

Emerging Trend in the Aetiological Pattern of Ruptured Pregnant Uterus in Northern Nigeria

Koledade Afolabi Korede., Abdullahi Zubaida., Adeoye Tokunbo Omolola, Bawa Umma Suleiman, Shittu Sunday Oladapo.

Department of Obstetrics and Gynaecology Department, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria.

*Correspondence: Koledade Afolabi Korede. Department of Obstetrics and Gynaecology Department, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria., **Email:** akdade1@gmail.com **Tel:** +234 8034507606

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ABSTRACT

Background: Rupture of the pregnant uterus contributes to maternal and perinatal morbidity as well as mortality in Nigeria. There is a need to look into the aetiological factors against the background of low contraceptive prevalence rate, increasing caesarean section rate, level of expertise of the cadre of healthcare workers practicing at lower levels of healthcare from where most of the referrals come from. The objective of the study was to review the aetiology and risk factors of ruptured pregnant uteri managed at a tertiary healthcare institution in Northern Nigeria. Is there a departure from previous pattern of aetiology of ruptured uterus? **Methodology:** A retrospective descriptive study. Medical records of all consecutive patients who presented with ruptured uterus between January 2015 and December 2018 were retrieved. Relevant data were extracted and analysed. **Results:** A total of 16 patients presented with ruptured uterus which was 0.24% of the total deliveries 6,677 during the period of study. The total caesarean section during period of study was 2,386, constituting 35% of the total deliveries. The patients' age range was 17 to 37 years with a mean of 28.9 ± 5.5 years. Ten (62.5%) were unbooked for antenatal care while 15(93.8%) were multipara with 6 (40%) of these being Para 5 and above. Up to 7(43.8%) had atleast a previous caesarean section. More than half 9(56.3%) had injudicious use of oxytocics either at home or at the referring lower level healthcare centre. Misoprostol was the most abused 7(77.8 %) alone or in combination with oxytocin. There was 1(6.3 %) maternal mortality before she could be gotten to the theatre while only 2(12.5%) live births were achieved. **Conclusion:** Oxytocics especially Misoprostol is dangerous in the hands of those not trained to use them. Antenatal care, training and retraining of Health workers and probable restrictions of misoprostol would help reduce maternal and perinatal mortality from uterine rupture.

Keywords: Uterine rupture, Oxytocics, Misoprostol, Injudicious use, Abuse



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INTRODUCTION

Rupture of the pregnant uterus though rare in the developed countries, is relatively commoner in the developing countries like Nigeria.^[1,2,3,4] It contributes to maternal and perinatal mortality but when diagnosed early enough and prompt emergency obstetrics and newborn care is successfully deployed, the patient may survive with severe acute maternal morbidity and perinatal morbidity.

Documented risk factors for uterine rupture include low contraceptive prevalence rate and high fertility rate which results in high parity. There is also increasing caesarean section rates owing to increasing maternal age and its potential attendant morbidities, cephalo-pelvic disproportion, previous uterine scars, antepartum haemorrhage, amongst others. Also, attempts at vaginal births after caesarean section conducted by healthcare personnel who are not trained or skilled to carry out high-risk deliveries especially at the lower healthcare facilities from where referrals mostly come from.^[5,6]

This study seeks to review the aetiology and risk factors of ruptured pregnant uteri managed at tertiary healthcare institution in Northern Nigeria. Is there a departure from previous pattern of aetiology of ruptured uterus?

METHODOLOGY

It was a retrospective descriptive study. Medical records of all consecutive patients who presented or were referred from lower level of healthcare centres to the labour ward with clinical features and diagnosis of ruptured uterus between January 2015 and December 2018 were retrieved. Relevant data were extracted from the clinical notes and referral letters where applicable. Data were gotten from clinical clerking, physical examination, investigation results and operation notes using a proforma. Grey areas were confirmed by contacting patients using their phone numbers or that of their next of kin routinely captured on their

case files. Where patients do not have information, it was captured as such. The data generated was analysed using Statistical Package for the Social Sciences (SPSS) software version 20.

RESULTS

A total of 16 patients presented with ruptured uterus which was 0.24% of the total deliveries 6,677 during the period of study. The total caesarean section during period of study was 2,386, constituting 35% of the total deliveries. There was 1 maternal mortality giving a Case fatality rate of 6.3%. Only 2 (12.5%) babies were delivered alive. The patients' age range was 17 to 37 years with a mean of 28.9 ± 5.5 years. Almost all the patients 15(93.8%) were multipara with 6 (40%) of these being Para 5 and above. Up to 12 (75%) were House wives while the rest were gainfully employed. Unbooked patients were in the majority 10 (62.5%) (Table 1).

Table 1: Sociodemographic factors

Booking Status	Patients (N)	Percentage (%)
Booked	6	37.5
Unbooked	10	62.5
Total	16	100
Religion		
Christianity	2	12.5
Islam	14	87.5
Total	16	100
Ethnicity		
Hausa	14	87.5
Northern minority	2	12.5
Total	16	100

Most 14(87.5%) of the patients had term pregnancies with exception of 2 (12.5%) preterm at 34weeks and 35weeks 4days respectively. Seven (43.8%) of the patients have had atleast one previous caesarean section (Figure 1). Which means 9(56.2%) had unscarred uterus giving a scarred to unscarred uterus ratio of 1:1.3.

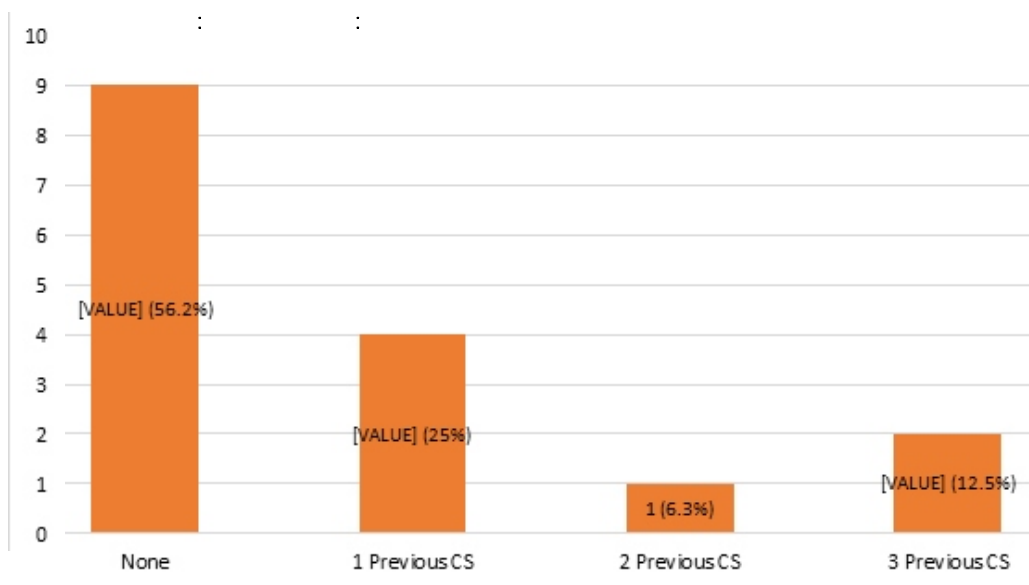


Figure 1: Previous Caesarean Section

In all, more than half (56.3%) had injudicious use of oxytocics either at home or at the referring lower level healthcare centre (Figure 2).

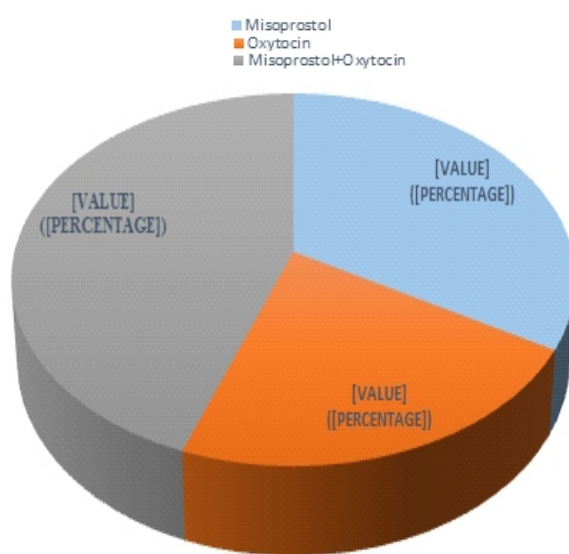


Figure 2: Oxytocin used

The use of oxytocics was either for induction of labour or to augment an established labour. Misoprostol was the most abused (77.8%) alone or in combination with oxytocin. There was (6.3%) patient who had induction of labour with an unknown dose of sublingual misoprostol.

She also had oxytocin augmentation of labour at a private hospital and she identified attending healthcare worker to be a nurse. The choice of route of administration of oxytocin was intravenous while misoprostol was administered oral, sublingual and transvaginal or in combination of different routes. Majority of the patients do not know the dose of misoprostol used (Figure 3).

Of the 9 patients who had injudicious use of oxytocics, 3 (33.3%) had induction or augmentation of labour at home, 2 (22.2%) had at home and was continued at a General hospital while the rest 4 (44.4%) had in a Primary Health Care center, Private Clinic, Missionary Hospital and General Hospital respectively.

Of the patients who had oxytocics, 3 (33.3%) identified the personnel who administered as a Nurse, 2 (22.2%) identified the personnel as Community Health Extension Worker, 1 (11.1%) identified the personnel as Traditional Birth Attendant while 3 (33.3%) could not identify the personnel.

There was 1 (6.3%) maternal mortality before she could be gotten to the theatre while only 2 (12.5%) live births were achieved.

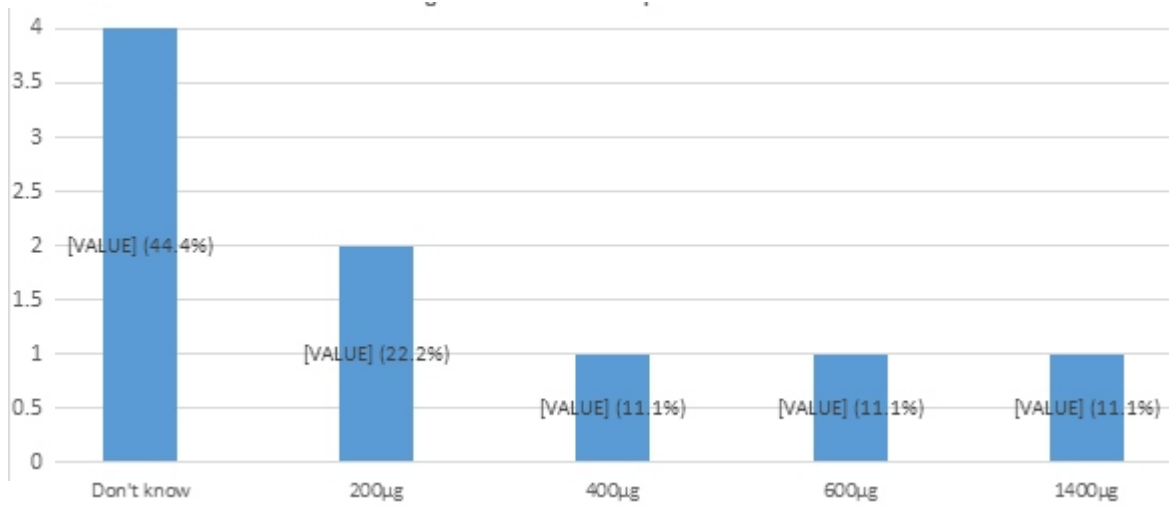


Figure 3: Doses of Misoprostol used

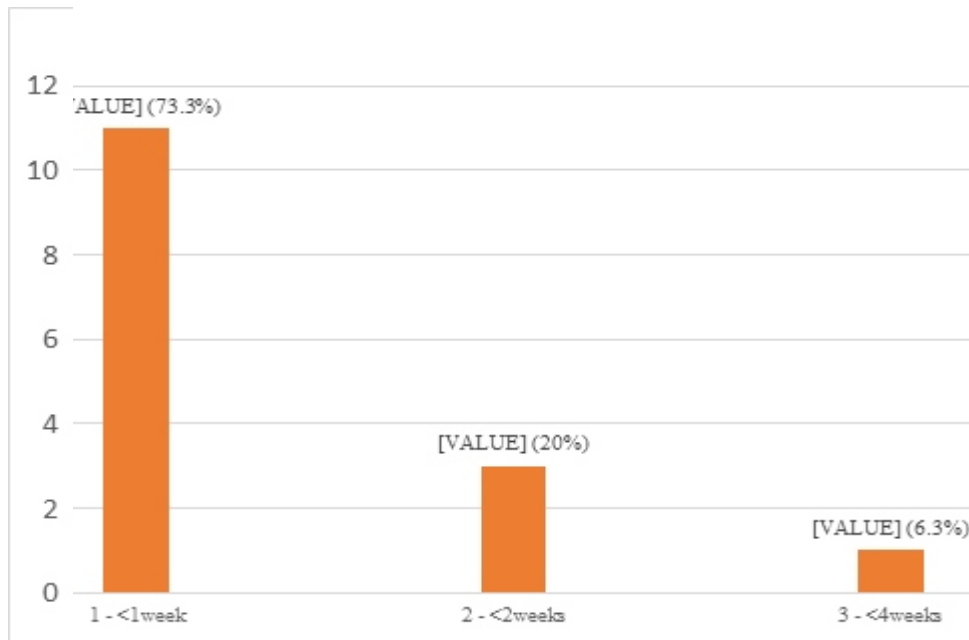


Figure 4: Hospital stay

Most of the uterine rupture was anterior 12 (80%) with 3 (20%) being posterior rupture. Also in terms of direction of rupture, 7 (46.7%) were transverse rupture with vertical extension, 5 (33.3%) were vertical rupture only while 3 (20%) were transverse only. Urinary bladder rupture was involved in only 3 (20%) of the cases.

Seven, 7 (47%) of the patients were carrying a male fetuses while 8(53%) were carrying female fetuses. The birth weight range of 1.3kg to 4.4kg and a mean of $3.1 \pm 0.8\text{Kg}$

In terms of what was done at laparotomy, 11(73%) had uterine repair, 3(20%) had uterine as well as urinary bladder repair while only 1(7%) had subtotal hysterectomy.

Of those who had uterine repair 8(57.1%) had bilateral tubal ligation while 6(42.9%) did not.

Most of the patients 11(73.3%) stayed less than two weeks on admission while others stayed longer (Figure 4).

DISCUSSION

Uterine rupture is a common cause of Severe acute maternal morbidity, Maternal mortality and Perinatal mortality especially in Sub-Saharan Africa as well as in other developing countries. This is usually as a result of deficiencies in the health sector.

Only 2 (12.5%) babies were delivered alive compared to 2.9% found in Ebonyi southeast Nigeria.^[5] The birth weight range of 1.3kg to 4.4kg and a mean of 3.1 ± 0.8 Kg were comparable to birth weight range of 2.2kg to 4.0 kg and a mean of 3.1 ± 0.5 kg found in Enugu also south east Nigeria.^[7]

The uterine rupture rate in this study was 0.24% which translates to 1 in 417 deliveries, compared with 1 in 148 deliveries at ABUTH Zaria in the early eighties^[8] and 1 in 137 deliveries recorded in ABUTH Kaduna in the late nineties^[9], the incidence is relatively lower. Also notably, the incidence is lower than some reported figures across the country. 1 in 74 in Sokoto northwest Nigeria, 1 in 68 in another rural tertiary hospital northwest Nigeria, 1 in 120 in Azare northeast Nigeria,^[10,11] 1 in 219 in Okitipupa southwest Nigeria, 1 in 273 in Ile-Ife southwest Nigeria, 1 in 161 in Nnewi southeast Nigeria and 1 in 86 in Afikpo southeast Nigeria, but a lot higher than incidences in the developed countries.^[3,4,7,13]

The mean age of the patients was 28.9 ± 5.5 years slightly higher than 27 years found in ABUTH Zaria by Ezem BU et.al in 1983 and lower than 30.5 years found in ABUTH Kaduna. This suggests that the reproductive age is slightly delayed than what it used to be probably because of more enlightenment and relatively better level of education now. The mean age is however comparable to 28.3 ± 6.6 years in another tertiary

hospital in northwest but lower than mean ages found in studies in southern Nigeria, probably because early marriage is commoner in northern Nigeria.^[8,9,10,14,15]

Unbooked status 10(62.5%), Multipara 15(93.8%), Previous CS 7(43.8%), Injudicious use of oxytocics 9(56.3%) were risk factors identified in line with independent risk factors for uterine rupture previously documented in literature.^[12,13,16,17,18]

The proportion of those unbooked for antenatal care was found to be 10 (62.5%) similar to 63.8% found in Nnewi and lower than 93% found in Sokoto and 79% in Azare northwest and northeast Nigeria respectively as well as 73.9% in Okitipupa southwest Nigeria and 80% in Nnewi southeast Nigeria. However proportion of unbooked patients was higher than other values found in southeast Nigeria viz 39% in Enugu and 56.9% of cases in Afikpo.^[11,12,13,14,15]

Most of the patients 15(93.8%) were multipara with 6 (40%) of these being Para 5 and above, compared 27.5% , 50.8% and 62.7% grandmultiparity in Afikpo, Ile-Ife and Birnin Kudu in southeast, southwest and northwest Nigeria respectively.^[3,4,10]

Up to 7(43.8%) had at least a previous caesarean section compared with 37.3 % with uterine scar in Afikpo Ebonyi State; 26.2% in Ile-Ife Osun State and 6.8% in Azare Bauchi State where majority 93% ruptured unscarred uterus.^[3,4,12] The scarred to unscarred uterus ratio was 1:1.3 which was similar to findings in Afikpo 1:1.7 but a contrast to a ratio of 2.1:1 found in Nnewi both in southeast Nigeria.^[3,7]

Up to 9 (56.3%) of the patients studied had injudicious use of oxytocics either at home or at the referring lower level healthcare centre. This was similar to findings in Azare 56.2%, lower than 62.8% in Nnewi but higher the finding in Ile-Ife where 41% respectively were found to have had injudicious use of Oxytocin.^[4,12,14]

Misoprostol was the most abused 7(77.8 %) alone or in combination with oxytocin. Oxytocin was the most abused in other centres.^[4,7,10,14] Hoping this

may not be connected to the training of traditional birth attendants and lower cadre healthcare workers in Zaria and environs, like in other parts of the world on use of misoprostol in the control of primary post-partum haemorrhage which recorded huge and widely publicised success a few years ago. Some of the healthcare workers may have started using misoprostol outside of what they were trained for.^[19,20,21] Also in this environment, Oxytocics including misoprostol are easily accessible from drug stores by any individual even without a doctor's prescription. This enables those who are not trained to use it to have access it and abuse it.

Uterine rupture is rare in teenagers but there was a 17 year old unbooked primigravida who had gone into labour but was given a total of 1400µg of misoprostol, 600µg sublingual and 800µg to hasten the labour at home by a personnel the patient identified as a Community Health Extension Worker (CHEW). She suffered a uterine and urinary bladder rupture with a fresh still birth male infant that weighed 3.5kg. She had uterine and urinary bladder repair and was discharged after 3 weeks on admission when co-morbidities had been treated and she had been adequately counseled. A similar case was reported in Kano also northwest Nigeria where a 17 year old unbooked primigravida laboured for three days initially at home supervised by a Traditional Birth Attendant who gave oral concoctions, 'Gishiri cut' (Traditional genital mutilation) and fundal pressure before the patient presented at a Primary Healthcare Centre where she had oxytocin augmentation with 10iu intramuscularly and another 20iu through intravenous fluid which led to rupture of both the uterus and the urinary bladder.^[22] Teenagers constituted 3.96% of the cases in Abakaliki southeast Nigeria.^[5] However none of the studies in Okitipupa and Nnewi southwest and southeast Nigeria respectively had uterine rupture among nulliparous patients.^[13,14]

Most of the uterine rupture in this study was anterior 12 (80%), higher than 60% and 65.4% anterior uterine rupture found in Nnewi and Ebonyi

both in southeast Nigeria.^[5,7]

In terms of surgical intervention, uterine rupture is an obstetrics emergency therefore the principle is to go for the quickest and safest option with consideration for how stable the patient is, severity of the rupture, future reproductive possibilities.^[22,23,24]

Most of the patients in this study 14 (93%) had uterine repair out of which 8 (57%) of them had bilateral tubal ligation (BTL) and 1 (7%) had subtotal abdominal hysterectomy which was in line with the eighties in Zaria when repair of the uterus with sterilization was the common method of treatment.^[8] However in Azare only 45.1% had uterine repair and BTL and a much higher 18.3% had subtotal abdominal hysterectomy.^[12] Findings in Afikpo southeast Nigeria were also high, as 88.2 % of patients had uterine repair alone but only 9.8% had uterine repair with BTL and 2% had hysterectomy.^[3] In Ile-Ife southwest Nigeria only 19.6% had uterine repair alone while 26.8% had repair with BTL while up to 53.6 % had hysterectomy.

We found a maternal case fatality rate of 6.3% which was similar to 5.9% found in Afikpo but lower than 10.7% in Azare and 21.3% in Ile-Ife.^[3,4,12]

Most of the patients 11(73.3%) stayed less than two weeks on admission while others stayed longer. The generally prolonged hospital stay is a reflection of the severity of morbidities the survivors of uterine rupture suffer.

CONCLUSION

Though the incidence of uterine rupture at ABUTH Zaria has relatively dropped over the decades, there is however a new trend with regards to abuse of oxytocics especially misoprostol. Oxytocics are dangerous in the hands of those not trained to use them. Family planning, Antenatal care, training and retraining of Healthcare workers and probable restrictions of misoprostol would help reduce maternal and perinatal mortality from uterine rupture. Also pregnant patients with uterine scar

should have their pregnancy and delivery supervised by specialists.

Conflict of interest: None.

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