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Uterine Rupture at Federal Teaching Hospital, Katsina: A Five Year Review

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ABSTRACT

Background: *Uterine rupture, despite being one of the most devastating obstetric complication associated with significant maternal and perinatal morbidities and mortality, is still prevalent in developing countries.*

Objectives: *To determine the prevalence, aetiologic risk and other contributing factors, complications as well as outcome of Obstetric Uterine rupture at Federal Teaching Hospital, Katsina.*

Study Design: *A Five year retrospective study that reviewed uterine rupture in Obstetrics and Gynaecology department of Federal Teaching Hospital, Katsina from 1st January 2010 to December 31st 2014.*

Results: *There were 42 uterine ruptures out of 9995 deliveries, with an incidence of 4.2 per 1000 deliveries. The mean age of the patients was 31yrs± 0.9. The highest incidence was among unbooked patients (85%). The diagnosis was made pre-operatively in 88.1% of the cases. Major risk factors were prolonged obstructed labour (26.2%), previous caesarean section scar (19%) and Oxytocin infusion in unscarred (14.3%) and scarred Uteri (11.9%) as well as use of Misoprostol (11.9%). Majority of the ruptures occurred anteriorly (52.4%) while scar dehiscence accounted for 23.8% of cases.*

Repair with bilateral tubal ligation was the most frequent mode of treatment (47.6%), while hysterectomy was done for patients with extensive ruptures (34.3%). The commonest complication was postoperative Anaemia (38.1%). There were two maternal deaths, with a case fatality rate of 4.8%, while the perinatal mortality was 78.6%.

Conclusion: *Uterine rupture is still a major cause of maternal and perinatal morbidities and mortality in our setting. Antenatal care with skilled facility-based deliveries will reduce its incidence and associated complications.*

Keywords

Uterine rupture, 5 year review, FTH Katsina.

Introduction

Rupture of the pregnant uterus is an obstetric catastrophe and a major cause of maternal death [1]. In the developed world, the frequency has reduced significantly whereas it is still a major public health problem in developing countries in general and Africa in particular [1,2]. In Nigeria, the incidence ranges from 0.3 to 0.95 % [2-4]. Maternal case fatality as high as 10.3 - 16.0% and perinatal mortality rate of between 70-90 % have been reported [5-7].

The high incidence and case fatality associated with uterine rupture is related to poverty, lliteracy and lack of skilled birth attendants at delivery [4,8]. Majority of uterine ruptures in developing countries are due to prolonged obstructed labour [4,9,10]. Common predisposing factors include high parity, cephalo-pelvic disproportion and malpresentation [4,9]. There is an appreciably high incidence of uterine scar rupture in Nigeria and other developing countries following trial of scar with unskilled birth attendants, occasioned by aversion to abdominal deliveries [9]. There have been rare cases of rupture of primigravid uterus [11].

Options of management includes repair with or without bilateral tubal ligation, subtotal and total abdominal hysterectomies, which is individualized and often centre-specific [1,2].

Aim

- To determine the incidence and associated feto-maternal complications in uterine rupture.

Specific Objectives

- To determine the incidence of uterine rupture.
- To determine the relationship between booking status and incidence of uterine rupture.
- To identify various aetiologic risk factors contributing to uterine rupture.
- To determine methods of surgical management as well as complications in uterine rupture.
- To determine adverse maternal and fetal outcomes associated with uterine rupture.

Material and Methods

A retrospective study of Forty-two (42) cases of ruptured uterus between January 1st 2010 and December 31st 2014. Relevant data on age, parity, booking status, aetiological risk factors, and operative findings, types of surgery, blood transfusions, postoperative management and post-operative complications were all extracted from the case notes. The total number of deliveries for the entire study period was also determined.

Data collated were entered into personal computer and analyzed with SPSS software version 16.0 using descriptive statistics. P value <0.01 defined statistical significance.

Results

There were 42 cases of ruptured uteri out of 9,995 deliveries, with an incidence of 4.2 per 1,000 deliveries (1:238 deliveries).

Table 1: Age distribution of patients with ruptured uterus.

Age	Number	%
15-19	0	-
20-24	2	4.8
25-29	14	33.3
30-34	17	40.5
35-39	8	19.0
≥40	1	2.4
Total	**42**	**100**

Mean Age= 31years

Table 2: Parity of women with ruptured uterus.

Age	Number	%
1	1	2.4
2	5	11.9
3	2	4.8
4	4	9.5
≥5	30	71.4
Total	**42**	**100**

Table 1 and 2 showed distribution of age and parity of patients with ruptured uterus. The age of the patients ranged between 20 to 44 years with a mean age of 31 years. Majority of the women were aged 30-34 years (40.5%) and most were grand multipara (71.4%).

Table 3: Place of Intrapartum care for patients with ruptured uterus.

Place of intrapartum care	Unbooked	Booked	Total (%)
Primary health centers	13	0	13 (31.0)
General Hospitals	9	1	10 (23.8)
Home with or without TBAS	8	0	8 (19.0)
Turai Yar-adua Maternal and child Health Hospital	3	1	4 (9.5)
FTH Katsina	1	3	4 (9.5)
Private Hospitals	2	1	3 (7.2)
Total (%)	**36 (85.7)**	**6 (14.3)**	**42 (100)**

TBAS, Traditional Birth Attendants

Table 3 showed that unbooked patients accounted for 85.7% of the cases while 14.3% were booked. Three (3) each of the booked patients had intrapartum care outside and at FTH Katsina. Thus, 90.5% of the cases occurred outside the hospital.

Table 4: Aetiological risk factors for ruptured uterus.

Aetiologic Factors	Frequency	%
Obstructed labour	11	26.2
Previous uterine scar	8	19.0
Oxytocin use	6	14.3
Induction with misoprostol	5	11.9
Oxytocin use in previous uterine scar	5	11.9
Misoprostol in previous uterine scar	4	9.5
Intrauterine manipulation	1	2.4
No identifiable risk factor	2	4.8
Total	**42**	**100**

Table 4 showed the identified aetiologic risk factors for uterine rupture. Obstructed labour accounted for 26.2%, followed by previous uterine scar (19.0%). The use of oxytocin in unscarred uterus and misoprostol induction of labour accounted for 14.3% and 11.9% respectively.

Table 5: Site of uterine rupture.

Site of Rupture	Frequency	%
Anterior	22	52.4
Scar dehiscence	10	23.8
Posterior	6	14.3
Anterior with lateral extension	3	7.1
Posterior with lateral extension	1	2.4
Total	**42**	**100**

The commonest site of rupture was anterior, occurring in 22(52.4%) of cases, followed by uterine scar dehiscence 10(23.8%). Posterior rupture was 6(14.3%) and least was found in posterior rupture with lateral extension which was 1(2.4%).

Table 6: Surgical procedure.

Treatment offered	No	%
Repair only	8	19.1
Repair + tubal ligation	20	47.6
Subtotal hysterectomy	11	26.2
Total hysterectomy	3	7.1
Total	**42**	**100**

Table 6 showed the various types of treatment offered to women with ruptured uterus. Repair with bilateral tubal ligation was the commonest method (47.6%). Hysterectomy was performed in 14 (33.3%) patients, of which 11 were subtotal hysterectomies. Majority of these followed posterior and extensive ruptures. Eight patients had repair only.

Table 7: Blood loss.

Blood loss (in ml)	No	%
<500	5	11.9
501-1000	11	26.2
1001-2000	19	45.2
2001-3000	5	11.9
>3000	2	4.8
Total	**42**	**100**

Table 8: Intra-Operative and Post-Operative Complications.

Complication	**Number**	**% n = 42**
Associated Injuries		
1. Laceration of the broad ligament/ broad ligament haematoma	9	21.4
2. Cervical laceration	5	11.9
3. Rupture of urinary bladder.	1	2.4

Post-operative complications.

Postoperative anaemia	16	38.1
Sepsis	5	11.9
Wound dehiscence	4	9.5

Table 9: Comparable fetal outcome in booked and unbooked patients.

Fetal outcome	Booked (%)	Unbooked (%)	Total	%
Alive	3 (50)	6 (16.7)	9	21.4
Death	3 (50)	30 (83.3)	33	78.6
Total	6(100)	36(100)	42	100

Tables 7, 8 and 9 showed the various morbidities and mortalities associated with ruptured uterus.

The average blood loss was 2000ml with a range of 500mls to 3500mls while Post-operative Anaemia occurred in 38.1% of cases. Associated injuries include broad ligament laceration (21.4%), cervical laceration (11.9%) and bladder rupture (2.4%) while wound sepsis and wound dehiscence occurred in 11.9% and 9.5% of cases respectively. There were 2 maternal deaths, with an incidence of 4.8%.

Table 9 showed the comparable fetal outcome in booked and unbooked patients. There were Thirty-Three Perinatal mortalities (78.6%) with thirty of them occurring among unbooked patients. Fifty percent of the booked patients had live babies compared with 16.7% of the unbooked cases. There were 2 (4.8%) cases of maternal mortalities, all occurred among the unbooked patients.

Discussion

The incidence of uterine rupture varies from one obstetric population to the other, depending on the obstetric risk factors, the availability of obstetric care facilities and the level of utilization of such facilities [9,10]. The incidence of rupture of the gravid uterus of 1 in 238 deliveries (0.42 %) in this study is in keeping with similar incidences from Nigeria and other parts of Sub-Saharan Africa [12-14] but much higher than the reported incidences of 0.015 % - 0.01% in developed countries [15,16]. Unlike in developed countries with good and accessible maternity care services [18], lack of skilled birth attendants, inaccessible and poor maternity services as well as preference to home delivery contribute to rising incidence of ruptured uterus in our settings [4,5]. The late presentation to our facility after failed attempt at home delivery or late referral from Primary or secondary health facilities corroborate those findings.

The high frequency of uterine rupture in age group 30 - 34 years and parity of 5 and above agree with findings from several studies [1,5,8,17]. With increasing parity and age, the myometrium undergoes fibrinous degeneration, which decreases its tensile strength [8,17]. Furthermore, there is a tendency for larger babies and malposition with increasing parity and age. This will lead to a rise in the incidence of feto-pelvic disproportion, an important contributor to uterine rupture [17].

Most patients with uterine rupture were unbooked. This is in keeping with findings from similar studies done from Southern and Northern parts of Nigeria [2,4,6,8]. This implies that most cases of uterine rupture in Nigeria could be averted by proper Antenatal care through health education, proper patients assessment, proper counselling, informed birth plan as well as delivery with skilled birth attendants at comprehensive emergency obstetrics care designate facilities [6,8].

The identification of obstructed labour with or without Oxytocin infusion as a major aetiology for uterine rupture in this study was in line with similar study done in Jos, Nigeria [4] and some other parts of Africa where incidence of 10-56 % have been reported [1,4,8,14]. Lack of antenatal care, poor access to health care services, delayed referral and poor transportation services are part of the factors that ultimately lead to obstructed labour and uterine rupture [1,4,6]. This finding is in variance with that of developed countries where the common cause is uterine scar dehiscence [18].

Most ruptures occurred anteriorly and is keeping with similar studies in many part of the world [1,4,12-14,17]. Obstructed labour is associated with marked thinning of the lower uterine segment and increased retraction of the upper segment resulting in the formation of a retraction or Bandl's ring. The resulting rupture begins in the lower uterine segment and may extend to any part of the uterus [17].

Generally, the choice of surgery depends on the site and extent (anatomy) of the rupture, the condition of the patient at the time of presentation, the patient's parity, the choice and experience of the surgeon as well as the socio-cultural peculiarity of the area of practice [7,10,17]. Speed at surgery is important since prolonged period of anesthesia is not safe for such acutely ill patients. Uterine repair with or without tubal ligation as performed for 67 % was the easiest and fastest procedure and preserves menstrual and reproductive functions of the clients [7]. This surgical option is supported by studies done in the country especially in areas that have socio-cultural attachment to preservation of menstrual function [4,6,7,17]. Hysterectomy was done for cases with multiple and or extensive ruptures as reported in similar studies [10]. The

choice of total or subtotal hysterectomy depends on the clinical state of the patient and experience of the surgeon [10,17].

Anaemia was the commonest morbidity found in about 38% of the patients, this has been reported in several studies [2,4,6,7]. Asides blood loss, preexisting anaemia and sepsis may contribute to its high prevalence. Case fatality of 4.8 % in this study is quite low compared with other studies in Nigeria and Ethiopia [1,2,4,6,17]. The causes of death in this study were hypovolaemic shock. The improved survival can be attributed to efficient blood transfusion services with majority of the patients transfused with one or more units of blood. This high rate of transfusion has been reported in various studies [1,6,17]. The average hospital stay of 8 days on admission compares favorably with finding from Turkey (8.5 days) [16] but shorter than what was reported from similar studies in South-Western Nigeria [7,8,13].

Ruptured uterus is associated with poor fetal outcome. In this study, the perinatal mortality was 78.6%, majority of which occurred in unbooked patients. Perinatal mortality is generally high in ruptured uterus especially if the rupture occurs outside the hospital. Similar findings were reported in other studies with rates as high as 75 - 92 % [6,8,13,17]. Delivery with skilled birth attendants will allow for timely diagnosis, stabilization and intervention, thereby improving outcome [8,17,19].

Conclusion

The incidence of ruptured uterus in Federal Teaching Hospital Katsina is high and largely results from prolonged obstructed labour, unsupervised trial of scars, injudicious use of oxytocics and grand multiparity.

This study underscores the need for antenatal care and delivery with skilled birth attendants at standard healthcare facilities. Training and retraining of community midwives and in some cases traditional birth attendants on the identification and early referral of high risk pregnancies to better equipped and staffed hospitals will serve as an important preventive strategy.

The injudicious use of Oxytocin must be discouraged and use of partograph to monitor labour with prompt referral of prolonged labour must be encouraged. Multi-sectoral collaboration to enhance efficient, accessible and affordable emergency obstetrics and blood transfusin services will reduce the incidence as well as the complications associated with uterine rupture.

References

1. Amanael G, Mengiste MM. Ruptured Uterus- Eight year retrospective analysis of cases and management outcome in Adigrat Hospital, Tigray Region, Ethiopia. Ethiopia J. Health Dev. 2002; 16: 241-245.
2. Nyengidiki TK, Allagoa DO. Rupture of the gravid uterus in a tertiary health facility in the Niger Delta region of Nigeria: A 5-year review. Nigerian Medical Journal. 2011; 52: 230-234.
3. Ezegwui HU, Nwogu-Ikojo EE. Trends in uterine rupture in Enugu, Nigeria. Journal of Obstetrics and Gynaecology. 2005; 25: 260-262.
4. Dattijo LM, Umar NI, Yusuf BM. Ruptured Uterus in Azare, North Eastern Nigeria. Jos Journal of Medicine. 2011; 5: 17-20.
5. Ahmed Y, Shehu CE, Nwobodo EA, et al. Reducing maternal mortality for ruptured uterus- the Sokoto initiative. Afr J Med Sci. 2004; 33: 135-138.
6. Onyema 0, Nworah 0, Ikechukwu M, et al. Incidence, Risk factors, Surgical options and maternal and perinatal outcomes of Ruptured uterus in Nnewi: A 10 year review. J Gynecol Surg. 2012; 28: 13-15.
7. Ogunnowo T, Olayemi 0, Aimakhu CO. Uterine rupture: UCH, Ibadan Experience. WAJM. 2003; 22: 236-239.
8. Ezechi OC, Mabayoje P, Obiesie LO. Ruptured Uterus in South West Nigeria: A reappraisal. Singapore Med J. 2004; 45: 113-116.
9. Orhue AAE. Problems of Labour. In: Agboola A (Ed). Textbook of Obstetrics and Gynaecology for medical students. 23nd edition. Ibadan. Heinemann. Educational Books (Nigeria) Pic. 2006: 442-471.
10. Rotimi EO, Olamijulo JA. Rupture of the uterus at the Lagos University Teaching Hospital, Lagos, Nigeria. West Afr Med J. 1998; 17: 188-193.
11. Adewumi AA, Rabiu KA, Okudero A. Rupture of uterine of a pregnant uterus in a primigravida: A case report. Nigeria Journal of clinical Medicine. 2009; 2.
12. Admassu A. Analysis of Ruptured uterus in Debre Markos Hospital, Ethiopia. E. Afr Med J. 2004; 81: 52-55.
13. Abiodun PA, Munir-Deen Al, Yahaya UR. Ruptured Uterus: A study of 100 consecutive cases in Ilorin, Nigeria. J. Obstet Gynecol Res. 2001; 27: 341-348.
14. Folie CO, Baffoe P. A 2-year Review of Uterine Rupture in a Regional Hospital. Ghana Med. 2010; 44: 98-102.
15. Ismail Ozdemir, Nese Yucel, Oguz Yucel. Rupture of the pregnant uterus: A 9-year review. Arch Gynecol Obstet. 2005; 272: 229-231.
16. Mishra SK, Morris N, Uprety DK. Uterine Rupture: preventable Obstetric Tragedies?. Aust. N. Z. J. Obstet Gynaecol. 2006; 46: 541-545.
17. Mbamara SU, Obiechina NJA, Eleje GU. An analysis of uterine rupture at Nnamdi Azikiwe University Teaching Hospital, Southern Nigeria. Nigeria Journal of clinical practice. 2012; 15: 448-452.
18. Evans DG, B-Lynch C. Obstetric trauma. In: Textbook of postpartum haemorrhage. 2006: 74-76.
19. Ekele BA, Audu LR, Muyibi S. Uterine rupture in Sokoto, Northern Nigeria- arewe winning?. Afr J Med Sci. 2000; 29: 191-193.