

# Analysis of uterine ruptures in pregnancy in a Tertiary Care Institute

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## Abstract

**Aim and objectives:** To calculate proportion of uterine rupture in pregnancy, analyze the maternal outcome and study the risk factors of uterine rupture. **Material and methods:** A retrospective observational study with review of case records was performed at MGM Medical College and Hospital, Aurangabad over a period of 2 years from October 2015 to October 2017. **Results:** Uterine rupture was a rare entity with proportion of 0.125%. 75% patients were referred from outside while 25% didn't receive antenatal care. 50% patients presented before the age of viability with 12.5% patient having history of illegal MTP. 75% patients were multigravida while 12.5% were grandmultigravida and primigravida each. Only 12.5% were asymptomatic at presentation, 25% had pain in abdomen, 25% bleeding per vagina while 37.5% had presented in shock. 50% had history of previous uterine scar (all due to previous LSCS). 12.5% had unicornuate and bicornuate uterus each. Significant fetal mortality was seen. Only 25% live births occurred. 25% were intrauterine fetal demise (IUFD). 12.5% foetus were lying inside the abdominal cavity. 75% patients underwent conservative surgery and 25% required subtotal hysterectomy. Prolonged catheterization was required in 25% patients due to dense bladder adhesions. All patients were managed in High dependency unit (HDU). 12.5% maternal mortality was observed. **Conclusion:** There is high risk of maternal and fetal morbidity and mortality. Risk factors were enumerated which can be considered as a check list while managing a patient who is at high risk for uterine rupture or perforation. If multiple risk factors are seen in a single patient, then precaution should be taken to prevent rupture.

**Key words:** Uterine rupture, risk factors, previous Caesarean scar.

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## INTRODUCTION

Uterine rupture is defined as a full thickness discontinuation of the uterine wall along with the visceral peritoneum. It can occur in Scarred as well as unscarred uterus. Uterine Rupture in pregnancy is a rare entity with the incidence of 0.05-0.1%. It can cause alarmingly high rates of maternal and fetal morbidity and mortality. Uterine dehiscence is the disruption of the previous

uterine scar with the visceral peritoneum intact. It is a more common presentation and can cause uterine extensions during Caesarean section with traumatic PPH.

Risk factors for uterine rupture in pregnancy are:

1. Congenital uterine anomalies
2. Multiparity.<sup>1</sup>
3. Previous uterine surgery (type and number of previous Caesarean sections, myomectomy, hysterotomy). Previous cesarean section is the main risk factor for uterine rupture.<sup>2,3</sup>
4. Use of prostaglandins for Induction and augmentation of labour. pregnancies implanted in the rudimentary horn of the uterus pose special risk for those women undergoing induction of labour, with a uterine rupture rate of up to 80%.<sup>4,5</sup>
5. Instrumental delivery
6. Cornual pregnancy.
7. Uterine over distension (polyhydramnios, multifetal gestation)
8. Dystocia, obstructed labour (CPD and Fetal macrosomia) and prolonged labour.
9. Fundal pressure during delivery.
10. Intrauterine manipulation (ECV, IPV, Breech extraction)
11. Direct trauma to uterus

IUFD and missed abortion were noted as risk factors. B-Lynch suture has been documented as a risk factor for uterine rupture.<sup>6</sup> Consequences of uterine rupture depend on the time between diagnosis of and delivery and on the level of medical care. They can be divided into Fetal consequences are: Admission to neonatal intensive care unit (Newborn infants delivered after uterine rupture were more frequently graded APGAR scores lower than 5 at 5 minutes and had higher rates of perinatal mortality when compared with those without rupture)<sup>7</sup>, fetal hypoxia or anoxia, (The most important factor for the development of fetal acidosis has been reported as complete extrusion of the fetus and placenta into the maternal abdomen)<sup>8</sup> and Neonatal death. Fetal bradycardia was the first sign of presentation and is more common than maternal complaints.<sup>8,9</sup>

Maternal consequences are hemorrhage, hypovolemic shock, bladder injury, need for hysterectomy, and Maternal death.<sup>10</sup>

### MATERIALS AND METHODS

**Study Centre:** Study was conducted In MGM Medical College and Hospital, Aurangabad. **Study Period:** 2years(October 2015 to October 2017). **Type Of Study:** Retrospective Observational Study. **Sample Size:** 8

**Inclusion Criteria:** All patients diagnosed to have uterine rupture or perforation admitted to MGM hospital Labour Room irrespective of gestational age.

**Exclusion Criteria:** Uterine scar dehiscence was not included.

### OBSERVATIONS

In study, in a period of 2 years, from October 2015 to October 2017, there were 5146 deliveries, 438 MTP and 805 abortions. Out of 6389 patients catered in labour room of obstetrics department of MGM hospital, 8 patients had uterine rupture/perforation. So the proportion was 0.125%. 75% patients were referred from outside while 25% didn't receive antenatal care.

**Table 1:** Gestational age in present pregnancy

Gestational age (in weeks)	Number of patients	%
<=20	4	50
a)MTP	1	12.5
b)Spontaneous Abortion	3	37.5
20.1-37	3	37.5
>37.1	1	12.5
<b>Total</b>	<b>8</b>	<b>100%</b>

50% patients presented before age of viability.12.5% had illegal MTP.

**Table 2:** Mode of Presentation

Presenting feature	Number of patients	%
Asymptomatic	1	12.5
Pain in abdomen	2	25
Bleeding per vaginum	2	25
Shock	3	37.5
a)septic shock	2	25
b)hypovolumic	1	12.5
<b>Total</b>	<b>8</b>	<b>100%</b>

Mode of presentation of 37.5% patients was acute, secondary to septic or hypovolumic shock and required resuscitation. Operative intervention was required in all patients.

**Table 3:** Intraoperative findings

Intraoperative findings	Number of patients	%
Haemoperitoneum	2	25
Pyoperitoneum	2	25
Rent in uterus	8	100
a)from previous scar site	4	50
b)other sites on uterus	4	50
Broad ligament haematoma	1	12.5
Structural uterine anomaly	2	25
Bladder adhesions	2	25

50% patients had scar rupture while 50% had uterine perforation. There was evidence of hemoperitoneum and pyoperitoneum in 25% patients each. 25% patients were associated with uterine anomalies as unicornuate and bicornuate uterus.

**Table 4:** Post operative complications

Postoperative complications	Number of patients	%
Uneventful postoperative period	2	25
Febrile illness	1	12.5
Prolonged catheterization	2	25
Wound infection	1	12.5
Paralytic ileus	1	12.5
Death	1	12.5
<b>Total</b>	<b>8</b>	<b>100</b>

25% patients required prolonged catheterization due to dense intraoperative bladder adhesions.

**Table 5:** Analysis of Risk factors

Risk factors	1	2	3	4	5	6	7	8	% of present risk factor
Parity	-	-	-	Grandmulti	Primi	-	-	-	25%
No Antenatal care	-	-	-	-	+	-	+	-	25%
Pervious one scar	+	-	+	+	-	-	-	-	37.5%
Previous two scars	-	+	-	-	-	-	-	-	12.5%
Uterine activity i.e. process of									
a)Abortion	-	-	-	-	+	+	+	-	37.5%
b)Labour	+	-	+	+	-	-	-	-	37.5%
Missed abortion	-	+	-	-	+	+	+	-	50%
IUD	+	-	-	-	-	-	-	+	25%
Anomalies	-	-	-	-	+	-	-	+	25%
Intervention									
a)Surgical	-	-	-	-	+	-	+	-	25%
b)Table Misoprostol	+	+	-	-	-	+	-	-	37.5%
c)Dinoprostone Gel	-	-	-	-	-	-	-	+	12.5%
Associated with shock	-	-	-	-	+	+	+	-	37.5%
Intra operative finding									
a)Perforation	-	-	-	-	+	+	+	+	50%
b)Scar rupture	+	+	+	+	-	-	-	-	50%
Treatment									
a)Uterus conserved	+	-	+	+	+	+	-	+	75%
b)Subtotal hysterectomy	-	+	-	-	-	-	+	-	25%
Death	-	+	-	-	-	-	-	-	12.5%
Percentage of Risk Factors in 1 patient	50%	50%	33%	33%	58%	58%	58%	50%	

Various risk factors were noted in each cases as indicated by ‘+’ sign in the table. Missed abortion and congenital anomalies of uterus were seen in 50% and 25% cases respectively. In 75% cases there was history of intervention ,with surgical procedure(DandE) done in 25% cases and prostaglandins used for induction of labour or abortion process( PGE1, tablet misoprostol used in 37.5% patients and PGE2, dinoprostone gel used in 12.5% cases). Though 75% patients were managed with uterine conserving surgeries, 25% required subtotal hysterectomy and there was 12.5% maternal mortality. 1 patient died because of multiorgan failure secondary to hypovolumic shock.

**RESULTS**

The proportion of uterine rupture was 0.125% in given study. Grandmultiparity was a risk factor in 12.5% patients, though 12.5% patients were primigravida. In given study missed abortion was the most prevalent risk factor (50%). 50% uterine rupture occurred in previously scarred uterus while rest 50% in unscarred uterus. All

previous uterine scars were because of LSCS only. In 12.5% patients there was history of previous 1 preterm LSCS. All patients with complications were managed in HDU. On an average 2 unit PRBC were given to each patient while 1 patient who died due to decompensated hypovolumic shock received total 40 blood and blood products. 87.5% cases had maternal morbidity while

12.5% had maternal mortality. In 25% fetal outcome was a live birth while 75% had abortion or IUFD.

## CONCLUSION

The proportion of uterine rupture and perforation in present study was 0.125% only. There is high risk of maternal and fetal morbidity and mortality. Risk factors encountered in present study were grandmultiparity, lack of antenatal care, previous uterine scar, type and number of previous LSCS, instrumentation, use of prostaglandins for induction and augmentation of labour, congenital uterine anomaly, missed abortion and IUFD. These enumerated risk factors can be considered as a check list while managing a patient who is at high risk for uterine rupture or perforation. If multiple risk factors are seen in a single patient, then precaution should be taken to prevent rupture. A high rate of suspicion, prompt diagnosis, effective management and HDU backup can be life saving.

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