



## Uterine rupture in Segou's Nianankoro Fomba hospital in Mali: about 62 cases

Aminata Kouma<sup>1\*</sup>, Tioukani Thera<sup>2</sup>, Brahim Donigolo<sup>3</sup>, T Traore<sup>4</sup>, Joseph Koné<sup>5</sup>

<sup>1</sup> Department of Gynecology and Obstetrics of University Hospital Center of Kati, Mali

<sup>2</sup> Department of Gynecology and Obstetrics of University hospital Center of Point G, Mali

<sup>3,4</sup> Department of Gynecology and Obstetrics' Regional Hospital of Ségou, Mali

<sup>5</sup> Department of Reference Health Reference Center Commune V of Bamako's District, Mali

### Abstract

**Aims:** This study aimed to determine frequency, socioeconomic profile of the patients and maternal and fetal outcome of uterine rupture.

**Patients and Methods:** It is about a forward-looking going study from January 1<sup>st</sup>, 2007 till June 1<sup>st</sup>, 2009 realized in the department of gynecology and obstetrics of the Segou's Nianankoro Fomba hospital. All the patients were included in our study having presented a uterine rupture during delivery or the immediate post-partum and the coverage of which was assured in the service. Data were analyzed on the EPI INFO 6.4 software with a threshold  $p = 0, 05$ .

**Results:** During the period of study we recorded 4594 deliveries among which 62 uterine rupture or 1, 3 %. Uterine rupture was considered as iatrogenic in 72, 6 % of cases. The treatment was conservative in 57, 4 % of cases and operating consequences were good in 91, 8 % of cases. We recorded 5 cases of maternal death and 87, 1 % of fetal death.

**Conclusion:** Uterine rupture is one of the main causes of maternal mortality. The premature and adequate care allows reducing considerably maternal and fetal mortality.

**Keywords:** Uterine rupture, maternal mortality, fetal mortality

### Introduction

Despite progress in the management of pregnant women, uterine rupture is still a common complication in undeveloping countries [2]. It is the cause of significant maternal and fetal mortality [1, 2]. It occupies with the hemorrhage the main causes of maternal death in the undeveloping countries [1]. The absence of prenatal care (CPN) [2, 3, 4, 5, 6], the insufficient quality of antenatal care [7], the presence of uterus scar [4, 5, 8, 9] are main factors, which further influence the frequency of uterine rupture in our countries. That is why we initiated this study to specify the socio-economic characteristics of the patients, to report the management of cases of uterine rupture and to establish its maternal and fetal outcome at the Nianankoro FOMBA hospital in Ségou.

### Materials and Methods

This study took place in the Obstetrics and Gynecology Department of Nianankoro Fomba Hospital in Ségou. It is a 2<sup>nd</sup> referral hospital, with a capacity of 22 beds; It records an average of 2000 deliveries a year, including 23.3% cesarean section. This is a descriptive longitudinal study with a prospective collection of data from January 1, 2007 to June 1, 2009 for a period of 30 months. Our study looked at all women who gave birth in the service during the study period. Included in our study were all patients who had a uterine rupture diagnosed during labor or in the immediate post-partum and whose care was provided in the Service This study did not include cases of limited uterine cervical tears, uterine perforations during endo-uterine maneuvers.

The data were collected from the obstetrical files; the delivery register and the operating Record register. The information was recorded on individual survey cards prepared for this purpose. The Data were entered on the Word 2003 software, and analyzed on the EPI INFO 6.4 software, the statistical tests. The Chi<sup>2</sup> was used to assess the relationships between the variables, the threshold of significance having been  $p < 5\%$ .

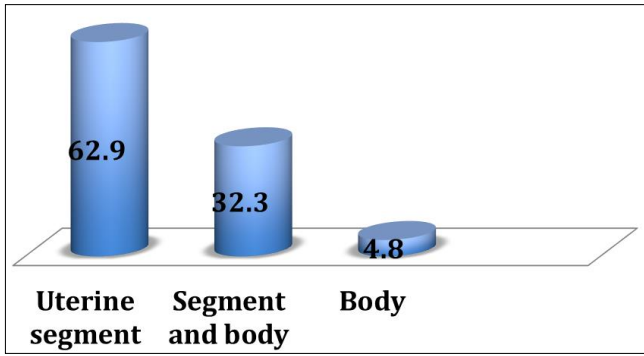
### Results

During our study period, 4594 deliveries were recorded, including 1051 cases of caesarean section and 62 cases of uterine rupture: one uterine rupture for 74 deliveries (1,3%) among witch 88.7% of the patients were evacuated. The ambulance was the most used means of transport with 88.7%. Uterine rupture was observed in 72% of cases in patients who traveled less than 50 km. Hemorrhage was the most frequently mentioned reference pattern with 40.3% and 74.2% of patients had no prenatal care. 37.1% of uterine ruptures were due to abnormal use oxytocic abuse (Table 1).

**Table 1:** Distribution of patients according to the cause of rupture

Cause	Effective	Percentage
Oxytocin infusion	23	37, 1
Uterine expression	21	33,9
Rupture of normal uterus	17	27, 4
Version by internal maneuver	1	1,6
Total	62	100

The lower uterine segment was interested in 62.9% of cases (Figure 1)



**Fig 1:** Distribution of patients according to the Seat of uterine rupture

Conservative surgery was performed in 57.4% of cases (Table 2)

**Table 2:** Distribution of patients according to type of intervention

Type	Effective	Percentage
Total Hysterectomy	20	32,8
Subtotal Hysterectomy	6	9,8
Hysterorraphy	35	57,4
TOTAL	62	100

Operative follow-up was simple in 91.9% of cases. The Maternal death and stillborn were respectively was 8.1% and 87.1% (Table 3)

**Table 3:** Distribution of patients according to maternal et fetal outcomes

Outcomes	Effective	Percentage
Operatives sequence		
Normal	56	91,8
Anemia	3	5
Septicemia	1	1,6
Maternal outcome		
Alive	57	91,9
Died	5	8,1
Fetal outcome		
Alive	8	12,9
Stillborn	54	87,1

**Discussion**

Frequency: For 30 months we recorded 4594 deliveries among witch 62 cases of uterine rupture (1.3%) or uterine rupture for 74 deliveries. Our rate is lower than those of authors such as: Konare F. and al. [15] at the Sominé Dolo hospital in Mopti in 2007, Lankaondé J and al. [16] in Burkina Faso in 1998 and Chamisso B and al. [5] in Ethiopia in 1995 who respectively found one rupture for 56 deliveries; one rupture for 44 deliveries and one rupture for 38 deliveries. However, our rate is higher than those of Champault G and al. [6] in Cameroon and Sidibe M and al [20] at the Sikasso’s Hospital in Mali in 1999 who found respectively one case for 509 deliveries and one case for 118 deliveries. The frequencies of uterine rupture in African countries are higher than those recorded in industrialized countries, as evidenced by studies by Cosson. M and al. [14] in France (1983) who found one rupture for 1299 deliveries and Miller D.A and al. [17] in the USA (1994) one case for 6849 deliveries. This gap between industrialized and developing countries could be explained by the inaccessibility of health structures and the poor organization

of the referral system in undeveloping countries. his finding authorizes us today to classify uterine rupture as one of the development indicators of a country. Contributing factors were the reduction of reproductive interval less than 24 months, multiparty, weakening of the uterus by anterior scar. Home deliveries could contribute to increase the frequency of uterine rupture in our countries. Multiparty would be a risk factor in our study with a value of  $p = 0.035$ . The socioeconomic level of parturient was assessed on the basis of their occupation and level of education. Thus: 96.8% of our patients were housewives therefore without or low income and 93.5% illiterate. This proves that the vast majority of the patients admitted to our uterine rupture service were without or with low income, illiterate and, for the most part, living with their husbands. There is a statistically significant relationship between socioeconomic status and uterine rupture ( $p = 0.04$ ). We agree with DIOUF A. *et al* [8] who said that the only socio-economic level in our countries is involved in the genesis of uterine rupture. It reduces access to medical care. Alihonou.E and al. [2], Rekek S and al. [19] found that 60 to 70% of uterine rupture in Africa is observed in economically weak women, mostly from rural areas. In fact, we must add the absence of road and means of transport of patients to specialized structures, which further complicates the care of its parturient. Of 62 cases of uterine rupture, only 17 patients or 27.4% had a history of cesarean section. It is about rupture on a cicatrice uterus. This result is inferior to that of Diouf A and al [8], who reported in Dakar 30% uterine scarring and superior to that of Lankaondé J. and al. [15] had registered 7.5% in Ouagadougou. However, it is necessary to note the absence of antecedent of curettage among our parturient contrary to certain authors like Picaud A. and al. [18] who insisted on the traumatic role of curettes as factors promoting occurrence of uterine rupture. The inter-reproductive interval: 62% of parturient had an interval less than 24 months. Reduction of this interval is considered a risk factor due to histological modification of the uterine muscle. There is a significant link between the reproductive interval and uterine rupture ( $p = 0.04$ ). Multiparas accounted for 64.5% in our sample followed by parous 29%. The predominance of multiparas is confirmed by authors such as Bohoussou K. *et al*. [3] who in a study carried out in the service Obstetrics and Gynecology at Cocody CHU in Abidjan reported a rate of 56.74% multiparous; PICAUD A. [18], in his series of 31 cases at the hospital center of Libreville, reported 60% of multiparas and Diallo F.B. *et al* [7] who found 62% multiparas in a study carried out at the Niamey maternity ward in 1998. This could be explained by the weakening of the uterus in multiparous women. Multiparty thus constitutes a risk factor in our study with a statistically significant difference ( $p = 0.03$ ).

In our study 55 cases or 88.7% of patients were evacuated by structures of first references thus confirm the extreme urgency of the uterine rupture. 7 cases or 11.13% of patients came on their own after starting home birth work. These results are superimposable to those of Konare F. *et al* [15] reported a rate of 89% of patients evacuated and 11% of patients came from itself and higher than that of Drabo A. *et al*; [10] found 94% of evacuees and 16% of the patients came from her. With regard to the reason for evacuation, the hemorrhage was found in 40.3% of cases. Indeed, the reduction of the inter-reproductive interval of less than 24 months, the multiparty, the weakening of the uterus by an

anterior scar, the attempts of home delivery could contribute to increase the frequency of uterine rupture in our countries. The disunion of uterine scar, which is the currently observed in highly medicalized countries, represented 27.4% in our series. This prevalence of rupture on the uterine scar is inferior to those found by some authors either Diouf. A *et al.* [8] 60% in Senegal; Diallo. F.D *et al* [7] 61.69% in Niger; Soltan. M.H *et al.* [21] 54.5% in Saudi Arabia and higher than that of Sidibe. And al [20] who reported 18.9% in Bamako. This high rate of uterine disunion could be explained by much of it by quality of caesarean section scars that are most often performed by doctors who have surgical skills in our countries where there are not enough specialists. Iatrogenic fractures are interruptions associated with the midwife by misuse of oxytocin; obstetric maneuvers or uterine expressions. Oxytocin abuse accounts for 37.1% in our series; obstetric maneuvers 1.6% and uterine expression 33.9% of ruptures. Akpadza.K *et al* [1] reported in Togo 2.3% of cases related to endo-uterine maneuvers and Iloki L.H. and al [12] reported 6.7% of obstetric maneuvers in Brazzaville in Congo.

Breaks on healthy uterus accounted for 71% of cases in our study. This rate is similar to that of Akpadza K. *et al* [1] who reported 72.1% in the regional hospital of Sokode and al (Togo) and Dolo A. *et al* [9], in a series of 21 cases observed in the gynecology obstetrics department of the Point G hospital, had reported 71.4%. However our rate is higher than those of Alihonou E. *et al* [2] in Benin who found 47.2%; Diouf.A *et al* [8] in Senegal with 31.7% and Kaba.C.S [13] in Côte d'Ivoire which finds 55, 02%. The high rate of uterine rupture in the healthy uterus could be explained by dystocia presentations, macrosomia, pelvic abnormalities most often associated with misuse of oxytocin and poorly executed uterine expressions.

Hysterorrhaphy was performed in 57.4% of cases. This rate is comparable to those of Champault [6] in Cameroon and Diallo F.B. *et al* [7] in Niger which found 53% and 56% and below that of Bouteleb [4] in Morocco is 83% and higher than that of Tete K.V.S. *et al* [22] who found 28% in Togo. The rate of 57.4% of hysterorrhaphy testifies to the youth of our study population, the early diagnosis and management of uterine rupture in our study.

In our study hemostasis hysterectomy was performed in 42.6% of cases. Our rate is superimposable to those of Picaud A. *et al* [18], in their series of 31 cases observed at the hospital center of Libreville (Gabon) who reported 46.4% and Konare F. [15] who found 43% at Sominé Dolo hospital in Mopti in 2008. Hysterectomies were performed because of hemostasis difficulties, the poor quality of the tissues and the duration of the uterine rupture.

In our series, maternal mortality was 8.1%. This rate is lower than those found by Bohoussou K. *et al* who found 13.89% of maternal deaths in Côte d'Ivoire and Diallo F.D. and al who found 16% of maternal deaths in Niamey. However, our rate is higher than that of PICAU A., which reported a rate of 6.5% in Libreville. Despite the efforts made, notably the free caesarean section, in the reduction of maternal mortality, the lethality linked to uterine rupture remains high, hence the need to reorganize the referral / referral system, increase awareness during the prenatal consultation on pregnancy-related risks and childbirth. Fetal mortality is very high with 87.1% of cases. This rate is consistent with those of several African authors according to which the high toll paid by the fetus remains a constant with

a rate of 83%, 95% according to the studies [6, 10, 15, 18, 19]. This could be explained by a delay in diagnosis and management.

## Conclusion

Uterine rupture is a surgical emergency. It is one of the main causes of maternal mortality in developing countries and particularly in Mali. The maternal and fetal death of this condition are 8.1% and 87.1% respectively in our study. Multiparas are the most affected 64.5%. Abuse of oxytocic, uterine expressions, cesarean scar disruption and mechanical dystocia are the main causes. Early and adequate management can significantly reduce mortality and morbidity related to this complication of childbirth.

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