

# Rupture Of The Gravid Uterus: A Never-Ending Obstetric Disaster! The Ikeja Experience

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## Abstract

Ruptured uterus is a major obstetric emergency that exposes the mother and child to grave danger and contributes to the high maternal and perinatal mortality and morbidity in Nigeria.

This study was carried out to determine the incidence, predisposing factors, the maternal and fetal outcomes of patients with uterine rupture in Lagos State University Teaching Hospital (LASUTH).

A 4-year retrospective study of patients with uterine rupture in LASUTH between January 2000 and December 2003 was carried out. There were 56 cases of uterine rupture giving an incidence of 5.38 per 1000 deliveries. 95% of the patients were not followed antenatally. Most cases involved spontaneous ruptures. The interval between arrival in the hospital and intervention was greater than 6 hours in 30% of patients. Uterine repair was the most common surgical treatment. Case fatality was about 30%. Perinatal mortality exceeded 90%.

The incidence of rupture uterus is still very high. Suggestions are made to reduce the incidence and mitigate this tragedy.

## INTRODUCTION

Rupture of the gravid uterus is an obstetric emergency with dire foeto-maternal consequences. <sup>1</sup> There is significant differences in the incidence of uterine rupture between developed and resource-limited countries with quoted incidences averaging less than 0.4 in the first and ranging from 2.4 to 8.9 per 1000 deliveries in the latter. <sup>2,3,4,8,9,10</sup>

In the USA, more than 85% of cases are traumatic or happen in a scarred uterus. <sup>2</sup> In the developing countries, ruptures are primarily spontaneous and occur in an unscarred uterus, usually as a complication of labour. <sup>5</sup> Feto-maternal morbidity and mortality are usually very high because unfavorable socio-economic and cultural factors make responses to obstetric emergencies suboptimal, thus making the magnitude of this catastrophe unimaginable. <sup>6</sup>

Lagos State University Teaching Hospital (LASUTH) in Ikeja is the largest maternity center serving the entire cosmopolitan city of Lagos, Nigeria. Because of the health reforms policy of the government which prohibits refusal of admission of any medical emergency in all the state-owned public hospitals, the hospital receives many of the complications of labor that occur in the primary and secondary health facilities and the various private hospitals.

A retrospective study of ruptured uterus cases seen at LASUTH between January 2000 and December 2003 was carried out to determine the incidence of ruptured uterus and identify the associated socio-demographic and etiological factors. Clinical presentations, types of intervention and maternal outcome were also examined. Based on the findings, recommendations are made on how to reduce the occurrence and improve the outcome of uterine rupture in our community.

## MATERIALS AND METHODS

The medical records of all patients with the diagnosis of ruptured uterus managed in the hospital from 1<sup>st</sup> January 2000 to 31<sup>st</sup> December 2003 were retrieved. There were a total of 61 cases but only 56 case folders were available for analysis.

Data pertaining to age, parity, booking status, clinical presentation, etiological factors, interval before intervention, type of surgery, operative findings, volume of blood transfused, post-operative management and feto-maternal outcome were extracted from the case notes.

The term "booked" or 'unbooked' was used in relation to whether the patient was registered for antenatal care in the hospital or not.

Data were analyzed and where appropriate subjected to statistical analysis.

## RESULTS

During the study period, 56 cases of ruptured uterus were seen. Six patients (11%) were booked while the remaining fifty (89%) were unbooked. There were 10,412 deliveries in the 4 year period giving an incidence of 5.38 per 1000.

Table 1 shows the trend of the incidence of ruptured uterus between 2000 and 2003.

**Figure 1**

Table 1: Incidence Of Ruptured Uterus Between 2000 And 2003 In Lasuth

Year	No. of cases of ruptured uterus	No. of Deliveries	Incidence/1000
2000	17	2650	6.42
2001	13	2695	4.84
2002	12	2714	4.42
2003	14	2353	5.95
<b>TOTAL</b>	<b>56</b>	<b>10,412</b>	<b>5.38</b>

The age distribution is shown in Table 2. The ages of the patients ranged between 20-40 years. The mean age was 32.4 years. Eighty percent of patients were within the 25-39-years age group.

**Figure 2**

Table 2: Age Distribution Of Patients

Age Group	20-24 yrs	25-29 yrs	30-34 yrs	35-39 yrs	40-44 yrs
No.	5	12	19	14	6
%(Percentage)	9	21	34	25	11

The parity distribution is shown in Table 3. 55.3% of the patients were para 3 and above while only 3.6% were nulliparous.

**Figure 3**

Table 3: Parity Distribution

Parity	No.	%
0	2	3.6
1	7	12.5
2	16	28.6
3	21	37.5
4	7	12.5
> 5	3	5.3%

Spontaneous rupture occurred in 46 (82.1%) cases while 10 cases were from traumatic causes. Of all cases of ruptured uterus, 21 (37.5%) occurred in uteri without previous scars. All the booked cases (6) had spontaneous ruptures in scarred uteri. All the traumatic cases (10) were in unbooked patients.

The commonest clinical presentations were shock (71%), abdominal tenderness (57%), vaginal bleeding (55%) and abdominal pain (50%).

The commonest site of rupture (Table 4) was the anterior wall of the uterus in 30 cases (53.6%). The posterior wall was involved in 10 cases (17.9%). Both anterior and posterior walls were involved in 6 cases (10.7%). In 8 cases (14.3%) the lateral wall was involved. Fundal ruptures occurred in 2 cases (3.6%).

**Figure 4**

Table 4: Site Of Rupture

Site of rupture	Total	%
Anterior	30	53.6
Posterior	10	17.9
Ant + Post	6	10.7
Lateral	8	14.3
fundus	2	3.6
<b>TOTAL</b>	<b>56</b>	<b>100</b>

Bladder and vaginal involvements were in 5 (9%) and 3 (5%) cases, respectively.

There were 2 (3.6%) upper uterine segment ruptures and 40 (71.4%) lower uterine segment ruptures. Combined upper and lower uterine segment ruptures were 14 (25%).

Both cases of upper segment rupture had subtotal hysterectomies performed while 90% (36) of the lower segment ruptures had repair of the uterus.

Management of the patients included active resuscitation with appropriate fluid and blood replacement. More than half of patients required transfusion of 1-2 liters of blood during the course of treatment.

An analysis of the surgical procedure carried out in relation to subsequent mortality is shown in Table 5. Mortality was highest (50%) among the group that had total hysterectomy. The lowest mortality was among the group that had the uterus repaired.

**Figure 5**

Table 5: Surgical Procedure And Mortality

Type	No.	%	No. of Deaths	%
Repair	23	41	6	26
Repair + Bil. Tubal Ligation	15	27	4	27
Total hysterectomy	6	10.7	3	50

Total maternal deaths in the hospital during the study period was 226. Ruptured uterus contributed 11.5% of maternal deaths.

Five babies were born alive in the whole series, 3 of them in

booked patients. Perinatal loss was close to 92% in patients with ruptured uterus.

About 45% of the patients received surgical treatment between 3 to 6 hours after arrival in hospital (Table 6).

**Figure 6**

Table 6: Presentation-Intervention Interval

Time interval	No. of Patients	% (Percentage)
< 3 hours	14	25
> 3 < 6 hours	25	45
> 6 < 9 hours	12	21
> 9 hours	5	9
<b>TOTAL</b>	<b>56</b>	<b>100%</b>

Duration of hospital stay ranged between 8 and 30 days with an average of 22 days (SD 4.3 days).

## DISCUSSION

The incidence of ruptured uterus though uniformly low in developed countries remains very high in Africa ranging between 2.4 and 8.9 per 1000 deliveries, which is a reflection of the standard of obstetric care and access to it.

The incidence of 5.38 per 1000 deliveries in this study is similar to results from earlier studies in Southwest Nigeria, where it had ranged between 5 and 6 per 1000 deliveries.<sup>3,10</sup> Results emanating from the North western zone of Nigeria were however quite a departure at 13 per 1000 deliveries.<sup>6,11</sup>

The incidence of uterine rupture in this study was contributed largely by unbooked cases, which constituted about 90% of patients, as the institution is a referral center. Many patients avoid good obstetric centers for financial reasons.<sup>12</sup>

An analysis of the annual incidence shows that nothing has really changed over the years. This possibly reflects the fact that access to and utilization of standard well-manned and -equipped maternities by the grassroots citizenry are still at low levels.

The age and parity distribution of patients with ruptured uterus in this study are similar to findings from other studies.<sup>13,14,15</sup> The peak incidence in multiparous patients also corroborates other workers' findings.<sup>13,14,15,16</sup> This does not however understate the need for adequate monitoring in labor or caution when using oxytocin in these patients.

The unscarred uterus constituted a substantial number of uteri that ruptured spontaneously thus replicating findings in other studies.<sup>7,13</sup> Feto-pelvic disproportion, obstructed labor,

oxytocin abuse and multiparity were the common incriminated factors.

About 40% of spontaneous ruptures occurred in patients with previous lower segment caesarean section. This may be due to an increase in the use of caesarean section by private practitioners who do not adequately possess the required surgical skills or in settings poorly compliant with aseptic operational techniques, both leading to poor scar integrity. In addition to that, poor judgment allowing trial of vaginal delivery in the presence of cephalopelvic disproportion is a contributing factor. Trial of vaginal birth should be allowed only when close monitoring is available and possible.<sup>17</sup>

Abdominal pain and tenderness, vaginal bleeding and shock were the predominant clinical features at presentation in this study. These features also occur in patients with abruptio placentae. Therefore, it is necessary to hold a high index of suspicion.

Most of the cases of uterine rupture in this study (68%) were treated by repairing of the uterus. This is possibly due to the fact that it is the easiest and safest procedure in many cases. It might also be because of desire to maintain reproductive capability and menstruation in a group of people who place high premium on children and menstruation for various socio-cultural reason.<sup>10,13</sup>

The mortality associated with hysterectomy in cases of uterine rupture was higher than for repair operation. Patients that had more extensive, multiple or infected tears were not suitable for repair and tended to be much more acutely ill, this may have contributed to their high mortality rate.<sup>10,14</sup> Total hysterectomy may be complicated by bladder or ureteric injury while subtotal hysterectomy does not eliminate the risk of subsequent cervical cancer development.<sup>11,13,15,17,18</sup> Treatment must be individualized and must take into cognizance the clinical condition of the patient, her long term reproductive health, and the experience of the surgeon.<sup>19,20</sup>

This study confirms that institutional delay in the provision of treatment still contributes to morbidity and mortality. Reasons adduced for these delays include inadequate surgical facilities, unavailable blood supplies and financial reasons.<sup>3,6,10,14,19</sup> Earlier studies documented an obvious lack of improvement in this regard over the past 15 years.<sup>12,21</sup>

Most patients (80%), required between 2 to 4 units of blood, during their hospital stay. This highlights the need to have

functional blood banking services, especially during the peri-operative period.

Maternal mortality rate in cases of uterine rupture was 30% in this study. It is similar to the rates reported in some other Nigerian centers.<sup>11,19</sup> The main cause of death was hypovolemic shock. Excessive hemorrhage usually occurs following uterine rupture. The intensity of initial resuscitation plays a major role in determining maternal outcome.<sup>22,23</sup> Perinatal mortality in this series was 95%, similar to results obtained from other centers in the developing countries.<sup>5</sup>

Ruptured uterus continues to be a recurring obstetrical disaster in the developing world with its associated mortality and morbidity. Very rigorous efforts at upgrading the standard of obstetrical care at the primary level is required to stem this tide.

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