

# Ruptured uterus in South Western Nigeria: a reappraisal

O C Ezechi, P Mabayoje, L O Obiesie

## ABSTRACT

**Introduction:** Rupture of the gravid uterus is a grave obstetric complication that is associated with high maternal and perinatal mortality rates. In Nigeria, the incidence remains high and continue to increase because of poverty, illiteracy, unavailability of manpower, poor supply of medical equipment and consumables, and dwindling health care funding.

**Methods:** A 10-year retrospective review of all cases of ruptured uterus seen at the Obafemi Awolowo University teaching hospital complex in Ile Ife, Nigeria was conducted.

**Results:** A total of 61 cases of ruptured uterus from 16,683 deliveries were recorded, giving a ratio of 1 in 273. Predisposing or aetiological factors for rupture were: prolonged labour (91.8 percent), grand multiparity (50.8 percent), injudicious use of oxytocin (41.0 percent), uterine scar (26.2 percent), obstetric manipulation (4.9 percent) and abnormal lie (14.8 percent). Fifty-six patients had surgery, of which 14 (25.0 percent) had total abdominal hysterectomy, 16 (28.6 percent) had subtotal hysterectomy, 15 (26.8 percent) had repair of the rupture and bilateral tubal ligation, and 13 (19.6 percent) had repair only. Thirteen maternal deaths occurred with a case fatality rate of 21.3 percent.

**Conclusion:** Ruptured uterus remains a problem in Nigeria, with primary health centres and mission houses being identified as major contributors to this condition. They primarily failed in the recognition of abnormalities in the antepartum and/or intrapartum periods, with delays in referral and the injudicious use of oxytocin.

**Keywords:** grandmultipara, injudicious use of oxytocin, maternal mortality, prolonged labour, ruptured uterus

## INTRODUCTION

Rupture of the gravid uterus is a grave obstetric complication. It is associated with high maternal and perinatal mortality rates. Even where the patients survive, their reproductive function is abruptly terminated, and recovery is often prolonged and turbulent<sup>(1-7)</sup>. The incidence of ruptured uterus varies in different parts of the world. In the developing countries the incidence has dropped significantly<sup>(2,8,9)</sup>. Nevertheless, it is still a major public health problem in developing countries and countries in transition<sup>(3,4,10-15)</sup>. Most cases of uterine rupture that occur in most developing countries are due to ignorance, quackery, and maldistribution, maladministration or unavailability of essential medical supplies. In developed countries and countries in transition, this complication is due to iatrogenic causes of poorly-supervised labour in the scarred uterus, and the use of prostaglandins and its analogues in induction of labour<sup>(3-5,7-9)</sup>.

In Nigeria, the incidence of uterine rupture remains high and continues to increase because of poverty, illiteracy, unavailability of manpower, poor supply of medical equipment and consumables, and dwindling health care funding as a result of bad governance<sup>(3,14-21)</sup>. As poverty and illiteracy multiply with high hospital bills in these poorly-equipped and staffed government hospitals, more women seek care at primary health centres, traditional birth attendants, mission (faith) centres and home deliveries which are more affordable but more risky<sup>(15,16)</sup>. In this study, we aimed at estimating the current incidence of ruptured uterus in our locality and its contribution to maternal and perinatal mortality. We also highlight the changing aetiology of this preventable problem.

## METHODS

We conducted a ten-year retrospective review of all cases of ruptured uterus seen between January 1991 and December 2000 at the two tertiary centres of the Obafemi Awolowo University teaching hospital complex (OAUTHC) in Ile Ife, Nigeria. Information concerning patients with ruptured uterus were obtained from the labour ward emergency registers

Department of  
Obstetrics and  
Gynaecology  
Obafemi Awolowo  
University Teaching  
Hospital  
Ile-Ife, Nigeria

O C Ezechi, MPA,  
FWACS, FMCOG  
Consultant

P Mabayoje,  
MBBS, FWACS  
Consultant

Felin Hospital  
63 Akogun Street  
Olodi Apapa  
Lagos, Nigeria

L O Obiesie,  
BSc, MNSN  
Clinical Nutritionist

Correspondence to:  
Dr Oliver C Ezechi  
P.O.Box 488, Surulere,  
Lagos, Nigeria  
Tel: (234) 18033065683  
Email: oezechi@  
yahoo.co.uk

of the two tertiary hospitals (Wesley Guild Hospital, Ilesha and Ife State Hospital, Ile Ife). The case files were retrieved from each hospital's medical record library. Information on the booking status, age, parity, place of intrapartum care, aetiology, maternal and perinatal morbidity and mortality, and other relevant information were extracted. The data obtained were entered into an IBM-compatible personal computer and analysed using SPSS for Windows statistical package (version 7.5).

## RESULTS

During the 10-year study period, there were 16,683 deliveries in the hospital and 61 cases of ruptured uterus were managed, giving an overall incidence of 0.37% or 1 in 273 deliveries. The age of the patients varied between 20 years and 45 years. The highest incidence was in the 30-34 year age group, and the lowest incidence was in the 25-29 year age group. When the parity distribution of the women with ruptured uterus was related with the total hospital parity distribution for the period of the study, it was found that the parity ratio increased with increasing parity, with parity ratio for grand multiparae being 0.85% compared to 0.02% for para two.

Occupational distribution of the women shows that 46 (75.4%) were either housewives or petty traders, while only 18.0% and 6.6% were artisans and civil servants, respectively. The analysis of the booking status showed that majority (75.4%) were unbooked, while only 15 (24.6%) women booked in our hospital. Of the 15 booked patients, only five (33.3%) presented early in labour, while the remaining 66.7% were either referred from clinics/hospitals, primary health care centres, or brought by relatives from homes or mission houses. The places of intrapartum care among the unbooked patients and the booked patients that seek care elsewhere are shown in Table I. The majority (55.4%) were in various primary health care centres, mission centres (23.2%), at home with or without traditional birth attendants (12.5%), or in clinics/hospitals (8.9%).

**Table I: Place of intrapartum care among the patients with ruptured uterus.**

Place of intrapartum care	Unbooked patients (%)	Booked patients (%)	Total (%)
Primary health care centre	31 (67.4)	–	31 (50.8)
Mission (faith) centre	8 (17.4)	5 (33.3)	13 (21.3)
Home with or without TBAS	4 (8.7)	3 (20.0)	7 (11.5)
Private hospital	3 (6.5)	1 (6.7)	4 (6.6)
Government hospital	–	1 (6.7)	1 (1.6)
OAUTHC	–	5 (33.3)	5 (8.2)

Key: TBAS: traditional birth attendants.

The predisposing/aetiological factors identified in these patients are shown in Table II. Labour was prolonged in all the unbooked and booked but defaulted patients (91.8%). Other factors were grand multiparity, injudicious use of oxytocin, uterine scar, obstetric manipulation and abnormal lie. In most patients, there were multiple aetiologies present. Of the 31 women referred from primary health centres, 29 (93.5%) had at least one factor categorising her as a high obstetric risk requiring earlier referral or having an contraindication to delivery at the primary health centre. In 19 patients (61.3%), oxytocin was given in excessive doses via the wrong route and in the wrong manner. Only two (6.5%) had prolonged labour as the only predisposing factor.

Fifty-six patients with ruptured uterus had surgery. Fourteen (25.0%) had total abdominal hysterectomy, 16 (28.6%) had subtotal hysterectomy, 15 (26.8%) had repair of the rupture and bilateral tubal ligation, and 13 (19.6%) had repair only. Thirteen maternal deaths occurred with a case fatality rate of 21.3%. All the deaths occurred in women who went into labour outside the teaching hospital. Eleven were unbooked cases and the remaining two were defaulters. Three patients were brought in dead, and another two died while being resuscitated in preparation for surgery. The remaining eight died within 24 hours of arrival to the hospital. The causes of death in these women

**Table II. Predisposing/aetiological factors identified in these patients.**

Predisposing/aetiological factors	No. of unbooked patients (%)	No. of patients booked but defaulted	No. of patients booked & birth at OAUTHC (%)	Total no. of patients (%)
Prolonged labour	46 (100.0)	10 (100.0)	–	56 (91.8)
Grand multiparity	25 (54.3)	4 (40.0)	2 (40.0)	31 (50.8)
Injudicious use of oxytocin	19 (41.3)	6 (60.0)	–	25 (41.0)
Previous uterine surgery	11 (23.9)	3 (30.0)	2 (40.0)	16 (26.2)
Obstetric manipulation	–	–	3 (60.0)	3 (4.9)
Abnormal lie	4 (8.7)	2 (20.0)	3 (60.0)	9 (14.8)

included hypovolaemic shock (8), disseminated intravascular coagulopathy (3) and acute renal failure (2). Forty-six perinatal deaths occurred, giving a case fatality rate of 75.4%. All the perinatal deaths were in patients that went into labour outside the teaching hospital. The range of hospital stay was seven to 55 days, with a mean of 13.4 days.

## DISCUSSION

The incidence of ruptured uterus (1:273 deliveries) in this series is lower than 1:167 and 1:110 reported earlier in Nigeria<sup>(10)</sup> and Ethiopia<sup>(2)</sup>, respectively, but higher than 1:6331 deliveries reported by Chen et al from Singapore<sup>(4)</sup>. This shows that ruptured uterus is still a major contributor of maternal morbidity and mortality in our environment. This may be a reflection of the overall utilisation of obstetric health facilities which have been shown to be on the decline, with the advent of economic depression in Nigeria<sup>(16-19)</sup>. A minority of patients had received antenatal care, similar to reports from other developing countries<sup>(10,12,22)</sup>, but different from reports of Chen et al<sup>(4)</sup>, Dawood et al<sup>(5)</sup> and Chew<sup>(6)</sup> from Singapore in which majority of the women with ruptured uterus were booked patients.

The majority of patients in this series had received care either antenatally and/or intrapartum at primary health care centres. In spite of recognisable risk factors present in almost all of them in the antenatal period, they continued care in these centres and proceeded to labour. All had prolonged labour and yet this was either not recognised, or recognised and managed erroneously by the administration of enormous doses of oxytocin. The injudicious use of oxytocin was found to be a significant predisposing factor in this series unlike reports by Konje et al<sup>(6)</sup> but similar to reports by Chen et al<sup>(4)</sup> and Chen and Hsieh<sup>(23)</sup>.

Nineteen patients had at least one reason why oxytocin was either relatively or absolutely contraindicated. This, as well as the manner, route and doses administered in some patients suggest a defect in the knowledge, attitude and practices associated with this potentially dangerous drug. In Nigeria, the primary health care centres are manned by a category of semi-skilled health workers referred to as community health extension workers. They receive basic training in the conduct of normal deliveries and the recognition of high-risk pregnancy for prompt referral. However, emerging reports have consistently shown that they cause more harm than good<sup>(3,17,20)</sup>.

The majority (73.8%) of patients in these series had a rupture of unscarred uterus, in contrast to a report from Singapore by Chen et al<sup>(4)</sup> in which over two-third of cases occurred in women with scarred uterus. This calls for caution, especially when some of these

patients were subjected to induction or augmentation of labour<sup>(4,7)</sup>. In a trial of labour in patients with scarred uterus, it is important that health workers supervise the labour closely and exercise caution before considering augmentation of the labour<sup>(7)</sup>.

Thirteen patients had attempted delivery in mission centres, which is similar to earlier studies reporting a large proportion of women with obstetric complications coming from mission centres<sup>(15,16,20)</sup>. It is however worrying that oxytocin was reportedly used in three patients from these mission centres. The case fatality rate of 21.3% is similar to 21.43% reported by Elkady et al<sup>(1)</sup> but significantly higher than 2.1% and 3.8% reported by Lema et al<sup>(11)</sup> and Chen et al<sup>(4)</sup>, respectively. This may reflect the late presentation of these patients. The perinatal mortality rate of 75.4% found in the series falls within the range of 50% to 75% in developing countries<sup>(20)</sup>, but is a far cry from the rate of 7.4% reported from Singapore<sup>(4)</sup>.

Most patients (53.6%) had hysterectomy done while 15 (26.8%) had repair and bilateral tubal ligation. Therefore, over four-fifths of patients lost their reproductive and/or menstrual function. The rest could only reproduce at immense risk. Ruptured uterus therefore has grave socio-cultural implications, especially in a society where these functions are considered the very essence of womanhood. For a preventable condition, the morbidity and mortality associated with ruptured uterus remains unacceptably high.

Ruptured uterus remains a problem in Nigeria, with primary health centres and mission houses being identified as major contributors to this condition. They primarily fail in the recognition of abnormalities in the antepartum and/or intrapartum periods, with delays in referral and the injudicious use of oxytocin. The utilisation of the antenatal risk scoring index and the partograph are recommended as tools in recognising deviations from normal, hence facilitating early referral. Continued education of staff providing care in these centres is necessary. Referrals could also be facilitated by the provision of a network of ambulance services. The above suggestions would require close supervision and monitoring. Hence, we recommend a pyramidal health structure such that primary health centres would be directly responsible to secondary health centres, who in turn would be directly responsible to tertiary health centres.

We also recommend prohibition of the unsafe prescription of oxytocin. This is presently an over-the-counter drug and as has been shown in this study, a dangerous drug in the hands of the unskilled. Health education of women in the reproductive age is also required, especially pertaining to risk status

and oxytocin use. This would enable them to present for care in the appropriate centres, as well as to refuse the administration of oxytocin by unskilled practitioners. Ruptured uterus is only one of the many preventable obstetric problems with grave consequences. A reappraisal and restructuring of our health system would go a long way to reducing its incidence, and associated maternal and prenatal mortality and morbidity rates.

## REFERENCES

1. Elkady AA, Bayomy HM, Bekhiet MT, Najib HS, Waliba AK. A review of 126 cases of ruptured gravid uterus. *Int Surg* 1993; 78:231-5.
2. Gessesew A, Melese M. Ruptured uterus – eight year retrospective analysis of causes and management outcome in Adigrat Hospital, Tigray region, Ethiopia. *Ethiop J Health Dev* 2002; 16:241-5.
3. Orji EO, Fasubaa OB, Onwudiegwu U, Dare FO, Ogunniyi SO. Decision-intervention interval in ruptured uteri in Ile-Ife, Nigeria. *Trop J Obstet Gynaecol* 2002; 19 Suppl 2:13.
4. Chen LH, Tan KH, Yeo GS. A ten year review of uterine rupture in modern obstetric practice. *Ann Acad Med Singapore* 1995; 24:830-5.
5. Dawood MY, Ng R, Ratnam SS. Oxytocin stimulation and uterine rupture of the grand multipara. *Singapore Med J* 1974; 15:40-4.
6. Chew SY. Uterine rupture in labour. A 10-year review. *Singapore Med J* 1984; 25:24-9.
7. Prasad RN, Ratnam SS. Uterine rupture after induction of labour for intrauterine death using the prostaglandin E2 analogue sulprostone. *Aus N Z J Obstet Gynaecol* 1992; 32:282-3.
8. Miller DA. Intrapartum rupture of unscarred uterus. *Obstet Gynecol* 1997; 89:671-3.
9. Gardeil F, Daly S, Turner MJ. Uterine rupture in pregnancy reviewed. *Eur J Obstet Gynecol Reprod Biol* 1994; 56:107-10.
10. Konje JC, Odukoya OA, Ladipo OA. Ruptured uterus in Ibadan - a twelve-year review. *Int J Gynecol Obstet* 1990; 32:207-13.
11. Lema VM, Ojwang SB, Wanjala SH. Ruptured of the gravid uterus: a review. *East Afr Med J* 1991; 68:430-41.
12. Rahman MS, Fothergill R. Rupture of the pregnant uterus in Eastern Libya. *J Roy Soc Med* 1979; 72:415-7.
13. Randle-Short C. Rupture of the grand uterus in Uganda. *Am J Obstet Gynecol* 1960; 79:1114-6.
14. Agboola A. Rupture of the uterus. *Nig Med J* 1977; 12:19-21.
15. Okonofua FE, Abejide A, Makanjuola RO. Maternal Mortality in Ile-Ife, Nigeria: a study of risk factors. *Studies Fam Plan* 1992; 23:319-29.
16. Ezechi OC, Fasubaa OB, Dare FO. Socioeconomic barrier to safe motherhood among booked patients in rural Nigerian communities. *J Obstet Gynaecol* 2000; 20:32-4.
17. Onwudiegwu U, Ezechi OC. Emergency obstetric admissions: late referrals, misdiagnosis and consequences. *J Obstet Gynaecol* 2001; 21:570-5.
18. Onwudiegwu U. The effect of a depressed economy on the utilisation of maternal health services. The Nigerian experience. *J Obstet Gynaecol* 1993; 13:311-4.
19. Onwudiegwu U. The effect of a depressed economy on the utilisation of maternal health services. The Nigerian experience II. *J Obstet Gynaecol* 1997; 17:143-8.
20. Okonofua FE, Selo-Ojeme D, Owolabi TA. Risk factors for primary post partum haemorrhage in Nigeria. *Bri J Obstet Gynaecol* 1994; 16:346-9.
21. Brundenell M, Chakravitti S. Uterine rupture in labour. *Br Med J* 1975; 11:122-4.
22. Mokgokong GT, Marivate M. Treatment of the ruptured uterus. *S Afr Med J* 1976; 50:16-21.
23. Chen KC, Hsieh TT. Rupture of grand uterus: an eight-year clinical analysis and review of literature. *Chang Keng I Hsueh-Chang Gung Med J* 1992; 15:15-22.

## Free CME Lectures on Medical Ethics & Health Law organised by SMA Centre for Medical Ethics & Professionalism

### Objectives of the Seminars

1. To increase awareness of the common issues on medical ethics and health law.
2. To teach ethical tests and systematic reasoning to arrive at more sound decisions.
3. To teach the present coverage and scope of Singapore's statutory and common laws pertaining to health issues.

### When?

The lectures are held on every first and second Thursdays (unless stated otherwise), at SGH and TTSH respectively, from 5.30pm to 7.00pm.

### Upcoming in April:

April 01 – "Human Organ Transplantation Act (HOTA)" @ SGH PGMI (Level 1)

April 15 – "Ethical issues in Pain Management" @ TTSH Theatre (Level 1)

The speakers and topics of subsequent months will be updated periodically at the SMA website at [www.sma.org.sg](http://www.sma.org.sg)

### Free Admission and CME Points

Admission is Free. 1 CME (non-core) point will be awarded for every session. These lectures are open to doctors, nurses, medical students, and allied healthcare workers only.

### How to Register?

Registration begins 1/2 hour before the event, and is on first-come-first-served basis. Light refreshments will be served from 5.00pm.

### Contact Enquiries

For enquiries, please contact Ms Ng Wee Fong of the SMA Secretariat at 62231264 (ext 24)  
or email her at [weefong@sma.org.sg](mailto:weefong@sma.org.sg)