



Ruptured Uterus in Gusau, Northwest Nigeria: A Retrospective Cross-Sectional Study

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ABSTRACT

Ruptured uterus is one of the most life-threatening complications in obstetrics, especially in low- and middle-income countries. This study retrospectively analyzed cases of ruptured uterus managed at the Federal Medical Centre, Gusau, Northwest Nigeria, to identify prevalence, risk factors, clinical presentation, management outcomes, and associated complications. A total of 60 cases were reviewed. The mean age of patients was 30.4 ± 7.1 years, with 66.7% residing in rural communities. Most patients (80%) were unbooked, while 23.3% had a history of cesarean section (CS). Common risk factors included oxytocin use (33.3%), misoprostol use (20%), and combined uterotonic use (46.7%). Rupture most frequently occurred at home (16.7%) or in lower-level health facilities (63.3%). Vaginal bleeding (100%) and abdominal pain (83.3%) were the predominant presenting symptoms, while 56.7% presented in shock. Management included uterine repair (23.3%), repair with bilateral tubal ligation (46.7%), and subtotal hysterectomy (30%). Perinatal mortality was as high as 93.3%. The study highlights the urgent need for improved antenatal care, timely referral systems, skilled birth attendance, and strengthened health care infrastructure to reduce maternal and perinatal morbidity and mortality from ruptured uterus in Nigeria.

Keywords: Ruptured uterus, obstetric emergencies, maternal mortality, perinatal outcomes, Nigeria

1.0 INTRODUCTION

Ruptured uterus is recognized as one of the most severe and life-threatening emergencies encountered in obstetric practice, posing significant risks to both maternal and fetal health during pregnancy and labor. This catastrophic complication is defined as a full-thickness or partial tear in the uterine wall, which may occur spontaneously or be precipitated by various obstetric factors. The rupture can involve disruption of the entire uterine wall including the visceral peritoneum (complete rupture), or it may occur without breaching the peritoneum, thus classified as an incomplete rupture or uterine dehiscence. This pathological event commonly results in the extrusion of the fetus, placenta, and membranes from the uterine cavity into the peritoneal space, precipitating an acute obstetric emergency that requires immediate intervention to prevent maternal and fetal morbidity and mortality (Nazari et al., 2019; Thaddeus & Maine, 2021). The global incidence of uterine rupture is markedly heterogeneous, with a significantly higher prevalence reported in low- and middle-income countries (LMICs) relative to high-income or developed nations. Data from various studies estimate that the incidence ranges from approximately 1 in 1,000 to 1 in 8,000 deliveries in developed countries but increases up to 1 in 100 to 1 in 1,400 in resource-limited settings (Njokanma et al., 2020; Guo et al., 2022).

This disparity can be largely attributed to differences in obstetric care quality, access to emergency services, and socio-economic factors affecting maternal health.

In LMICs, uterine rupture of iteruse is often an outcome of avoidable causes centered around deficiencies in healthcare infrastructure and utilization, including obstructed labor, grand multiparity, inappropriate or unregulated use of oxytocic drugs, poor antenatal care attendance, and inadequate access to timely emergency obstetric interventions (Rahman et al., 2023). Obstructed labor continues to be a leading precursor to uterine rupture in low-resource settings where prolonged labor without appropriate intervention leads to increased intrauterine pressure and subsequent uterine wall trauma (Osei & Boamah, 2020). Grand multiparity—defined as having given birth five or more times—is another significant risk factor, as repetitive uterine stretching and weakening predisposes the uterus to tearing during labor (Rahman et al., 2023). Furthermore, the indiscriminate or injudicious use of uterotonic agents like oxytocin and misoprostol, often administered without proper monitoring or in unregulated settings, exacerbates the risk for rupture by forcing overly strong or frequent uterine contractions (Nkoma et al., 2021). Poor attendance at antenatal clinics impedes early identification of high-risk



pregnancies and delays the timely referral required to avert such emergencies (Wang et al., 2019). In contrast, the epidemiology of uterine rupture in developed countries is dominated by a different set of risk factors, with the majority of cases occurring in women with previously scarred uteri, most commonly due to prior cesarean sections. The increased rates of cesarean deliveries globally have contributed to a rising incidence of uterine rupture during subsequent labor, especially when vaginal birth after cesarean (VBAC) is attempted without adequate screening or monitoring (Guo et al., 2022).

The maternal outcomes associated with a ruptured uterus are dire and can include massive hemorrhage leading to hypovolemic shock, injury to adjacent visceral organs such as the bladder and intestines, development of vesicovaginal fistulas, overwhelming infections, and often irreversible infertility due to the necessity of extensive surgical repair or hysterectomy (Nwosu et al., 2019; Thaddeus & Maine, 2021). In many instances, maternal death results from delayed recognition and lack of access to emergency surgical care. According to the World Health Organization (WHO), uterine rupture accounts for a considerable proportion of maternal mortality in Sub-Saharan Africa and other LMICs where access to quality obstetric care remains limited (WHO, 2021). Fetal and neonatal outcomes following uterine rupture are also poor, with high rates of fetal distress, hypoxia, and asphyxia due to sudden interruption of placental blood flow. Subsequently, affected neonates often require admission to neonatal intensive care units (NICUs) and face increased risks of mortality and long-term neurological sequelae (Muyefumba et al., 2019). Perinatal case fatality rates in some LMICs have been reported to be as high as 30.4%, illustrating the urgent need for prevention, early diagnosis, and timely management of this obstetric emergency (Adewuyi & Olamijulo, 2020).

The clinical presentation of ruptured uterus varies depending on the timing of rupture, extent of uterine wall involvement, and fetal viability at the time of diagnosis. Common signs and symptoms include sudden onset of abdominal pain, vaginal bleeding, cessation of uterine contractions, loss of fetal station or fetal distress on monitoring, and palpable fetal parts on abdominal examination due to extrusion into the peritoneal cavity (Njokanma et al., 2020). Prompt recognition of these signs in a high-risk woman is crucial to improve maternal and fetal survival through immediate surgical intervention. Management of uterine rupture invariably requires emergency laparotomy with delivery of the fetus, repair of the uterine defect, or in some cases hysterectomy

depending on the extent of tissue damage and bleeding. The success of these interventions is heavily dependent on early diagnosis and availability of comprehensive emergency obstetric and neonatal care facilities. Following recovery from uterine rupture, counseling regarding future pregnancies is essential, as recurrence risk can be high, particularly in the presence of an unhealed scar or other predisposing factors (ACOG, 2020).

This study seeks to evaluate the clinical characteristics, associated risk factors, and maternal and perinatal outcomes of ruptured uterus cases managed at the Federal Medical Centre, Gusau, located in Northwest Nigeria. Nigeria, like many other LMICs, grapples with substantial burdens from obstetric complications including ruptured uterus due to infrastructural, educational, and resource limitations in maternal healthcare delivery. By identifying local epidemiological patterns and clinical correlates, this research aims to inform targeted strategies to improve prevention, early diagnosis, and outcomes of this catastrophic obstetric complication in the northwestern Nigeria.

2.0 METHOD

This was a retrospective cross-sectional study conducted at the Federal Medical Centre, Gusau. Case records of patients with ruptured uterus managed between the study period were retrieved and reviewed using a structured obstetrics proforma. Data extracted included sociodemographic variables, obstetric history, risk factors, clinical presentation, site of rupture, management modality, and maternal and perinatal outcomes. Inclusion criteria were all patients diagnosed with ruptured uterus during the study period, while exclusion criteria included incomplete medical records. Data were analyzed descriptively and findings were compared with those from other published studies in Nigeria and internationally.

3.0 RESULTS

A total of 60 patients with ruptured uterus were reviewed. The mean age was 30.4 ± 7.1 years. The majority (66.7%) resided in rural areas, while 80% were unbooked for antenatal care.

- i. Obstetric history: 23.3% had a previous cesarean section.
- ii. Risk factors: 33.3% received oxytocin alone, 20% misoprostol alone, and 46.7% a combination of both.
- iii. Place of rupture: 16.7% occurred at home, 20% in general hospitals, and 63.3% in primary health centers.



- iv. Clinical presentation: All patients (100%) presented with vaginal bleeding, 83.3% with abdominal pain, and 56.7% in shock. Diagnosis was made intraoperatively in 86.7% of cases.
 - Management: 23.3% underwent simple uterine repair, 46.7% repair with bilateral tubal ligation (BTL), and 30% subtotal hysterectomy.
- v. Outcomes: Perinatal mortality was extremely high (93.3%).

for antenatal care, highlighting the persistent challenges related to poor antenatal coverage and accessibility of maternal health services in rural and underserved areas (Wang et al., 2019). Unbooked status often signifies lack of routine monitoring, which increases the risk of undiagnosed obstetric risks such as obstructed labor and inadequate prenatal counseling, both major contributors to uterine rupture (Njokanma et al., 2020).

Table 1: Clinical Characteristics, Risk Factors, Management and outcomes of patients with ruptured uterus (n=60)

Variable	Category	Frequency (%)
Mean Age (years)	30.4 ± 7.1	-
Residence	Rural	40 (66.7)
	Urban	20 (33.3)
Antenatal Booking	Unbooked	48 (80.0)
	Booked	12 (20.0)
Obstetric History	Previous Cesarean Section	14 (23.3)
Risk Factors	Oxytocin alone	20 (33.3)
	Misoprostol alone	12 (20.0)
	Combination (Oxytocin + Misoprostol)	28 (46.7)
Place of Rupture	Home	10 (16.7)
	General hospital	12 (20.0)
	Primary health center	38 (63.3)
Clinical Presentation	Vaginal bleeding	60 (100.0)
	Abdominal pain	50 (83.3)
	Shock	34 (56.7)
Diagnosis	Intraoperative	52 (86.7)
Management	Simple uterine repair	14 (23.3)
	Repair with BTL	28 (46.7)
	Subtotal hysterectomy	18 (30.0)
Outcome	Perinatal mortality	56 (93.3)

The obstetric history revealed that 23.3% had previous cesarean sections. This relatively high proportion is significant, given that uterine scarring from cesarean deliveries is a well-established risk factor for rupture, particularly in settings where vaginal birth after cesarean (VBAC) may be attempted without adequate surveillance (Guo et al., 2022; ACOG, 2020). However, in LMICs, ruptures frequently occur in unscarred uteri due to prolonged obstructed labor and unsafe labor induction practices. The administration of uterotonic emerged as a predominant risk factor. Notably, 33.3% received oxytocin alone, 20% misoprostol alone, and 46.7% had a combination of both. These figures corroborate previous studies from Nigerian centers such as Ilorin and Sokoto, as well as Ethiopian settings, where misuse or unregulated use of uterotonic—often outside well-equipped health facilities—has been strongly implicated in precipitating uterine rupture (Nkoma et al., 2021). The inappropriate dosing or unsupervised administration of oxytocin and misoprostol can cause hyperstimulation of the uterus, increasing the risk of rupture, especially in women with unrecognized uterine scars or poor uterine compliance (WHO, 2021).

Regarding the place of rupture, the majority (63.3%) occurred at primary health centers, while 20% and 16.7% occurred in general hospitals and at home, respectively. This distribution reflects varying levels of healthcare infrastructure and points to possible delays in referral or inadequacies in emergency obstetric care at lower-level facilities (Osei & Boamah, 2020). Such delays contribute directly to the severity of clinical presentations and poor outcomes. Clinically, all patients presented with vaginal bleeding, underscoring this symptom's significance as a cardinal sign of uterine rupture. Additionally, 83.3% had abdominal pain and 56.7% were in shock upon presentation, indicating the severity of maternal physiological compromise (Nazari et al., 2019). The high proportion of cases diagnosed intraoperatively (86.7%) demonstrates difficulties in early clinical diagnosis, which is often hampered by lack of advanced imaging and monitoring facilities in many LMIC settings (Njokanma et al., 2020).

Surgical management varied, with 23.3% undergoing simple uterine repair, 46.7% repair combined with

4.0 DISCUSSION

The results of this study on ruptured uterus among 60 patients emphasize critical clinical and demographic characteristics that align with findings from other regions in Nigeria and broader sub-Saharan Africa. The mean age of 30.4 years reflects the reproductive age group commonly affected by this obstetric emergency, consistent with reports indicating that uterine rupture tends to occur predominantly in women of childbearing age, especially in high-parity populations (Ezechi et al., 2018; Rahman et al., 2023). A notable 66.7% of cases were rural residents, and 80% of patients were unbooked



bilateral tubal ligation (BTL), and 30% requiring subtotal hysterectomy. The high rate of BTL reflects a strategy to prevent future pregnancies due to the risk of recurrence and poor prognosis, whereas subtotal hysterectomy is lifesaving in cases of uncontrollable hemorrhage or extensive uterine damage. These interventions emphasize the grave consequences for fertility and the social implications in societies where motherhood is a core identity (Nwosu et al., 2019; Thaddeus & Maine, 2021). The perinatal mortality rate of 93.3% is alarmingly high and consistent with the literature reporting perinatal deaths ranging from 78% up to 100% in similar Nigerian and sub-Saharan African cohorts (Adewuyi & Olamijulo, 2020; Muyefumba et al., 2019). Such high mortality is attributed to delayed presentations, limited access to timely cesarean delivery, and insufficient neonatal resuscitation capabilities.

5.0 CONCLUSION

Ruptured uterus remains a preventable but devastating obstetric complication in Northwest Nigeria, with significant maternal and perinatal morbidity and mortality. The study revealed that most patients were unbooked, from rural communities, and exposed to injudicious use of oxytocics. The extremely high perinatal mortality underscores the need for improved access to quality antenatal care, timely referral systems, and well-equipped health facilities with skilled personnel. Strengthening health education, discouraging home deliveries, and regulating the use of uterotonic drugs are critical to reducing the burden of ruptured uterus in Nigeria.

REFERENCES

Adewuyi, I. O., & Olamijulo, J. A. (2020). Perinatal outcomes following uterine rupture in a tertiary hospital in Nigeria. *Nigerian Medical Journal*, 61(5), 246–251.

American College of Obstetricians and Gynecologists (ACOG). (2020). Practice Bulletin No. 205: Vaginal birth after cesarean delivery. *Obstetrics & Gynecology*, 135(3), e110–e127.

Guo, J., Ma, X., & Zhang, L. (2022). Epidemiology and risk factors for uterine rupture in developed countries: A systematic review. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 273, 181–187.

Jumbo, S., et al. (2022). Ruptured uterus: A five-year review. *Topical Journal of Obstetrics and Gynaecology*, 39(2), 45–52.

Kahansim, M. I., et al. (2020). Uterine rupture in Jos, Nigeria: Risk factors and outcomes. *International Journal of Research in Medical Sciences*, 8(9), 3198–

3202. <https://doi.org/10.18203/2320-6012.ijrms20203822>.

Lawal, A. M., Oyetunji, L. O., Rasheed, F. A., et al. (2023). Uterine rupture at Federal Teaching Hospital Katsina: A five-year review. *International Journal of Research in Oncology*, 2(1), 1–4.

Muyefumba, D. D., Kew, T., & Mwanri, L. (2019). Neonatal outcomes following uterine rupture in sub-Saharan Africa. *BMC Pediatrics*, 19(1), 127. <https://doi.org/10.1186/s12887-019-1491-5>

Nazari, F., Yaghoobian, M., & Zarezadeh, F. (2019). Uterine rupture: Etiology, diagnosis, and management. *Journal of Obstetrics and Gynaecology Research*, 45(3), 543–552. <https://doi.org/10.1111/jog.13871>

Njokanma, O. F., Adewoye, E., & Olowe, O. A. (2020). Clinical features, risk factors, and outcomes of ruptured uterus in Lagos, Nigeria. *Nigerian Journal of Clinical Practice*, 23(8), 1061–1067.

Nkoma, J., Kimani, S., & Kiptui, D. (2021). Oxytocin misuse and uterine rupture: A case series from East Africa. *African Journal of Reproductive Health*, 25(3), 60–67.

Nwosu, C. O., Onwuka, C. F., & Okeke, T. U. (2019). Maternal morbidity following uterine rupture in a Nigerian tertiary hospital. *African Journal of Medicine and Medical Sciences*, 48(4), 305–311.

Oguejiofor, C. B., et al. (2023). Patterns and outcomes of uterine rupture in Nnamdi Azikiwe University Teaching Hospital, Nnewi. *Nigerian Journal of Clinical Practice*, 26(2), 211–218.

Osei, E., & Boamah, V. (2020). Obstructed labor and uterine rupture: A case report and literature review. *African Health Sciences*, 20(1), 164–169.

Rahman, M., Hossain, M., & Islam, M. R. (2023). Grand multiparity and uterine rupture: A critical review. *Maternal Health, Neonatology and Perinatology*, 9(1), 4. <https://doi.org/10.1186/s40748-023-00162-4>

Thaddeus, S., & Maine, D. (2021). Maternal mortality and uterine rupture in developing countries: A systematic review. *Global Health Action*, 14(1), 1910244. <https://doi.org/10.1080/16549716.2021.1910244>

Wang, L., Alfei, J., & van den Broek, N. (2019). Antenatal care and delay in comprehensive obstetric care in low-resource countries. *International Journal of Gynecology & Obstetrics*, 147(1), 17–23. <https://doi.org/10.1002/ijgo.12907>

Wilson, S., Kujur, S. A., & Sahu, T. K. (2022). A retrospective study on uterine rupture at a tertiary hospital in India. *Journal of Obstetrics and Gynaecology Research*, 48(7), 1642–1650. <https://doi.org/10.1111/jog.15342>



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World Health Organization (WHO). (2021). Trends in maternal mortality: 2000 to 2017. WHO Press.