

Uterine Rupture: a Major Contributor to Obstetric Morbidity in Sagamu

Okanlawon L. Odusoga, Peter O. Adefuye, Olufemi A.O Oloyede, Tuminu A. Fakoya and Adetola O. Olatunji.

Departments of Obstetrics & Gynaecology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria.

Abstract

Background: The incidence of uterine rupture is high in most developing countries and it is a leading cause of maternal mortality and morbidity.

Objectives: To determine the incidence, aetiology and the associated morbidity and mortality in cases of ruptured uterus presenting at the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria.

Materials and Methods: A review of all the case notes of patients that were managed for uterine rupture over a 7-year period was conducted. The records were analysed for the patients' mode of presentation, possible predisposing factors, type of uterine rupture, and the associated morbidity and mortality.

Results: The incidence of rupture during the period was 1 in 67 deliveries or 14.9 per 1000 deliveries. The mean age [SD] was 30.1 [1.8] and the mean parity was 3.3 [0.93]. Majority (88.5%) of the patients were unbooked. Oxytocin administration was the identified aetiological factor in 41 (67.2%) of the patients. Majority (73.8%) presented with clinical signs of shock. At operation, 56 (91.8%) were found to have complete uterine rupture, with a predominance of anterior wall rupture (83.6%). Uterine repair with or without bilateral tubal ligation was the usual surgical treatment offered while wound sepsis, with or without generalized septicaemia, was the commonest morbidity found. Maternal mortality was 14.8%.

Conclusion: Uterine rupture continues to be a major cause of maternal morbidity and mortality in Sagamu and efforts should be geared towards reducing the number of women affected by this problem.

Key Words: Uterus Rupture, Genital Injury, Haemorrhage, Shock [Trop J Obstet Gynaecol, 2003, 20: 137-140]

Introduction

Rupture of the gravid uterus is an unfortunate obstetric complication and a serious threat to the reproductive health of affected women. It is a demonstration of poor obstetric management. Its rarity in the developed countries of Europe and North America (1 in 11,354 deliveries) is due to the very high standard of obstetric services and efficient blood banking system in those places^{1, 2}. The complication is still very common in the developing countries of sub-Saharan African, Southeast Asia and Southern China. In Africa, the incidence has been variously reported as being between 1 in 93 and 1 in 240 deliveries. It contributes significantly to maternal mortality and morbidity, and the associated perinatal mortality and morbidity are usually very high^{3, 4}. The aim of this study is to review the pattern of uterine rupture, the role it plays in obstetric mortality and morbidity in this area and the factors that are responsible for its occurrence.

Patients and Methods

The clinical case records of patients who sustained rupture of the gravid uterus and were managed at the Obstetric Unit of the Olabisi Onabanjo University Teaching Hospital, Sagamu over a seven-year period (January, 1993 – December, 1999) were

retrieved for analysis. Their case files were reviewed to determine the frequency of the complication in our obstetric population, the associated aetiological factors, mode of presentation, type of rupture and associated morbidity and mortality.

Results

A total of 61 cases of uterine rupture were managed in the hospital during the period, 4 (6.6%) of which had spontaneous rupture during pregnancy and 57 (93.4%) ruptured in labour. The age distribution of the patients is shown in Table 1. The duration of labour in the patients ranged between 8 and 120 hours with a mean of 25.4 hours.

There were 49 (67.2%) patients who had oxytocin administration during labour. Eighteen patients had previous uterine scars. Of these, 15 were caesarean section scars, 12 being lower segment scars, and 3 classical scars; 2 patients had myomectomy scars and 1 had suffered a uterine perforation from previous dilatation and curettage.

Correspondence: Dr. O.L. Odusoga, Department of Obstetrics & Gynaecology, Olabisi Onabanjo university Teaching Hospital, Sagamu, Ogun State, Nigeria.

E-mail: lawonodusoga@yahoo.co.uk

Table 1
Age Distribution of the Patients

| Age Group | Number of Cases | Proportion (%) |
|--------------|-----------------|----------------|
| 15 - 19 | 1 | 1.6 |
| 20 - 24 | 10 | 16.4 |
| 25 - 29 | 19 | 31.1 |
| 30 - 34 | 15 | 24.6 |
| 35 - 39 | 13 | 21.3 |
| 40 - 44 | 3 | 5.0 |
| ≥ 45 | 0 | 0.0 |
| Total | 61 | 100 |

Two (3.3%) of the cases ruptured because of obstetric manoeuvres such as internal podalic version and pulling on prolapsed arm in transverse lie. One rupture occurred while a breech delivery was being conducted and a case each occurred in forceps and vacuum deliveries.

Forty-five (73.8%) of the patients presented with clinical signs of shock. Twelve (19.7%) were clinically stable at presentation but had symptoms of vaginal bleeding, sudden pain in the lower abdomen, pain along previous scars, progressing pelvic haematoma and tachycardia. Four (6.5%) cases were brought in dead or died shortly after presentation

At surgery, 56 (91.8%) of the cases were found to be complete ruptures (that is rupture involving the serosal covering) and 5 (8.2%) were incomplete ruptures. The range of haemoperitoneum was 0 – 2300 ml with a mean of 1142.6 ml. The baby and the placenta were variably located at operation. Two (3.3%) had their babies delivered alive and diagnosis of uterine rupture was based on vaginal bleeding and pelvic haematoma. Six (9.8%) had both the placentae and fetus retained within the uterus. Five of the fetuses were alive. In 43 (70.5%), both fetus and placenta were extrauterine, lying freely within the peritoneum, while 3 (4.9%) had only the placenta extruded and the fetus retained. In 7 (11.5%), the babies were extruded and the placentae remained within the uterus. Forty-four (72.1%) were anterior rupture with either a left or right lateral extension and 7 (11.5%) were anterior uterine ruptures only. There were 3 posterior ruptures (with left or right lateral extension). There was no case of only posterior rupture. Four (6.6%) had rupture of the corpus only and 3 (4.9%) had multiple ruptures.

Table 2 shows mode of management of the patients. Uterine repair only was done in 25 (40.9%) patients

while 15 (24.6%) had repair, followed by bilateral tubal ligation. Subtotal hysterectomy was done in 10 patients. Four (6.6%) died before treatment could be effected or while being resuscitated. The length of hospital admission varied between 1 and 92 days with a mean of 15.7 days.

Table 2
Surgical Procedure Done

| Treatment | Number of Cases | Proportion (%) |
|---------------------------|-----------------|----------------|
| Conservative | 0 | 0.0 |
| Repair only | 25 | 40.9 |
| Repair and Tubal Ligation | 15 | 24.6 |
| Subtotal Hysterectomy | 10 | 16.4 |
| Total Hysterectomy | 7 | 11.5 |
| Dead Before Surgery | 4 | 6.6 |
| Total | 61 | 100 |

The complications seen in the patients are recorded in Table 3. The commonest morbidity was wound sepsis, often accompanied by septicaemia, occurring in 27 (44.3%) of the cases. Twelve patients (19.7%) had no obvious complications.

Table 3
Complications in the Patients

| Complication | Number of Cases | Proportion (%) |
|---|-----------------|----------------|
| None | 12 | 19.7 |
| Anaemia | 9 | 14.8 |
| Septicaemia | 27 | 44.3 |
| Wound Sepsis | 34 | 55.7 |
| Transfusion Reaction | 2 | 3.3 |
| Clotting Disorders | 2 | 3.3 |
| Renal Failure | 12 | 19.7 |
| Genito-Urinary Fistulae (Vesico-Vaginal Fistulae) | 3 | 4.9 |
| Obstetric Neurapraxia | 2 | 3.3 |
| Incisional Hernia | 2 | 3.3 |
| Death | 9 | 14.8 |
| Total | 61 | 100 |

Fetal outcome was quite poor. The total number of deliveries was 61 and total births were 64 (there were 3 sets of twins). Fifty seven of the babies died, giving a mortality rate of 89.1%. There were 9 maternal deaths giving a mortality rate of 14.8%.

Discussion

Rupture of the gravid uterus is a grave obstetric complication with attendant risks to the reproductive health of a woman. It is commonly encountered in

situations where obstetric services are lacking or inadequate and where conduct of labour is poorly supervised^{3,4}. It is rare in the developed countries of Europe and North America but still remains a common obstetric complication in developing countries, especially in the countries of sub-Saharan Africa^{1,5}.

The incidence of ruptured gravid uterus has been variously described between 1 in 93 and 1 in 11,354 deliveries^{1,2}. The incidence in this study is 1 in 67 deliveries, which is quite high when compared with other reports from Nigeria and the other parts of Africa^{1,5,6,7,8}. The high incidence in this study is not unexpected because our hospital takes referrals from Ijebu and Remo divisions of Ogun State, as well as Epe and Ikorodu areas of Lagos State. Only 11.5% of the patients received antenatal care. Most of the patients are referred to the teaching hospital when it became obvious that their conditions were very bad. Elkins *et al*⁹ opined that uterine rupture occurs more often in the unbooked than in booked patients. This was also the finding in this study.

Uterine rupture is a disease of parous women and occurs more commonly between the third and fourth parities³. The complication is rare in primigravida, and when it occurs, previous uterine injury is usually a feature^{3,4,10}. There were 6 primigravida in this study and a history of previous dilatation and curettage was obtained in 4 of them.

Injudicious use of oxytocin in labour has been implicated in many studies^{2,7,8}. In this study, 57 (93.4%) ruptured while in labour and 40 out of these had oxytocin administered in labour, ostensibly by inexperienced or untrained midwives. Oxytocics in standard pharmaceutical preparations may not be only culprits. Studies of herbal preparations given to women in labour have been conducted in Nigeria and Malawi and were shown to have oxytocic properties and may contribute significantly to the high incidence of uterine rupture⁹.

The anterior wall is usually the commonest site of rupture, with the tear usually transverse and often with a vertical extension at one end which makes the defect L-shaped^{3,6}. Posterior wall ruptures are the least common and are usually transverse³. Rupture in a scarred uterus commonly involves the urinary bladder while rupture of unscarred uteri more commonly involves the cervix and the vagina^{1,11}. The choice of treatment for uterine rupture, whether complete or incomplete, is surgery³. The surgical options in our environment are influenced by

cultural beliefs, the state of the patient, the nature of the tear, and the skill of the attending surgeon^{1,9,12}. The correct procedure in each individual case is the one, which is shortest in duration and which will not exacerbate the patient's state of shock, getting the patient off the operating table in the best condition³. Desire for more children and the need for continued menstruation are also considered. The options include total or subtotal hysterectomy, and repair, with or without bilateral tubal ligation. The most common treatment option adopted here was repair only, followed by repair and sterilization by tubal ligation.

Uterine rupture is a major cause of maternal mortality and morbidity, especially in our environment where obstetric services remain very poor^{1,9,10,12}. Postoperative wound sepsis is the commonest complication, often accompanied by septicaemia. This is not unexpected, when the delays that are frequently encountered before the patients are transferred to hospital are considered.

Direct injuries and late fistula formation were noted to be frequent complications of obstructed labour in the developing world and the bladder should therefore be carefully inspected in any case of uterine rupture^{3,9}. In this study, there were 3 cases of vesico-vaginal fistulae complicating the rupture. In all the 3 cases, there was history of prolonged obstruction in labour.

The total number of babies in this study was 64 out of which 57 babies died giving a mortality rate of 89.1%. This is a clear demonstration of the appalling rates of fetal mortality associated with uterine rupture and it is similar to the experiences that had been reported from elsewhere^{1,10,13}. Rupture of the uterus is also one of the most important causes of maternal deaths in tropical obstetric practice¹⁴.

Most cases of uterine rupture are preventable, if obstetric assessment and labour management techniques are good. Common errors are underestimation of fetal weight and poorly supervised oxytocin administration in labour. Good supervision and specialized prenatal care is an important preventive measure^{9,13}. Education and retraining of midwives (and/or traditional birth attendants) is very important since a greater number of labour cases are still supervised by them. Improvement in the outcome will also depend on early diagnosis, prompt and adequate blood transfusion, appropriate antibiotics and a competent surgeon¹⁴.

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