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Original Research Article

Uterine ruptures during labor: a study of 26 cases at Nabil Choucair Medical Center, in the suburbs of Dakar

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ABSTRACT

Background: This study aims to clarify the epidemiological profile of patients and describe the diagnostic, therapeutic and prognostic aspects of uterine ruptures at Nabil Choucair Health Center, in the suburbs of Dakar.

Methods: This was a retrospective and prospective, descriptive and analytical study conducted over a period of 112 months, from July 31, 2005 and March 31, 2015; it concerned all diagnosed cases with uterine rupture, managed at Nabil Health Center Choucair Dakar. Data were collected from antenatal notebooks, delivery records, surgical reports and anesthetic records. The following parameters were studied: socio-demographic characteristics (frequency, characteristics of patient), the course of pregnancy, diagnostic, prognostic, and therapeutic aspects. Data analysis was performed using SPSS software (version 11.0).

Results: During the study period, we recorded 26 uterine ruptures from a total of 34,097 deliveries, that is a frequency of 8 out of 10,000 births. The epidemiological profile of the patients was that of a 30-year old woman, on average, few previous deliveries with an average parity of 3, who received on average 3 antenatal and evacuated in 50% of cases. Uterine rupture occurred in 17 patients on a new uterus (65, 4%) and in 9 patients on a scarred uterus (34.6%). Two patients (7%) were in hemorrhagic shock. A laparotomy aimed at specifying the place of rupture and making the treatment was performed in all patients. It was 18 uterine segmento-corporeal ruptures (69.2%), 5 segmental ruptures (19.2%) and 2 corporeal ruptures (7.6%). We recorded 9 uterine ruptures with living fetus (38.5%). Twenty-three patients (88.5%) underwent conservative suture against only 3 hemostasis hysterectomy (11.5%). The postoperative courses were uneventful in 57.7% of cases. Eleven patients (42.3%) had anemia and we recorded maternal deaths, which is a maternal mortality of 3.84%.

Conclusions: Uterine rupture is a serious complication that is still responsible for significant maternal and fetal mortality. Prevention is based on careful monitoring of pregnancy and delivery.

Keywords: Conservative suture, Hemostasis hysterectomy, Uterine rupture

INTRODUCTION

Uterine ruptures are complete or incomplete discontinuities in the lining of the pregnant uterus, due to the existence of a weakening factor and/or excessive

pressure on this lining. Most of the time, uterine ruptures happen during labor.¹⁻³ In western countries (Europe, North-America), thanks to controlled main risk factors, major deteriorations on safe uterus are exceptional.³⁻⁶ Unlike western countries, developing countries, especially sub-Saharan African countries, experience

frequent cases of uterine ruptures which constitute an extremely serious obstetrical complication. Uterine ruptures happen more frequently to a healthy uterus than to a damaged one and its main decisive factors include undiscovered dystocia and great multiparity.⁷⁻¹⁰

This study was conducted in Nabil Choucair Health Center, located in the suburbs of Dakar. Its main objectives were to determine patients' epidemiological profile but also to describe diagnostic, therapeutic and prognostic features of uterine ruptures.

METHODS

This is a retrospective, prospective, descriptive and analytical study conducted over a 112 month-period from July 31st to March 31st, 2015; it focused on all the cases of uterine ruptures diagnosed and treated at Nabil Choucair Health Center in Dakar. Data were collected from prenatal consultation records, birth records, surgical reports and anesthesia records. The following parameters were considered: socio-demographic features, the course of pregnancy, the clinical picture during admission into the health center, as well as diagnostic, etiology, prognostic and therapeutic aspects. Data analysis was performed using SPSS software (version 11.0).

RESULTS

Frequency

Throughout the study period, we recorded 26 uterine ruptures out of 34,097 deliveries, representing a frequency of 8 out of 10,000 deliveries.

Characteristics of patients

Patients were between 19 and 43 years old with an average of 30 years old. The most represented age range was 25-35 (Table 1).

Table 1: Distribution of patients according to their age (N=26).

Age range (years)	Number	Frequency (%)
19-24		19.2
25-30	12	45
31-36	6	23.1
37-42	3	11.6
43 and above	1	3.8
Total	26	100

Parity ranged between 1 and 8 with an average of 3. A total of twelve patients (46.2%), underwent more than four prenatal consultations. However, 5 among our patients (19.2%) did not undergo any prenatal consultation. Nine among our patients (34.6%) previously underwent a caesarean section. Among these cases, there were 7 single-scar uterus (26.9%) and 2 two-scar uterus

(7.7%). Half of the patients were evacuated from peripheral health structures.

Clinical picture during admission into the health center

Cases of metrorrhagia were reported among all patients with 2 cases of hemorrhagic shock (7%). On the admission into the health center, the foetus was turned towards the abdomen in 42.3% of cases. The mean duration of the pregnancy was 37 weeks of amenorrhea (WA).

Etiology

The different etiology was (Table 2).

Table 2: Distribution of patients basing on the etiology of the uterine rupture (N=26).

Etiologies	Number	Frequency (%)
Foeto-pelvic disproportion	13	50
Scarred uterus	9	34.6
Abdominal pressures	2	7.7
Abusive use of oxytocic	2	7.7
Total	26	100

Therapeutic cares

All patients were subject to an initial resuscitation. Laparotomy was performed for all patients. It was used in order to draw up an average of 2 litres of hemoperitoneum and to precisely find out the location of uterine rupture which was segmental-coporeal among 18 patients (69.2%), segmental among 5 patients (19.2) and coporeal among 2 patients (7.6%).

The scope of the rupture was between 5 and 16 cm with an average of 7 cm. The foetus was alive among 9 patients (38.5%). Twenty-three (23) conservative sutures (88.5%) and 3 hemostasis hysterectomies (11.5%) were performed.

Prognostic aspects

Surgical outcomes were simple among 15 patients (57.7% of cases).

Eleven patients (42.3%) showed anaemia and we registered one maternal death, which represents a specific lethality of 3.8%.

The deceased mother was a multiparous woman whose pregnancy was complicated by shoulder dystopia with an undiscovered uterine rupture, diagnosed 24 hours after delivery. As for the perinatal prognosis, we registered a total of 17 intrapartum deaths (61.5% of cases).

DISCUSSION

Frequency

The frequency of uterine ruptures found in our study (0.08%) is below the rates reported in other African studies. Indeed, Privat reported a frequency of 2.26% in Bouaké which was similar to the one observed by Akotonga in Ouagadougou's Hospital Center.^{9,11} This difference is supposedly due to the fact that these studies were conducted in reference health centers dedicated for the treatment of serious cases whereas our study structure was adjacent to surgical maternities capable of coping with uterine ruptures. However, in advanced countries, uterine rupture has become an exception and almost only happens to cases involving scarred uterus. In the United States, incidences vary from 1/1000 to 1/1500 pregnancies and from 1/1000 to 1/2000 pregnancies in France.^{6,12} These lower rates are underlied by better access to healthcare and by higher-quality technical platforms which are better suited for the treatment of uterine ruptures.

Characteristics of patients

The epidemiological profile was that of a 30 years old low-parity women with a mean parity of 3, who has undergone an average of 3 prenatal consultations and been evacuated in 50% of cases.

Many authors recognize that age is a risk factor of uterine ruptures. In our study, the most representative age range was 25 to 35 years. The same observation was made by Akotonga in the Maternity of Yalgado Hospital Center in Ouagadougou, Kouakou in the University-affiliated Hospital of Bouaké and Dolo in Gabriel Touré Maternity in Bamako.^{9,10,13} This age range is also similar to the one found in developed countries like France where the age of the first pregnancy is about 30 years.

In our countries, uterine rupture especially happens to uterines that are fragilised by multiparity, most oftenly in a context of foeto-pelvic disproportion or dystocic presentations.^{1,2,8,10,14} The inappropriate use of oxytocic also plays a significant role although it is difficult to measure since previous treatments are rarely mentioned in evacuation records.^{8,10}

The frequency of ruptures increases according to parity and the drop in the inter-pregnancy interval, through histological changes of the uterus especially in the myometrium that tends to become fibrous and less vital. This is corroborated by the fact that sub-saharan African countries, that register the highest rates of uterine ruptures in the world, have the most pejorative reproduction features: a high birth rate (3 or four times higher than in advanced countries), an early and long-lasting fecundity, an average inter-pregnancy interval below 18 months, and an average number of children above 5.^{1,12}

Etiologic factors

Mechanical dystocia, more precisely foeto-pelvic disproportion, was the most common etiologic factor in our study (50% of cases). In the study conducted by Rajaonarison.¹⁵ In Madagascar, uterine rupture was caused by a mechanical dystocia among 13 of the 31 patients considered in the study (41.9%). We agree with him that the predominance of mechanical causes is a characteristic shared by developed countries due to poor compliance with follow-up appointments among patients, the low detection rates of these abnormalities by health care providers and problems of access to surgery centers related to road infrastructure.^{1,8,10} The 3rd quarter perinatal consultation, especially during the 8th month, should indeed enable the detection of mechanical abnormalities that may hinder the delivery and, as a result, allow for the development of delivery methods.^{16,17}

Other etiological factors such as scarred uterus (34.6%), abdominal pressures (7.7%) and the abusive use of uterotonics (7.7%) were observed in our study. The same results were found in different African studies.^{1,8-10} In Rajaonarison's study, it was proved that the use of prostaglandin for cervical ripening to induce labor increases 7.2 times the risk of uterine rupture than without this drug.¹⁵ As for scarred uterus, the frequency found in our study is slightly above those found by Gueye in 1992 and 1996 in Senegal, which was 10.4% and 18% respectively. This gradual increase of the rate of scarred uterus in the causes of uterine rupture is partly underlied by a higher caesarean section rate in Senegal, which increased from 1.1% in 2000 to 4.4% in 2014.¹⁸

Therapeutic care

Uterine rupture is a major surgical emergency treated through an initial resuscitation (vascular filling, blood transfusion) combined with an urgent laparotomy. We performed 23 conservative stitches (88.5%) and 3 hemostasis hysterectomies (11.5%), contrary to the results found by Gueye who reported far higher hemostasis hysterectomy rates of 96.7% and 78% in 1992 and 1996 respectively.¹⁰ This shows the important progress made in terms of uterine rupture treatment in Senegal, mainly through an earlier diagnosis and treatment of cases.

Prognostic aspects

The maternal mortality rate found in our study (3.5%) is well below those reported by Gueye in 1992 and 1996 in Senegal which were 28.3% and 12% respectively.¹⁰ So we notice a substantial drop in maternal deaths following uterine rupture due probably to an increased access to surgery structures, to an improvement of the technical platform and to better trained health workers capable of handling these cases. However, the perinatal prognosis remains gloomy. Indeed, our perinatal mortality rate remains high, even if it is well below those reported by

Gueye.¹⁰ It is similar to those reported in developing countries, ranging from 45 to 90%.^{9,10,12,19} The time lag between the diagnosis of the uterine rupture and the performance of laparotomy which is still very long, along with the shortage of health workers and suitable structures in the area of perinatology could explain the heavy price paid by the foetus.

CONCLUSION

Uterine rupture remains a frequent pathology in our country. In spite of the efforts made in terms of diagnosis and treatment, the perinatal prognosis remains poor. The improvement of the technical platform of our health structures, the enhancement of the quality of perinatal consultation, the identification and reporting of risk-pregnancies could reduce its frequency and improve its prognosis.

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