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Management and outcomes of uterine rupture at a tertiary institution in Niger Delta, Nigeria

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Abstract

Background: High maternal and fetal morbidity and mortality are associated with uterine rupture, a preventable grave obstetric emergency. The study determined the management options, maternal and fetal outcomes of uterine rupture at Rivers State University Teaching Hospital (RSUTH).

Methods: A retrospective hospital-based study of 67 women with uterine rupture managed from 1st January, 2016 to 31st December, 2020 at Rivers State University Teaching Hospital. A structured proforma was designed and used to extract data from operating theatre registers and the hospital medical records. Data was entered and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY).

Results: A total number of 7,685 deliveries were conducted in the hospital. Of this, 67 women were managed for uterine rupture giving a prevalence rate of 0.87% (1 in 115 deliveries). More than two-thirds of the women had intrauterine fetal deaths (IUFD). Forty-two (62.7%) women lost 1000-1500mls of blood and 88.1% were transfused with blood. There was no maternal death. Repair only of the uterine rupture was the most common surgical intervention.

Conclusion: The prevalence of uterine rupture was high. There was also a high fetal wastage. Majority of the women lost more than 1L of blood and had need for blood transfusion. Most women had uterine repair alone. There is need for more education and awareness of uterine rupture and its prevention.

Keywords: Uterine Rupture; Feto-Maternal Outcomes; Management Options; Blood Loss

1. Introduction

Uterine rupture (UR) involves partial or complete disruption of the wall of a pregnant uterus with or without extrusion of its contents. When complete rupture occurs there is communication between the uterus and the peritoneal cavity.[1-5] This obstetric scare can occur during pregnancy or childbirth and associated with high risk of maternal and perinatal morbidity and mortality.[1-6] The incidence is 1 in 920 cases in developing countries of Asia and Africa in comparison to 74 in 10,000 in developed world.[1] The prevalence of UR is 25% for women with obstructed labour in developing countries and 0.5% in women with uterine scars.[4,7] Maternal mortality is unacceptably high worldwide with 95% of deaths occurring in developing countries. Sub-Sahara Africa accounts for 70% of these deaths.[4] Maternal mortality ranges between 1 and 13% and neonatal mortality between 74 and 92%.[2,3]

The sequelae of uterine rupture depend on the time between the diagnosis and quality of care provided. Time interval of less than 30 minutes from diagnosis to delivery was associated with good long-term neonatal outcomes.[2,3] Maternal

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complications include haemorrhage, need for multiple blood transfusions, hypovolaemic shock, associated visceral injuries like urinary bladder, genito-urinary fistulae, hysterectomy, sepsis, intensive care unit admissions, secondary infertility, maternal mortality etc. Fetal complications include fetal hypoxia/anoxia, birth asphyxia, SCBU admissions, neonatal mortality etc. [8-13]

Surgical treatment depends on severity and extent of rupture, haemodynamic status of the mother, future fertility desire and surgeon's expertise. The options are repair of uterus with or without tubal ligation, subtotal abdominal hysterectomy and total abdominal hysterectomy. Uterine repair is usually for low transverse rupture, no broad ligament involvement, cervical or vaginal extension, haemodynamically stable condition, controllable haemorrhage and young women desirous of future childbearing. Hysterectomy is for haemodynamically unstable women, unrepairable rupture and women not desirous of future fertility. [1,14-20] Therefore the objectives of this study were to review the management options and feto-maternal outcomes in women with uterine rupture who presented at RSUTH and to proffer more solution to these menace.

2. Methods

It is a retrospective hospital-based descriptive study of 67 women with uterine rupture managed over a period of 5 years from 1st January, 2016 to 31st December, 2020 at Rivers State University Teaching Hospital, Port Harcourt. The Rivers State University Teaching Hospital (RSUTH) is a tertiary health facility with 12 clinical departments, which offers in/out patient and emergency medical services. It is located in Port Harcourt, Rivers State. Women are referred to the health facility from within the State and outside the State especially the neighbouring States like Bayelsa, Akwa-Ibom, Abia and Imo States.

A structured proforma was designed and used to extract data from operating theatre and labour ward registers and the hospital medical records. Permission was obtained from the Head of the Department of Records for retrieval of the folders. Information included socio-demographic characteristics, clinical features on admission, booking status, use of oxytocics, previous caesarean sections or other uterine surgeries. Detailed information on operative procedures is further maintained in the operation theatre register. Data was entered and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY). Frequency and percentages were calculated for the categorical variables. The study was approved by the Ethics Review Committee of the hospital.

3. Results

There were 7,685 deliveries conducted in the hospital during the study period. Of this, 67 women were managed for uterine rupture giving a prevalence rate of 0.87% (1 in 115 deliveries). Majority of the women, (83.6%) were unbooked. The mean age of the women was 32.66 ±3.82 years and majority, 30(44.8%) were in age group 30-34 years. Majority, 28 (41.8%) were Para 3. The socio-demographic characteristics are shown in table 1. More than two-thirds (68.6%) of the women had intrauterine fetal deaths (IUFD) and still births, 18 (26.9%) had birth asphyxia and 3 (4.5%) babies did not have any complications. This is shown in figure 1. Mean blood loss from the women was 1138.81 $\pm$ 305.36mls. Forty two (62.7%) women lost 1000-1500mls of blood, 16 (23.9%) women lost less than 1000 mls of blood and 9(13.4%) women lost more than 1500mls of blood. This is shown in table 2. Fifty nine (88.1%) women were transfused with blood as shown in figure 2. Figure 3 shows surgical options done for the women with majority (67.2%) having repair alone of the uterine rupture. Two (3%) women had bladder repair with the uterine repair. 11 (16.4%) had uterine repair with bilateral tubal ligation (BTL) and 9 (13.4%) had subtotal hysterectomy.

Table 1 Socio-demographic characteristics of the participants

Age	Frequency	Percent (%)	Cumulative Percent (%)
25-29	13	19.4	19.4
30-34	30	44.8	64.2
35-39	22	32.8	97.0
≥40	2	3.0	100.0
Total	67	100.0	
Parity			

P0	7	10.4	10.4
P1	10	14.9	25.3
P2	20	29.9	55.2
P3	28	41.8	97.0
P4	2	3.0	100.0
Total	67	100.0	
Level of Education			
Primary	34	50.8	50.8
Secondary	26	38.8	89.6
Tertiary	7	10.4	100.0
Total	67	100.0	
Religion			
Christian	62	92.5	92.5
Islam	2	3.0	95.5
Others	3	4.5	100.0
Total	67	100.0	
Occupation			
Civil Servant	16	23.9	23.9
Professional	2	3.0	26.9
Self employed	22	32.8	59.7
Unemployed	27	40.3	100.0
Total	67	100.0	

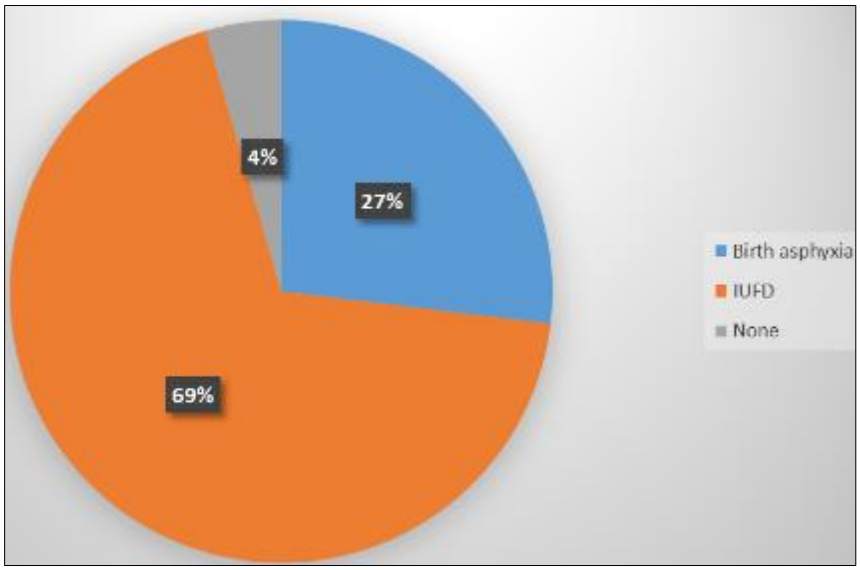

Figure 1 Fetal outcome amongst the participants IUFD- Intrauterine fetal death

Table 2 Estimated blood loss (EBL) amongst the participants

EBL (mls)	Frequency	Percent (%)	Cumulative percent (%)
<1000	16	23.9	23.9
1000-1500	42	62.7	86.6
>1500	9	13.4	100.0
Total	67	100.0	

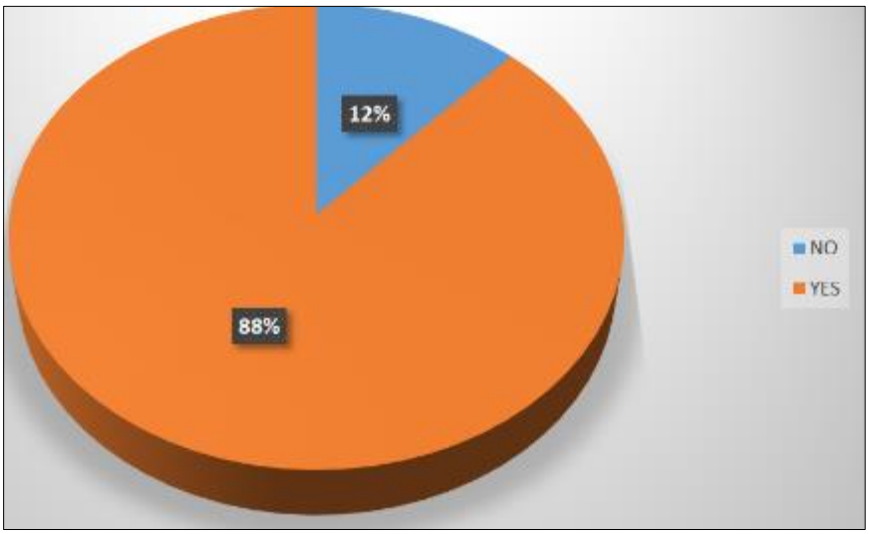

Figure 2 Blood transfusion done amongst participants

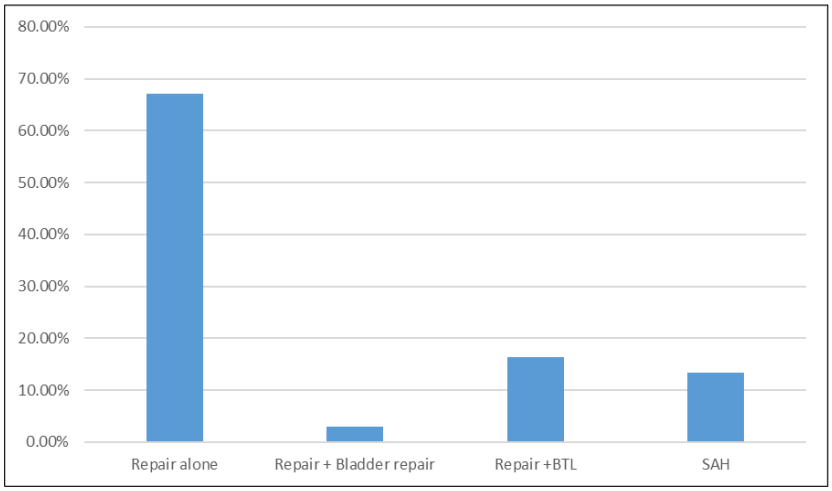

Figure 3 surgical options done for the participants

4. Discussion

The prevalence rate of uterine rupture in this study is high. This can be attributed to the developing status of the country, low-socio-economic factors, lack of awareness, poor obstetric practices, cultural practices of home and traditional birth attendants (TBAs) deliveries, greater number of unbooked cases as seen in this study and lack of access to comprehensive care services. More than two thirds of the babies died following uterine rupture and more than 50% of the women had major bleeding/postpartum haemorrhage with the need for blood transfusion. This was similar to

findings in South East, South West, North Central Nigeria as well as Ethiopia.[21-23] Possible factors that may have contributed to the increased incidence of fetal wastage apart from the uterine rupture include fetal distress, post datism, sepsis and late referral to the hospital by the unskilled birth attendants. [17,24] In this part of the country, a lot of deliveries are attended to by TBAs or by midwives at home. There are even deliveries conducted in the church by religious leaders. They do all manner of sorts without supervision. These women will try and deliver each patient vaginally without being able to recognize signs of obstructed labour early resulting in a ruptured uterus.[1]

In this study perinatal death was 68.6%. This is lower than a similar study done in Pakistan where they recorded 91.4% perinatal mortality.[1] Wan S et al recorded perinatal death of 7.3%. [3] Also in the same study,[3] of the 41 women that had uterine rupture, 16 (39%) had both maternal and fetal complications. They had no maternal death like in our study. In a study done by Abrar A. et al, they recorded maternal mortality rate of 21% due to irreversible shock, sepsis and disseminated intravascular coagulopathy (DIC). Also 13% of their cases were complicated by genito-urinary fistula. These are comparable to those of Ahmed et al.[25] The findings of Abrar et al. is not surprising because more than 90% of deliveries were at home and traditional birth attendants also conduct most deliveries. [1] In our study, two women (3%) had bladder injury and both were repaired alongside the uteri. This could be due to prolonged obstructed labour or uterine massage commonly seen in this part of the country. These women were lucky to have escaped obstetric fistulae possibly due to adequate hospital treatment with indwelling urethral catheter and potent antibiotics.

The commonest surgical intervention in our study was uterine repair alone followed by repair and BTL. These findings are similar to those of other studies.[12,23] In Nigeria, extra care and effort are needed to preserve the uterus for future childbearing because infertility can lead to maternal disharmony and divorce. It is also believed that if a woman's uterus is removed, she will not have a uterus in her next world. In a study done by Abrar S et al, majority of the women had hysterectomy with 45.4% having subtotal hysterectomy attributing this to large number of obstructed labour and unstable haemodynamic conditions. In the same study, 19.2% had uterine repair.[1]

5. Conclusion and recommendations

Feto-maternal morbidities and fetal mortality in this study were unacceptably high. Uterine repair alone was the commonest surgical intervention. Timely detection of uterine rupture, immediate transfer and prompt management must be overemphasized to improve maternal and fetal outcome.

Women should be educated on the signs and symptoms of uterine rupture. They should also understand the importance of seeking immediate medical attention and encouraging regular antenatal care visits. Quality antenatal care, skilled birth attendants, emergency obstetric care services, good transportation and referral systems are very important to prevent this obstetric scare.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study. This is a retrospective study where all records are in patients' folders.

Ethical approval

The study was approved by the hospital's Ethics Review Committee.

Study limitation

The study is retrospective and sample size is small. It is also a single centre/hospital based study and results cannot be generalized to the whole population.

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