in Congo and Dembele B.T. [22] at the CSRéf of the Bamako CV which found 1.6% and 5.9% of cases respectively. Fetal mortality results from acute fetal distress associated with the cessation of uteroplacental circulation. In the literature, the fetal prognosis is poor in the event of uterine rupture, especially in Africa where parturients arrive late at the hospital at the stage where the rupture is confirmed. Most African series report much higher rates of 50 to 80% [17, 25]. In our series, 86.8% of fetal deaths are reported. This rate is lower than those reported by

Traore Y. [14] and Bagayogo M D. [26] with 92.9% and 94% respectively. It is higher than those reported by Millerda G. [8] in the USA with 31%, CAMARA S.N. [11] with 84.5%.

CONCLUSION

Uterine rupture is a surgical emergency. Its frequency in our study is high. It is one of the main causes of maternal mortality in Mali. Risk factors were dominated by multiparity, oxytocin use, uterine scarring, age between 26 and 35 years, pelvic pathology, obstructed labor, fetal macrosomia, and short IGI.The maternal-fetal prognosis is poor. The lack of schooling, the absence and the poor quality of prenatal follow-up have been the factors increasing maternal and perinatal morbidity and mortality. Factors such as: age, parity, and distance have not been implicated in maternal and perinatal mortality. Better screening of populations at risk, quality ANC, early diagnosis and rapid and adequate management will improve the maternal-fetal prognosis.

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