

Case Study

# Uterine rupture: a review of 15 cases at bandier maternity hospital in Somalia

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## Abstract

**Background:** Uterine rupture is a deadly obstetrical emergency endangering the life of both mother and fetus.

**Objective:** To determine the frequency of ruptured uterus at Bandier Hospital and to elicit possible causes and type of management.

**Methods:** It was cross sectional and hospital based descriptive study implemented during a time period of six months (July – December 2013) in Bandier maternity hospital and a total of 15 women presented with rupture uterus during the period of the study were included.

**Results:** There were 15 cases of ruptured uterus out of a total of 2142 deliveries. Incidence of uterine rupture was found to be 0.7%. The mean age of women was  $30.03 \pm 4.55$  years. Concerning risk factors for rupture uterus, 10 (66.7%) had previous uterine surgery, obstructed labor was found in 33.3%, and oxytocin was used in 46.7% of respondents. Repair was done for 8 (53.3%), 3 (20.6%) of respondents underwent total abdominal hysterectomy and 4 (26.7%) were ended by subtotal hysterectomy.

**Conclusions:** Previous uterine surgery, obstructed labour and improper use of oxytocin increase the risk of uterine rupture in this study. Half of the patients underwent hysterectomy.

## Introduction

Rupture uterus is a grave condition, which is almost always fatal for the fetus. Uterine rupture may develop as a result of preexisting injury like scar or perforation or anomaly [1]. It may be associated with trauma or it may complicate labour in a previously unscarred uterus. The most common cause of uterine rupture is dehiscence of a previous Caesarian section scar [2]. There are two types of uterine rupture, complete and incomplete, distinguished by whether or not the serous coat of the uterus is involved. In the former the uterine contents including fetus and occasionally placenta, may be discharged into the peritoneal cavity, whereas in the latter the serous coat is intact and fetus and placenta are inside the uterine cavity. The complete variety appears to be more dangerous of the two varieties. Rupture of uterus during labour is more dangerous than that occurring in pregnancy because shock is greater and infection is almost inevitable.

Studies conducted in the developing world give strong evidence that uterine rupture is a major health problem in these countries with the rate being high in rural areas [1,3,4]. According to the World Health Organization “exploring factors which are beyond the biomedical causes will have essential implication for preventive programs in the developing countries” [2]. The aim of the present study is to determine the incidence of ruptured uterus at Bandier Hospital and to elicit possible causes and type of management.

## Material and methods

This study was conducted in Bandier maternity hospital in Maqdishue which is the largest referral hospital in Somalia for

obstetrics and gynecological. It was cross sectional study conducted in six month (July – December 2013). A probabilistic sample of 15 women of uterine rupture that arrived to or occurred in the hospital were collected, interviewed, examined and followed up. All patients were followed up until their discharge from the hospital. The questionnaire covered the following information: Reproductive characteristics, socio-demographic characteristics, the presenting complain, type of operation, maternal outcome and follow up characteristics.

Data was entered into SPSS version 16 and analyzed accordingly. The quantitative variables were presented in mean and standard deviation and qualitative variables were presented in frequency and percentages. Important summary statistics were obtained and associations were examined using chi-square test. Significance level of 0.05 (*i.e.*  $P < 0.05$ ) was used to determine the significance of associations being examined.

Ethical clearance and approval for conducting this research was obtained from the general manager of the hospital and informed written consent was obtained from every respondent who agreed to participate in the study. Of course, the respondents informed that the study is not associated with experimental or therapeutic intervention and information were collected from her.

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## Results

The mean ages was  $30.03 \pm 3.15$  years, the mean (SD) of parity was  $6.2 \pm 1$ . Regarding Gestational Age (GA), 3(20.0%) were at GA (37-39) weeks, 6 (40.0%) were at GA (40-20) weeks and 6(40.0%) were at GA more than 42 weeks. No any patients had regular antenatal care, 4 (26.7%) had irregular and 11 (73.3%) were without any antenatal car. The majority of respondents 10 (66.7%) were housewives, 1 (6.7%) were employer and 4 (26.7%) were worker. The majority of respondents 10 (66.7%) were illiterates, 2 (13.3 %) were primary and 3(20.0%) were secondary education (Table 1).

Concerning risk factors for rupture uterus, (Table 2) shows that 10 (66.7%) had previous Cesarean Section (CS), two of which was "classical". Other previous surgeries were mainly curettage in 6 (40.0%) and myomectomy in 2 (13.3%), obstructed labor was found in 33.3 %, contracted pelvis in 26.7% of cases and oxytocin was used in 7 (46.7%) of respondents. With regard to methods of management done for respondents included in the study, repair was done for 8 (53.3%), 3(20.6%) of respondents underwent total abdominal hysterectomy and 4 (26.7%) were ended by subtotal hysterectomy and regarding intra operative complications 6 (40.0%) of patients were developed intra operative bleeding, one patient developed injury to the bladder and one maternal deaths due to massive bleeding. Concerning post-partum complications, about 86.6% patients in the study had transfusions of 500 - 1000 ml of blood before, after and during the operation, 2 (13.3%) of patients developed bleeding, one patient was developed pulmonary embolism and died 2<sup>nd</sup> day post-operative (Table 3).

Table 4 shows the overall managements in relation to parity .This trend was statistically significant, as P-value was < 0.05.

## Discussion

Africa is the continent in the world mostly plagued with poverty and diseases. With only one years remaining to 2015, there are signs

**Table 1.** Shows demographic characteristics among patients (n=15).

Variable	Frequency	Percentage
<b>Age</b>		
<20 years	1	(06.7%)
20-30 years	5	(33.3%)
31-40 years	6	(40.0%)
>40 years	3	(20.0%)
<b>Occupation</b>		
House wife	10	(66.7)
Employer	1	(06.7%)
Worker	4	(26.7%)
<b>Antenatal care</b>		
Regular	0	(00.0%)
Irregular	4	(26.7%)
None	11	(73.3%)
<b>Education</b>		
Illiterate	10	(66.7%)
Primary	2	(13.3%)
secondary	3	(20.0%)
<b>Gestational age</b>		
<37 weeks	0	(00.0%)
37-39 weeks	3	(20.0%)
40-42 weeks	6	(40.0%)
>42 weeks	6	(40.0%)
<b>Parity</b>		
Primigravida	1	(06.7%)
Multiparty	5	(33.3%)
Grand multiparty	9	(60.0%)

**Table 2.** Shows the distribution of the patients according to the risk factors (n=15).

Variable	Frequency	Percentage
<b>Previous caesarean section</b>		
Yes	10	(66.7%)
No	5	(33.3%)
<b>No of previous caesarean section</b>		
1	4	(40.0%)
2	3	(30.0%)
3	2	(20.0%)
>3	1	(10.0%)
Total	10	(100.0%)
<b>Previous classical caesarean section</b>		
Yes	2	(20.0%)
No	8	(80.0%)
Total	10	(100.0%)
<b>Myomectomy</b>		
Yes	2	(13.3%)
No	13	(86.7%)
<b>Uterine malformation</b>		
Yes	1	(06.7%)
No	14	(93.3%)
<b>Duration of labour</b>		
<12 hours	3	(20.0%)
12-24 hours	5	(33.3%)
>24 hours	7	(46.7%)
<b>Obstructed labour</b>		
Yes	5	(33.3%)
No	10	(66.7%)
<b>Oxytocin use</b>		
Yes	7	(46.7%)
No	8	(53.3%)
<b>Contracted pelvis</b>		
Yes	3	(20.0%)
No	12	(80.0%)
<b>Curettage</b>		
Yes	6	(40.0%)
No	9	(60.0%)

of progress in achieving the health-related Millennium Development Goals (MDGs) in some countries; while in other countries, like Somalia progress has been limited because of 22 years of civil war ,conflicts, poor governance, economic or humanitarian crises, lack of resources , lack of stability and some entrenched cultural and traditional practices.

The most critical aspects of treatment in the case of uterine rupture are establishing a timely diagnosis and minimizing the time from the onset of signs and symptoms until the start of definitive surgical therapy. Once a diagnosis of uterine rupture is established, the immediate stabilization of the mother and the delivery of the fetus are imperative. As a rule, the time available for successful intervention after frank uterine rupture and before the onset of major fetal morbidity is only 10-37 minutes. Therefore, once the diagnosis of uterine rupture is considered, all available resources must quickly and effectively be mobilized to successfully institute a timely surgical treatment that results in favorable outcomes for both the newborn and the mother. After the fetus is successfully delivered, the type of surgical treatment for the mother should depend on the following factors: type and extent of uterine rupture, degree of hemorrhage, general condition of the mother and mother's desire for future childbearing. Uterine bleeding is typically most profuse when the uterine tear is longitudinal rather than transverse. Conservative surgical management involving uterine repair should be reserved for women who have the following findings: desire for future childbearing, low transverse uterine rupture, no extension of the tear to the broad ligament, cervix, or paracolpos, easily controllable uterine hemorrhage ,good general condition and no clinical or laboratory evidence of an evolving coagulopathy [5]. Hysterectomy

**Table 3.** Shows distribution of the patients according to the management and outcome (n=15).

Variable	Frequency	Percent
<b>Management</b>		
Repair	8	(53.3%)
Total Abd hysterectomy	3	(20.0%)
Subtotal Abd hysterectomy	4	(26.7%)
<b>Intra operative complications</b>		
Bleeding	6	(40.0%)
Injury to other organ	1	(06.7%)
No complication	7	(46.6%)
Death	1	(6.7%)
<b>Post-operative complications</b>		
Bleeding	2	(13.3%)
Infection	5	(33.3%)
Pulmonary embolism	1	(06.7%)
Death	1	(06.7%)
None	6	(40.0%)
<b>Post-operative care</b>		
Routine	10	(66.7%)
HDU	5	(33.3%)
ICU	0	(00.0%)
<b>Site of uterine rupture</b>		
Anterior	6	(40.0%)
Posterior	7	(46.6%)
Other	2	(13.4%)
<b>Previous uterine rupture</b>		
Yes	1	(6.7%)
No	14	(93.3%)
<b>Massive blood transfusion</b>		
Yes	13	(86.7%)
No	2	(13.3%)

**Table 4.** Shows a cross-tabulation between parity and overall management.

Overall management * Parity Cross-tabulation		Parity			Total
		PG	Paras	Grandmultipra	
Overall management	Repair	1	3	4	8
	Subtotal hysterectomy	0	2	2	4
	Total Hysterectomy	0	0	3	3
Total		1	5	9	15

$\chi^2=25.123$ , P-value=0.000

should be considered the treatment of choice when intractable uterine bleeding occurs or when the uterine rupture sites are multiple, longitudinal, or low lying [6]. Because of the short time available for successful intervention, the following 2 premises should always be kept firmly in mind. Maintain a suitably high level of suspicion regarding a potential diagnosis of uterine rupture, especially in high-risk patients, and when in doubt, act quickly and definitively.

The results of current study revealed that, the incidence of uterine rupture was 0.71% (15 in 2300 deliveries). A finding that is inferior to other developing countries -0.57% in Ethiopia and 0.45% in Morocco but very high to those reported by 0.086 % in Australia and 0.023 % in Ireland [7-10]. Regarding risk factors for rupture uterus, the present study showed obstructed labor due to cephalopelvic disproportion and mal presentation was the major direct factors for uterine rupture. Obstructed labor was found in 33.3% and contracted pelvis in 26.7% of cases. The malpresentation was very difficult to diagnose in some cases due to the uterus being already ruptured on admission. Obstructed labor can cause up to 93% uterine rupture as was reported in Ethiopia [7]. It is surprising to notice that, findings of the current study showed; poor practice of antenatal care services and more than two thirds of the respondents (73.0%) had never had any type of antenatal care during

this pregnancy. The rest attended antenatal care to a different extent indicating poor health services (informational, financial or physical) that played a major role as a risk factor for uterine rupture.

The present study agrees with all previous studies and showed strong relation between previous surgery of uterus and rupture uterus [2,4,7,11,12]. A uterine scar from a previous cesarean section is the most common risk factor. Other forms of uterine surgery that result in full-thickness incisions (such as a myomectomy), dysfunctional labor, labor augmentation by oxytocin or prostaglandins, and high parity may also set the stage for uterine rupture. In 2008, an extremely rare case of uterine rupture in a first pregnancy with no risk factors was reported [13]. Overall, ten cases (66.7%) of uterine rupture in this study had a history of cesarean section, two of which was "classical". Other previous surgeries were mainly curettage (40.0%) and myomectomy (13.3%). It could be concluded that more than two third of our patients had a surgical interference, which is considered a risk for rupture of the uterus. Moreover, trial of labor in previously scarred uteri following CS can be safe when observing a number of rules but unfortunately this study showed that these rules were often lost. Absence of continuous electronic fetal monitoring in labor, none accurate facilities ,environmental and cultural prejudices, lack of remote settlements and anesthetic and blood-transfusion and absence of availability of comprehensive essential obstetric care as barriers hindering from utilization these rules. The previous uterine surgery especially previous cesarean section and the augmentation of labor by oxytocin are interacting risks. Oxytocin infusion and prostaglandin vaginal application are other direct obstetrical risk factors for uterine rupture. This study showed about; 46.7% of the respondents were given this drug and very interested to notice that five cases with previous scar were used it by midwives at home through intravenous infusion. Also the current study find that bad practice of using oxytocin in labour ward in the hospital by midwives without control or supervision increase rate of rupture uterus among women in this study .

About 86.6% patients in the study had received at least two units of blood before, after and during the operation, though a majority of them had already low hemoglobin level before the operation. Blood availability is a real big problem in Somalia; although blood donors are available, no available kits or even bags and all patients included in this study received blood without screening.

Maternal outcome in this study showed two deaths due to massive post-partum hemorrhage and pulmonary embolism. Almost half of patients (50.0 %) had a repair of the rupture, 26.7 % had total hysterectomy, and 23.3% had subtotal hysterectomy. The causes of uterine rupture in Somalia can't be defined on medical bases alone. There are causes behind causes. Lack of health centers, forces many of the women to turn to traditional birth attendants, some of whom are not skillful enough, and result in uterine rupture and maternal mortality. Conflict, civil war and lack of stability again, prevent most of the women from proper care of themselves during pregnancy. Women in Somalia have increased risk of uterine rupture because no access to the family planning services and Contraceptive Prevalence Rate 1.2%. The present paper focus on how rupture uterus was managed among women attending Bandier Hospital in Maqdishue City.

## Conclusion

The study concluded that conservative surgical management involving uterine repair was done for half of women and the rest were underwent hysterectomy. Parity ,obstructed labour, previous uterine surgery and previous Caesarean section scar specially if associated with

the use of oxytocin without proper care are common causes of rupture uterus among Somali pregnant women.

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