

# Review of uterine rupture at Paropakar Maternity and Women's Hospital

Uprety I<sup>1</sup>, Baral G<sup>2</sup>, Shrestha A<sup>3</sup>

<sup>1</sup>Paropakar Maternity and Women's Hospital, Kathmandu, Nepal

**Received:** 14-May-2018; **Accepted:** 31-May-2018

**Aims:** To determine the case profile of uterine rupture.

**Methods:** Retrospective descriptive study from in-patient record file during two years period.

**Results:** Incidence of uterine rupture recorded was 72 per hundred thousand deliveries (1 in 1390), 25% had ruptured uterus antepartum and 60.7% had live baby.

**Conclusions:** Scarred uterus was the commonest risk factor for rupture uterus and antepartum rupture is not uncommon.

**Keywords:** cesarean section, scarred uterus uterine rupture

<http://dx.doi.org/10.3126/njog.v13i1.21612>

## INTRODUCTION

Ruptured uterus is the obstetric emergency, which accounts for major risk factor for maternal and fetal mortality and morbidity. This catastrophic condition is often seen in women undergoing vaginal birth post cesarean delivery (scarred uterus). But ruptured uterus is even seen in primipara women who has unscarred uterus, which is extremely rare condition, which is estimated to occur in 1 in 8,000 to 1 in 15,000 deliveries.<sup>1,2</sup>

There are many factors reported in different literatures which increases the risk of uterine rupture which may be scarred uterus, grand multiparity, uterine anomaly, fetal malpresentation, fetal macrosomia,, induced labor, obstructed labor or instrumental delivery.<sup>3-5</sup>

Due to unavailability of proper health care facility in every village, lack of education, ignorance, poverty, social taboos and many other reasons, majority of women of our country are not having regular antenatal checkups and proper hospital deliveries. They prefer to deliver at home unattended by skilled birth attendant. They only visit the hospital setting when the situation is grave and in need of emergency intervention threatening the life. Increasing trend of

cesarean delivery has also increased the risk of women for uterine rupture in her following delivery.<sup>6,7</sup>

Ruptured uterus may present with abdominal pain in previous scarred uterus, PV bleeding, abnormal fetal heart rate or uterine inertia post severe pain abdomen. Most common fetal heart rate pattern associated with uterine rupture is fetal bradycardia and late deceleration, which accounts for about 87.5% of cases.<sup>3,7</sup>

Uterine rupture is fortunately a preventable condition. And to prevent and reduce the maternal and fetal mortality and morbidity it is important to identify and determine the risk factor for uterine rupture, which is one of the leading causes of maternal death in developing countries like ours.<sup>8</sup>

## METHODS

This is the retrospective analysis of 2 years (April 2016 - April 2018) at Paropakar Maternity and Women's Hospital of women attending for care. During the course of time total of 28 patients were diagnosed to have ruptured uterus and were included in the study. The ethical committee of the hospital approved the study. Detail analysis of the charts of the patient was done and data regarding demographic characteristic, clinical presentation, risk factors, operative findings, management, maternal and fetal outcome were studied. Full thickness rupture and scar dehiscence and maternal bleeding that needed immediate operative interventions were included in our study.

## CORRESPONDENCE

Dr IcchaUprety  
Paropakar Maternity and Women's Hospital, Kathmandu, Nepal  
Email: iccha.uprety@gmail.com  
Mobile: +977-9851213180

## RESULTS

During the study period, 28 cases (72 per 100 thousands) of ruptured uterus were identified out of 38,922 deliveries. Out of 28 cases 15 (53.57%) were unbooked and 13 (46.42%) were booked in our center. The mean age, parity and gestational age were 28.6 years (range = 21-39), 2.75 (range = 1-7) and 36.75 weeks (range = 30-40) respectively.

The incidence of uterine rupture was 1 in 1390 deliveries which is 0.071% with 1.5% in scarred uterus and 0.64% in unscarred uterus [Table-1].

**Table-1: Risk factors associated with uterine rupture**

Risk factor	Number	Percentage (%)	
Scarred uterus (75%)	Prior 1 LSCS	17	60.7
	Prior 2 LSCS	4	14.3
Unscarred uterus (25%)	Unexplained	4	14.3
	Fetal malpresentation	2	7.1
	Grand multipara	1	3.5
	Obstructed labor	1	3.5
Instrumental delivery	1	3.5	

Three-fourth cases were in spontaneous labor and rest had rupture before going into labor [Table-2].

**Table-2: Distribution of case of uterine rupture in terms of labor status**

Uterine rupture	Spontaneous labor	Not in labor
Unscarred uterus	9	-
Prior 1 LSCS	9	6
Prior 2 LSCS	3	1

Lower segment uterine rupture were found in 15 cases (53.6%) followed by 6 cases (21.4%) of lower segment rupture extending to upper segment, 1 case of rupture involving bladder rupture and in 2 cases rupture was extending upto broad ligament.

Intra-operatively the estimated blood loss ranged from 300ml to 4 liters and hemoperitoneum was identified in 7 cases (28.6%) [Table-3].

Choice for repair were mainly based on the extent, type and location of rupture, and hemodynamic status of the patient; 24 patients (85.7%) underwent repair of rent with (6, 21.4%) or without (4, 14.3%) tubal ligation and 4 patients (14.3%) underwent subtotal hysterectomy in which repair was not possible.

Despite of grave maternal complication associated with uterine rupture, there was no maternal mortality present during the study period due to ruptured uterus and 60% had live baby [Table-4].

**Table-3: Intraoperative findings**

Findings	Number	Percentage (%)
Hemoperitoneum	8	28.6
Fetus in abdomen	4	14.3
Fetus inside uterus	21	75.0
Broad ligament hematoma	2	7.1

**Table-4: Fetal Outcome following uterine rupture**

Fetal Outcome	Number	Percentage (%)
Alive	17	60.7
IUFD	9	32.1
Still Birth	2	7.1

## DISCUSSION

Rupture of the gravid uterus is the rare, and potentially life threatening and devastating condition. It is still considered to be the one of the serious obstetric emergency.<sup>9</sup> If not detected timely and it causes serious fetal and maternal health consequences even in the presence of advance medical facility.

The incidence in our center was found to be 1 in 1,390, which accounts for 0.071%, which is similar to the reports in previous publications.<sup>10-13</sup> Our study not only confirmed the risk factors for uterine rupture like scarred uterus, fetal malpresentation, instrumental deliveries and multiparity but also demonstrates that these four major risk factors contributed 84.7% of uterine rupture in our series. The single leading risk factor (previous cesarean section) contributed to 75% of uterine rupture, a great deal of caution should be taken while managing and giving trial of labor to the previously scarred uterus.

Different literatures suggested grand multiparity, obstetrical trauma, malpresentation, and fetal macrosomia to be the leading risk factors for uterine rupture.<sup>3-5</sup> But in our study the major risk factor turned out to be prior cesarean delivery. This may be due to continuous rise to cesarean deliveries and women presenting in their next pregnancy in labor leading to increase risk of maternal morbidity including uterine rupture.<sup>15</sup>

The life threatening consequences secondary to uterine rupture depends on the duration between the uterine rupture and the effective management. So, prompt diagnosis and maternal and fetal resuscitation and emergency management should be taken into account to avoid the catastrophic situations like life threatening uterine hemorrhage, maternal shock and mortality.

Surgical intervention would be either repair of rupture or subtotal or total hysterectomy according to clinical and obstetric condition. This also depends upon the type, site and extent of rupture of uterus. Several literatures have suggested subtotal or total hysterectomy as procedure of choice but some suggest that surgical repair is safer and immediate treatment of choice.<sup>16,17</sup> In our series we achieved successful repair in 85.7% cases. However, the risk of recurrence of uterine rupture in subsequent pregnancy is high.<sup>18,19</sup> So, the decision of repeat Cesarean Section and Vaginal Birth After Cesarean (VBAC) should be meticulously judged. Proper counseling and repeated follow up is needed. We performed tubal ligation in 21.4% of cases.

Though we didn't find any maternal mortality after uterine rupture, some studies report maternal mortality rate ranging from 0 to 13%.<sup>20,21</sup> Absence of maternal mortality in our study demonstrates that with prompt diagnosis and timely intervention and management with the patient with high risk can reduce maternal mortality to zero.

Definitive management for the fetus is the prompt delivery to reduce the fetal morbidity including fetal hypoxia, anoxia, acidosis and fetal mortality. Delivery within 30 min of uterine rupture is associated with good neonatal outcome.<sup>22-24</sup> However, majority of the cases in our study were unbooked so we were unable to exactly tell the exact time of the rupture of uterus and the time of management. The time delay between the rupture and delivery were the major contributory factor for the poor fetal outcome in our study (39.3%). Timely detection, proper availability of the transportation and early referral to the equipped center should be emphasized

## CONCLUSIONS

Previous cesarean delivery (scarred uterus) was the most common risk factor for uterine rupture. Timely detection and management saves women's life. Prospective study would have determined other potential risk factors like grandmultiparity, fetal malpresentation and obstructed labor.

## REFERENCE

- Smith JG, Mertz HL, Merrill DC. Identifying risk factor for uterine rupture. *ClinPerinatol*. 2008;35:85-99.
- Miller DA, Goodwin TM, Gherman RB, Paul RH. Intrapartum rupture of the unscarred uterus. *Obstet Gynecol*. 1997;89:671-3.
- Farmer RM, Kirschbaum T, Potter D, Strong TH, Medearis AL. Uterine rupture during trial of labor after previous cesarean section. *AM J Obstet Gynecol*. 1991;165:996-1001.
- Miller DA, Diaz FG, Paul RH. Vaginal birth after cesarean: A 10-year experience. *Obstet Gynecol*. 1994;84:255-8.
- Nkemayim DC, Hanmadeh ME, Hippach M, Mink D, Schmidt W. Uterine rupture in pregnancy subsequent to previous laparoscopic electromyolysis. Case report and review of the literature. *Arch Gynecol Obstet*. 2000;264:154-6
- Mahbuba D, Alam IP. Uterine rupture – Experience of 30 cases at Faridpur medical college hospital. *Faridpur Med Coll J*. 2012;7:79-81.
- Leung AS, Leung EK, Paul RH. Uterine rupture after previous cesarean delivery: Maternal and fetal consequences. *AM J Obstet Gynecol*. 1993;169:945-50.
- Omole-Ohonsi A, Attah R. Risk factors for ruptured uterus in a developing country. *GynecolObstel*. 2011;1:102.
- Eden RD, Parker RT, Gall SA. Rupture of the pregnant uterus: A 53-year review. *Obstet Gynecol*. 1986;68:671-4.
- Gardeil F, Daly S, Turner MJ. Uterine rupture in pregnancy reviewed. *Eur J ObstetGynecolReprod Biol*. 1994;56:107-10.
- Waterstone M, Bewley S, Wolfe C. Incidence and predictors of severe obstetric morbidity; Case-control study. *BMJ*. 2001;322:1089-93.
- Sinha M, Gupta R, Gupta P, Rani R, Kaur R, Singh R. Uterine rupture: A seven year review at a tertiary care hospital in New Delhi, India. *Indian J Community Med* 2016;41:45-9.
- Vidyarthi A, Kumari S. Clinical study of cases of ruptured uterus in pregnancy. *Int J ReprodContraceptObstel Gynecol*. 2018;7:253-6.
- Hamilton EF, Bujold E, MvNamara H, Gauthier R, Patt RW. Dystocia among women with symptomatic uterine rupture. *AM J Obstet Gynecol*. 2001;184:620-4.
- Chazotte C, Cohen WR. Catastrophic complications of previous cesarean section, *Am J Obstet Gynecol*. 1990;163:738-42.
- Landon MB, Hauth JC, Leveno KJ, Spong CY, Leindecker S, Varner MW, et al. National Institute of Child Health and Human Development Maternal- Fetal Units Network. Maternal and perinatal outcome associated with a trial of labor after prior cesarean delivery. *N Engl J Med*. 2004;351:2581-9.
- American College of Obstetricians and Gynecologists. ACOG Practice bulletin no.115: Vaginal birth after previous cesarean delivery. *Obstet Gynecol*. 2010;116:450-63.
- Garnet JD. Uterine rupture during pregnancy. An analysis of 133 patients. *Obstet Gynecol*. 1964;23:898-905.
- Weingold AB, Sall S, Sherman DH, Brenner PH. Rupture of the gravid uterus. *SurgGynecol Obstet*. 1966;122:1233-8.
- Sheth SS. Results of treatment of rupture of the uterus by suturing. *J ObstetGynaecol Br. Commonow*. 1968;75:55-8.
- Augero O, Kizer S. Obstetric prognosis of the repair of uterine rupture. *SurgGynecol Obstet*. 1968;127:528-30.
- Aboyeji AP, Ijaiya MD, Yahaya UR. Ruptured Uterus: A study of 100 consecutive cases in Ilorin, Nigeria. *J ObstetGynaecol Res*. 2001;27:341-8.
- Van der Merwe JV, Ombelet WU. Rupture of the uterus: A changing picture. *Arch Gynecol*. 1987;240:159-71.
- Holmgren C, Scot JR, Porter TF, Esplin MS, Bardsley T. Uterine rupture with attempted vaginal birth after cesarean delivery: Decision – to – delivery time and neonatal outcome. *Obstet Gynecol*. 2012;119:725-31.