

## Study of Prelabour Uterine Rupture in a Tertiary Care Centre: An Overview

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### Abstract

**Background:** Complete uterine rupture, a rare peripartum complication, is often associated with a catastrophic outcome for both mother and child. The incidence of pregnancy-related uterine rupture of 1 per 1,416 pregnancies (0.07%).

**Aims and Objectives:** (1). To study the incidence and risk factors of prelabour uterine rupture in a tertiary care hospital. (2). To study the maternal and foetal outcomes.

**Materials and Methods:** This is retrospective study conducted in a tertiary care hospital of east India for period of 4 years (October 2017 to September 2021). 33 cases of prelabour uterine rupture who had come to the emergency labour room department were included in the study. The data of these patients were analyzed and the data regarding demographic characteristics, risk factors, maternal and fetal outcomes, and postoperative complications was studied.

**Result:** The incidence of prelabour uterine rupture was 0.097%. Majority of women were >30years (73%), multigravida (64%), unbooked (76%), beyond term pregnancies (82%). 84.7% women had history of scarred uterus and 15.3% had unscarred uterus. In 73% cases repair of rupture was done and in 27% cases hysterectomy was done. Postoperative complications included fever (33%), wound infection (9%), scar dehiscence (6%). 97% required blood transfusion. Maternal mortality occurred in 3% cases. 18% babies were alive and healthy. 73% were IUD. 6% needed NICU admission. 3% were stillbirth.

**Conclusion:** Prelabour rupture uterus is rare but preventable cause of maternal and foetal compromise. Better healthcare facilities and outreach programmes can eliminate the risk factors and lead to prevention.

**Keywords:** Prelabour Uterine Rupture, Caesarian Section, Peripartum Hysterectomy.

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### Introduction

A uterine rupture is a complete division of all three layers of the uterus: the endometrium (inner epithelial layer), myometrium (smooth muscle layer), and perimetrium (serosal outer surface). Clinicians must remain vigilant for signs and symptoms of uterine rupture.[1,2] It can cause serious morbidity and mortality for both the woman and the newborn.

Scarred uterus due to previous caesarian delivery, myomectomy, hysterotomy etc. predisposes to uterine rupture. The normal, unscarred uterus is least susceptible to rupture. In women who undergo a trial of labor after one prior low transverse cesarean section, the incidence of uterine rupture is estimated to be less than 1% and the rate of successful vaginal delivery varies from 60 to 80%. [3]

As the no. of caesarian section is increasingly being done in periphery by untrained professionals/fake

doctors the incidence of prelabour uterine rupture is increasing. There is also rise in no. of mid trimester illegal abortions and D& C done by dais in villages which is yet another predisposing factor. Apart from these corneal pregnancy, PAS, anterior wall myoma also cause prelabour uterine rupture.

Uterine rupture occurs in only 0.6% of instances of blunt trauma during pregnancy. [4]

Grand multiparity, neglected labor, malpresentation, breech extraction, uterine instrumentation and congenital uterine malformations like unicornuate uterus are all predisposing factors for uterine rupture in an unscarred uterus in labour. Ruptures in unscarred uteri carried more catastrophic maternal outcome as they occur increasingly outside the lower uterine segment and extended more beyond the cervix. This may indicate a delay in diagnosis due to a lower index of suspicion

Once the rupture uterus is diagnosed, prompt management is the key. Patient, if in clinical shock needs immediate resuscitation and surgical intervention. After the situation is fully evaluated, obstetrician then needs to decide if the rupture is surgically repairable or hysterectomy is needed. The choice of the surgical procedure also depends upon the type, location, and the extent of the uterine tear. Several authors considered subtotal or total hysterectomy as procedure of choice; whereas, others recommend that surgical repair is a safer immediate treatment. [5,6]

Obstructed labour leading to rupture uterus was most common in unscarred uterus in labour in study by Sinha et al and Shamiala et al. [7,8] As they were handled by dais outside which lead to rupture uterus which were mostly handled at peripheries without proper monitoring. This reflects an aversion in rural populations to the institutional delivery and they came to hospital only after failure of efforts to vaginal delivery at home.

#### Aims and Objectives

1. To study the incidence and cause of prelabour uterine rupture in a tertiary care hospital.
2. To study the maternal and foetal outcomes.

#### Materials and Methods

**Study Design:** This is retrospective study conducted in a tertiary care hospital of east India from october 2017 to september 2021.

**Sample Size:** 33 cases of prelabour uterine rupture who had come to the emergency labour room department were included in the study. The data of these patients were analyzed and the data regarding demographic characteristics, risk factors, maternal and fetal outcomes, and postoperative complications was studied.

Data Analysis was done by Microsoft excel.

#### Result

Total no. of deliveries occurring during this period was 34000. The no. of cases of prelabour uterine rupture occurred during his period was 33(0.097%).

**Table 1:**

Maternal Factors & Outcome		N=33	%
Age	<30	9	27.2
	>30	24	72.7
Parity	Primi	12	36.3
	Multi	21	63.6
GA	<37	6	18.2
	>37	27	81.8
Booking	Yes	8	24.2
	No	25	75.7
Risk Factor	Previous 1 LSCS	18	54.5
	>1 LSCS	8	24.2
	Classical Scar	1	3
	H/O Hysterotomy	1	3
	H/O Cornual Pregnancy	1	3
	Myoma In Ant. Wall Of Uterus	1	3
	H/O Midtrimester Abortions	2	6
	Placenta Increta & Percreta	1	3
	Grand Multi	5	15
	Repair	24	72.7
	Hysterectomy	9	27.2
Complications	Fever	11	33.3
	Wound Infection	3	9
	Dehiscence	2	6
	Blood Transfusion	32	97
	Mortality	1	3

**Table 2:**

Foetal Outcome	N=33	%
Alive And Healthy	6	18.1
IUD	24	72.7
NICU	2	6
Stillbirth	1	3

## Discussion

The incidence of prelabour rupture uterus is increasing due to increase in number of caesarian deliveries. The incidence in our hospital was 0.097%. Reasons of high incidence can be attributed to this being a tertiary centre with high-risk cases and suspected rupture uterus cases being referred to our centre. Other possible reasons can be poor antenatal coverage, delay in referrals, low socioeconomic status and awareness about rupture uterus.

Majority of women were >30 years (73%) making age a risk factor. In study by Zia et al most women belonged to age group of >30 years (55%). [8] Majority of women were multigravida (64%). Maximum cases were unbooked (76%). Pregnancies beyond term were at more risk of uterine rupture (82%). The risk increases with increase in number of previous caesarian deliveries, grand multiparity, less inter pregnancy interval. In study by Papriker et al 54% had interpregnancy interval less than 24 months. [9] 54.5% women had history of 1 previous caesarian section with short inter pregnancy interval of less than 24 months. 24.2% had history of more than 1 LSCS. 3% each had history of scarred uterus by classical scar and hysterotomy. 3% each had placenta accrete syndrome and anterior wall myoma leading to weakened anterior wall of uterus predisposing to rupture in prelabour period. 6% had history of midtrimester abortion and D& C by untrained professionals in peripheries.

In 73% cases repair of rupture was done and in 27% cases hysterectomy (total or subtotal) was done. Postoperative complications included fever (33%), wound infection (9%), scar dehiscence (6%). Among the maternal morbidities noted severe anaemia requiring blood transfusion was most commonly observed (97%). Maternal mortality occurred in 3% cases. This may be due to irreversible haemorrhagic shock due to which she could not be revived.

18% babies were alive and healthy. This was mostly due to women with previous caesarian planned for TOLAC under monitoring who were immediately taken for surgery. 73% were IUD. 6% needed NICU admission. 3% were stillbirth.

## Conclusion

Prelabour uterine rupture is a major contributor to maternal morbidity and perinatal mortality. Major identifiable risk factors including history of prior caesarian section, grand multiparity, cornual pregnancy, pregnancy with anterior wall fibroid,

PAS and previous history of midtrimester abortions account for 90% cases of uterine rupture not in labour. Identification of these high risk women, prompt diagnosis, immediate transfer, and optimal management needs to be overemphasized to avoid adverse fetomaternal complications. Extreme caution should be taken when managing patient with a previous uterine scar, attempting a trial of labor. Increased accessibility to good obstetric care and prompt referral system to equipped facilities with availability of transportation services is essential for developing countries to avoid these catastrophic emergencies.

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