

Maternal and Perinatal Outcome of Rupture Uterus in A Tertiary Care Hospital

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Abstract:

Introduction: Uterine rupture is the most tragic events that can occur in a woman's life. It is one of the most dangerous obstetric situations with an increased risk of maternal and perinatal morbidity and mortality. The objective of this study was to determine the incidence, risk factors, clinical presentation, complications, management, fetal and maternal outcome in cases of uterine rupture.

Methods: Prospective study done over a period of one year in the department of Obstetrics and Gynaecology, PGIMER and Capital Hospital Bhubaneswar from July 2022 to June 2023.

Results: Our study comprised of 34 cases with the incidence of 0.23%. Out of these 82.3% were unbooked cases. Majority of the cases were para 2-3. Most of the rupture (85%) occurred during labour. The lower segment uterine rupture was the most common site of rupture (45%). Total hysterectomy done in 61.7% cases. Maternal and perinatal mortality were 2.9% and 94.11% respectively.

Conclusion: Rupture uterus is a high risk category of patients. Proper antenatal and intranatal care, education, counselling of women with history of previous caesarean section for hospital delivery, close monitoring of labour, early diagnosis and decision for laparotomy, timely referral, availability of transportation are the main factors to decrease its fatal outcome.

Keywords: Uterine rupture, Hysterectomy, Maternal mortality, perinatal mortality.

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Introduction

Uterine rupture is one of the most tragic events that can occur in a woman's life. It is one of the most dangerous obstetric situations with an increased risk of maternal and perinatal morbidity and mortality. The incidence of rupture uterus increases in developing countries mainly in rural areas due to lack of transport, inadequate care, and illiteracy and home deliveries by untrained dais [1]. It accounts for 1-13% of all maternal deaths and perinatal death between 74%-94%. Overall the prevalence ranges from 0.1% to 1%[2].

The main risk factor for uterine rupture is previous caesarean section. The other risk factors are grand multipara, obstructed labour, multiple pregnancies, macrosomia, injudicious use of oxytocics and instrumental deliveries [1]. The incidence of rupture in scarred uterus is 0.3% to 1.7% and in unscarred uterus is 0.03% to 0.08% [3].

Rupture when communicates with the peritoneal cavity involving entire uterine wall is called complete rupture or may be separated from it by visceral peritoneum over the uterus or that of broad

ligament is called incomplete rupture[4]. The presenting symptoms are non-specific and hence it requires high degree of suspicion for its diagnosis. Most cases present with severe abdominal pain, hemorrhage, distended abdomen with abnormal uterine contour, cessation of uterine contraction, palpable fetal parts, absent fetal heart rate, maternal tachycardia, hematuria and shock [5].

The consequences of uterine rupture depend between the time of diagnosis of rupture and delivery of fetus. The fetal consequences are admission to NICU, hypoxia, stillbirth and early neonatal death. The maternal consequences are hemorrhage, hypovolemic shock, bladder injury, hysterectomy and death. The type of surgical treatment depends on the type and extent of uterine rupture, degree of hemorrhage and desire for future reproduction [6].

The objective of this study was to determine the incidence, risk factors, clinical presentation, complications, management, fetal and maternal outcome in cases of uterine rupture.

Materials and Methods:

This is a prospective study done over a period of one year in the department of Obstetrics and Gynaecology, PGIMER and Capital Hospital Bhubaneswar from July 2022 to June 2023. All the cases of complete and incomplete rupture uterus and scar dehiscence managed in the hospital were included in this study.

All the cases of vaginal birth after caesarean section without any evidence of scar rupture and cases of caesarean section without any evidence of

scar dehiscence or rupture were excluded in the study. On admission, initial resuscitative management was done followed by emergency laparotomy. Hysterectomy or suturing of ruptured scar was done depending on the condition of the patient, parity, presence or absence of infection.

Results:

The total number of cases of rupture uterus admitted was 34. In this period there were 14566 deliveries; giving a ratio of 1:428 deliveries and the incidence of uterine rupture was found to be 0.23%.

Table 1: Socio demographic Status

		No. of Cases	%
1. Age	21-25 Year	12	35
	26-30 Year	18	55
	31-35 Year	04	10
2. Parity	1	01	2.9
	2	19	55
	3	11	32.35
	>3	03	8.8
3. Antenatal Status	Booked	06	17.6
	Unbooked	28	82.3
4. Period Of Gestation	<28 WK	01	2.9
	28-32 WK	01	2.9
	33-36 WK	11	32.35
	>37 WK	21	61.76

The majority of cases belong to age group of 26-30 year (55%), majority had their second pregnancy (55%), 82.3% cases were unbooked and 61.76% had gestational age of >37 weeks.

Table 2: Clinical Features

	No. of Cases	%
Abdominal Tenderness	30	90
Abdominal Pain	32	95
Palpable Fetal Parts	11	33.3
Severe Vaginal Bleeding	26	76.6
Shock	24	70

The most common symptom complained was abdominal pain (95%) followed by abdominal tenderness (90%). 76.6% cases presented with vaginal bleeding and 70% presented with shock.

Table 3: Risk Factors for Rupture Uterus –

	No. of Cases	%
(A) During Pregnancy	05	15
During Labour	29	85
(B) During Labour -		
Spontaneous/Unscarred Uterus	04	13.7
Scar Rupture	24	82.75
Traumatic	01	3.4
(C) Causes Of Spontaneous Rupture During Labour -		
Obstructed Labour	03	75
Transverse Lie	01	25

The study showed that 15% cases had ruptured uterus prior to labour and the rest 85% during labour. There were 30 cases of previous caesarean section and 4 cases of unscarred uterus in this study. 82.75% cases had scar rupture due to previous caesarean section and hysterotomy. There was 1 cases of traumatic rupture following

instrumental delivery. The common causes of rupture uterus in unscarred pregnancy were obstructed labour (75%) & transverse lie (25%) .

Table 4: Intraoperative Findings

	No. of Cases	%
Scar Rupture	24	70.58
Extension To LUS	15	45
Lateral extension	11	31.6
Bladder Injury	6	18.3
Broad Ligament Hematoma	8	23.3

On laparotomy, 70.58% had scar rupture limited to 23 cases of previous lower transverse uterine scar and 1 case of classical scar.15 cases had tear extending to lower uterine segment with 5 cases having cervical tears.6 cases had bladder injury and during laparotomy, it was repaired.

Table 5: Surgical Management

Types	No. of Cases	%
Repair	10	29.4
Subtotal Hysterectomy	03	8.8%
Total Hysterectomy	21	61.7

Abdominal hysterectomy was done in 70.5.% cases while repair as done in 29.4% cases.The associated surgeries include bladder repair in 6 cases and internal iliac ligation in one case.10 cases who undergone scar repair,9 of them had bilateral tubal ligation.

Table 6: Maternal Morbidity

	No. of Cases	%
Severe Anemia	26	76.4
Renal Failure	01	2.9
Shock	21	61.76
VVF	01	2.9
Wound Infection	02	5.8
Puerperal Sepsis	15	44.11

Anemia due to hemorrhagic shock was the most common complication seen in this study. The other complications observed were sepsis (15), wound infection (2) and renal failure (1).One case had developed VVF. Maternal deaths occurred in 1 cases, 4 cases required post-operative ICU admission with ventilator support.

Table 7: Perinatal Outcome

	No. of Cases	%
Still Birth	31	91.2
Live Birth	03	8.82
Early Neonatal Death	01	2.9
Total Perinatal Mortality	32	94.11

Fetal death occurred in 31 cases out of 34 and was the most common complication.3 cases had live births and they were admitted to NICU due to low APGAR score at birth; out of which one died in the NICU.

Discussion

Rupture uterus is one of the most dreaded obstetric complications which require prompt diagnosis and treatment. The incidence of rupture uterus in this study is 0.23% which is comparable to Gupta et al[7](0.17%), M.Singh et al[8] (0.19%), K.Sunitha et al[3](0.23%), Setu et al[10] (0.28%) and L.Sahu

et al[11](0.29%). The incidence was higher in the studies by Mahabuba et al[12](0.83%) and Alam et al[13] (1.14%). Lack of education, poor quality of antenatal care, home delivery, and delay in referral mainly contributes to increased risk of uterine rupture in low socioeconomic countries. In our study rupture uterus was commonly seen between 26-30 year age group which was similar to study by Setu et al(55.4%).41.15% cases had uterine rupture with para 3 or more whereas in the study by Malik HS et al[14], it was found to be 42.7% with para 2 or more. Majority cases were unbooked (82.3%) similar to study done by Rashmi et al[15](80%),

M.Singh et al[8] (89%) and A.Singh et al[16] (92%).The study showed 61.76% cases had uterine rupture beyond 37 weeks in comparison to 53.75% cases seen in S.Kamal et al[17].Most of the rupture occurred in labour(85%) and 15% occurred before labour which is similar to Nahum G et al[18] (86% and 14% respectively) but against the frequency reported by S.Kamal et al[17](93.75% and 6.25%).In our study 88.3% cases had past history of previous caesarean section while the rest 11.76% cases had unscarred uterus in comparison to Vidyarthi et al[19](59.7% and 40.3% respectively).Obstructed labour, transverse lie and instrumental delivery were among the common causes of rupture in unscarred uterus similar to findings of Miller et al[20]. The most common site of rupture was lower uterine segment with extension to left lateral wall similar to Rizwan et al [21] and much less than Gaikwad et al [22](80%).18.3% cases had bladder injury in comparison to 5.3% cases in M.Singh et al[8]. The most common mode of modality of treatment was immediate stabilization of the patient and delivery of the fetus. The choice of surgical procedure depend upon the type of extent and location of rupture as well as patient's condition, tissue strength and desire to preserve her child bearing capacity. 29.8% cases had repair of uterus in our study similar to Turgut et al[23] (34.4%) and Setu et al[10] (39%) but much less than the study by L.Sahu et al [11](58.3%), Anjali et al[16](70.17%) and Abha et al[7](75%).Subtotal hysterectomy and total hysterectomy were done in 8.8% & 61.7% cases respectively. Turgut et al [23] reported 31.1% and 34.4% cases of subtotal and total hysterectomy in his study whereas M.Singh et al[8] reported it in 29.8% and 10.5% cases respectively. Maternal death was seen in 2.9% of cases which was nearly similar to L.Sahu et al[11] (2.76%) and Vidyarthi et al[19](3.5%) but lower than what was observed by Setu et al[10](13.5%) and Dwivedi et al[9](11.43%).Perinatal mortality was 94.11% in our study whereas it was 97.5% in S.Kamal et al[17], 94% in L.Sahu et al[11] and 90.5% in Setu et al[10]. Our study shows the need for patient education, early diagnosis & timely referral ..

Conclusion

Rupture of uterus is a major area of concern in developing countries. Hence proper antenatal and intranatal care, education, counselling of women with history of previous caesarean section for hospital delivery, close monitoring of labour, early diagnosis and decision for laparotomy, timely referral, availability of transportation are the main factors to decrease the maternal and fetal morbidity and mortality associated with uterine rupture.

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