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CLINICAL STUDY OF RUPTURE OF UTERUS AND FETO-MATERNAL OUTCOME IN TERTIARY CARE HOSPITAL

Obstetrics & Gynaecology

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ABSTRACT

Background -Uterine rupture in pregnancy is a rare and often catastrophic complication with high incidence of fetal morbidity and is a cause of acute maternal morbidity or mortality. This study was done to evaluate the risk factors, clinical profile and consequences of uterine rupture on maternal and perinatal outcomes in our hospital. **Method -** A Prospective Observational study of 25 cases of rupture uterus and maternal & Perinatal outcome, in the department of Obstetrics and Gynaecology in government tertiary reference centre. **Results -** Overall incidence of uterine rupture is 1 in 1314. Out of 25 cases, 20 (80%) cases of rupture uterus were referred. 23 cases of rupture uterus were seen in previous caesarean section. Most common site of scar rupture was lower uterine segment (88%).22 cases (88%) were managed with Suturing of tear without sterilization. The perinatal mortality was seen in 8(32%) cases. There was no maternal mortality. **Conclusion -** Uterine rupture is preventable with good antenatal and intra-partum care along with proper identification and evaluation of high-risk cases.

KEYWORDS

Rupture uterus, Maternal mortality, Perinatal mortality

INTRODUCTION-

Uterine rupture in pregnancy is a rare and often catastrophic complication with high incidence of fetal morbidity and is a cause of acute maternal morbidity or mortality.[1] Uterine rupture is undoubtedly one of the most tragic events that can occur in a women's life. The tragedy becomes more grim when an unfortunate woman is young and in the prime of her youth. It is one of the major factors contributing to maternal mortality. Rupture may occur in an unscarred or scarred uterus. Rupture of an unscarred uterus may be either traumatic or spontaneous. The frequency of primary rupture is around 1 in 10000 to 15000 births.[2,3]

Risk factors for uterine rupture includes previous caesarean section, short inter-pregnancy interval, multigravidity, congenital uterine anomalies, foetal macrosomia, breech extraction, feto-pelvic disproportion, neglected labour and uterine instrumentation, prior uterine rupture, home delivery. Moreover high parity, malpresentation and unsafe obstetric practices such as inappropriate use of oxytocin, prostaglandin drugs for induction /augmentation of labour, and fundal pressure in prolonged second stage also associated with uterine rupture.[4]

The Fetal outcome in cases of uterine rupture is often poor, particularly if the rupture occurs in the third trimester.

This study was done to evaluate the risk factors, clinical profile and consequences of uterine rupture on maternal and perinatal outcomes in our hospital.

AIMS AND OBJECTIVES:

- To study sociodemographic profile of patient with rupture of uterus.
- To identify risk factors associated for ruptured uterus.
- To study type and site of ruptured uterus.
- To study treatment modalities for rupture of uterus.
- To assess maternal outcome and fetal outcome in ruptured uterus.

Inclusion Criteria:

1.Patients referred or diagnosed as ruptured uterus in this institute and willing to participate.
2.Period of gestational age more than or equal to 28 weeks.

Exclusion Criteria:

- Patients who don't give consent.
- Patients with rupture of uterus and brought dead.
- Patients diagnosed as ruptured uterus and managed outside and referred for further management.

MATERIAL AND METHODS:

It is a Prospective Observational study of 25 cases of rupture uterus and maternal & Perinatal outcome, in the department of Obstetrics and Gynaecology, in a tertiary reference centre, during Year Sept 2022-June 2024.

After applying the inclusion and exclusion criteria and taking valid consent, women are selected for the study. All the cases of uterine rupture diagnosed clinically, by ultrasound or during surgery, either referred from primary centre with this complication or self-referred are included in this study. On admission, initial resuscitative management was done. A detailed history regarding sociodemographic profile, probable aetiological factors was taken.

This was followed by thorough clinical examination. Emergency investigations were sent. Management whether the primary repair of uterus or its conservation with or without tubal ligation or hysterectomy depending on the condition of the patient. Maternal complication, blood loss and transfusion requirements are noted. Post operatively patients` vital parameters were monitored intensively. Broad spectrum antibiotics given and patients requiring assisted ventilatory support were shifted to surgical intensive care unit as and when required.

Previous aspects of rupture uterus i.e. incidence, aetiology, type of rupture, site of rupture, modalities of treatment, maternal morbidity and mortality and Perinatal mortality were analysed and assessed.

RESULTS:

In present study (Sept 2022-June 2024), there were 25 cases of uterine rupture out of 32850 deliveries giving an incidence of 1 in 1314.

Table 1: Demographic Characteristics Of Cases

Parameter	Number	Percentage (%)
AGE(YEARS)		
<20	1	4
20-25	11	44
>25-30	9	36
>30	4	16
REFFERAL		
Referred	20	80
Self-referred	5	20
RESIDENCE		
Rural	19	76
Urban	6	24
BOOKING STATUS		
Booked	21	84

Unbooked	4	16
OBSTETRIC FORMULA		
Primigravida	0	0
Multigravida (G2-G4)	23	92
Grand-multipara (G5 and above)	2	8
GESTATIONAL AGE		
< 34 WKS	2	8
34.1-37WKS	4	16
37.1-40 WKS	17	68
>40WKS	2	8
SCARRED UTERUS		
Prev 1 LSCS	17	68
Prev 2 LSCS	5	20
Prev 3 LSCS	1	4
H/o hysterotomy	1	4
H/o myomectomy	0	0
Short Interpregnanncy Interval		
< /= 18 months	12	48
>18 months	11	44

In present study, maximum age group vulnerable for rupture uterus was between 20- 25 years .19 (76%) cases were from rural region which clearly denotes increased incidence of rupture in areas where there is lack of health services and lack of transport and communication. maximum 21(84%) cases of rupture uterus were booked .20 (80%) cases of rupture uterus were referred cases from periphery hospitals and less 5 (20%) cases were self-referred. 19 (76%) cases belong to upper lower and lower class.

The above table clearly shows that the incidence of uterine rupture was maximum in multigravida.23(92%) of rupture uterus cases seen in multigravida. 17(68%) cases were of gestational age between 37-40 weeks.

Patients presented with more than one symptom during rupture, but most common presentation features were feeling of something giving way, severe abdominal pain, vaginal bleeding and absent fetal movement. Absent FHS, abdominal tenderness, fetal parts palpable easily, vaginal bleeding were some of the commonest signs patient presented with.

In present study (n=25) maximum number 23 cases of rupture uterus were seen in previous caesarean section (previous one or two or three caesarean section).

Out of 23 previous LSCS, 17(68 %) patients were with previous 1 LSCS, 5 patients with previous 2 LSCS & 1patient with previous 3 LSCS. 21 (84%) rupture occurred during labor & 2 rupture during antenatal period. Antenatal rupture seen in 2(8%) patients, one with previous 1 LSCS with H/O 2 hysterotomy & the other was previous 2 LSCS with classical caesarean scar rupture.

Out of 23 previous LSCS, 22 patients had lower uterine segment rupture and 1 patient had upper uterine segment rupture with history of prior classical caesarean section.

In this study, 2 cases of rupture of uterus were seen in unscarred uterus. Out of which, 1 case of grand multipara was referred with history of prolonged labour and other was of obstructed labour.

It was found that previous caesarean section with short interpregnancy interval was one of the high-risk factors for rupture uterus. maximum no when interpregnancy interval was less than 18 months. 12 (48 %) of scar rupture occurred

Most common site of scar rupture was lower uterine segment (88%).

Table 2: Analysis Of Modalities Of Treatment

	Numbers	Percentage (%)
Suturing of tear without sterilization	22	88
Subtotal Obstetrical hysterectomy	2	8
Total Obstetrical hysterectomy	1	4
Internal Artery ligation	2	8
Blood transfusion	18	72

In present study (n=25), 22 cases (88%) were managed with Suturing of tear without sterilization.

It has been seen that obstetric hysterectomy was required in 3 (12%) no of patients. Out of which, Subtotal hysterectomy was performed in 2 patients and total hysterectomy required in 1 patient.

Most of the patients presents with multiple complications. Out of which- fever, urinary tract infection, respiratory complications were some of commonest early post-operative complications. Late post-operative complications include wound discharge etc.

The perinatal mortality in present study was seen in 8(32%) cases. In 8 patients the fetal heart was already absent on admission. There was no Fetal mortality in cases having rupture after admission. Out of 17 babies survived, 4 babies required NICU admission. There was no maternal mortality.

Table 3: Perinatal Outcome

Fetal Outcome	No. Of Cases	%
LIVE BIRTH	17	68
STILL BIRTH	8	32

DISCUSSION:

Our hospital is a tertiary care centre, which is a major referral centre for all small hospitals in the radius of 100-150 km and caters to both urban and rural population. Overall incidence of uterine rupture is 1 in 1314 (0.07%). **Jain R**[5] reported an incidence of 47.84% in scar rupture while **Singh M**[6] reported 75.4% of uterine rupture occurred in cases with previous caesarean section. **Sunanda N**[7]had reported 80% incidence of scar rupture.

maximum age group vulnerable for rupture uterus were between 20-25 years & the least were less than 20 years. **Sahu et al** in India reported 73.12% uterine rupture cases were in the age group of 20-30 years.[8]In another study by **Sunitha et al** majority were in age group of 26-30 years.[9]**Richal P (2022)** Reported mean age of patients of rupture uterus was 27.7.[10] 23(92%) of rupture uterus cases seen in multigravida (gravida II-IV). Out of those 23 cases of multigravida, there was history of previous one or two caesarean section in 22 cases, and 0 number of rupture uterus seen in primigravida. Second most common cause in relation to parity was grand multiparity which was found in 2 (8%) cases. **Singh M** noted that 91.2% were para 1 to 4 who had uterine rupture.[6] **Rathod S** reported uterine rupture in 95.8% in para 1-4.[11] **Richal P** reported mean parity was 2.4 for rupture of uterus. [10]

Incidence of scar rupture increasing due to an increasing use of primary caesarean section in the last decade or so, in place of difficult vaginal delivery. In present study it was found that previous caesarean section with short interpregnancy interval was one of the high-risk factors for rupture uterus. In this study 12 (48%) of scar rupture occurred when interpregnancy interval was less than or equal to 18 months.

In present study (n=25), 22 cases (88%) were managed with Suturing of tear without sterilization. Patients were advised for alternate method of contraception. It has been seen that obstetric hysterectomy was required in 3 (12%) no of patients. **Sunanda N (2016)** reported incidence of 75% for scar repair and 25% subtotal hysterectomy.[7]In **Singh M (2016)** study uterine scar repair was commonly performed surgery (59.6%) followed by subtotal hysterectomy in 29.82% then total hysterectomy in 10.52%[6]**Richal P (2022)** quoted incidence of 48.03% for Obstetric hysterectomy.[10]**Desai R (2017)** quoted that Sub-total hysterectomy was carried out in 56% patients.[12]

In present study, there was no maternal death. All the patients of rupture uterus were managed immediately with initial resuscitation, exploratory laparotomy, adequate blood and blood products comparable to other studies.

Table 4: Comparative Incidence Of Scar Rupture-

Series	Incidence (%)
Singh M (2016)	75.4
Sunanda N (2016)	80
Raval BM[13] (2020)	75.5
Present study (2024)	92

Table 5: Comparative Incidence Of Etiological Factors

Etiology	Scar rupture (%)	Spontaneous (%)	Traumatic (%)
Diab AE (2005)	28.3	71.7	-

Chuni N (2006)	29	60	11
K Sunitha (2015)	62	12	18
Present Study (2024)	92	8	0

CONCLUSION:

Uterine rupture is preventable with good antenatal and intra-partum care along with proper identification and evaluation of high-risk cases. Over the years, with Modern Obstetrics there has been a decline in the morbidity and mortality of uterine rupture cases due to timely interventions like continuous intrapartum CTG monitoring. But this isn't enough. If we have to achieve more sustainable goals, we need to work hard to achieve targets which are comparable to that of the developed countries. Early diagnosis and prompt intervention is critical. Risk factors should be assessed during pregnancy, especially for women with a history of uterine surgery.

All these rupture uterus cases were majorly seen in patients with prior caesarean sections. So, decreasing the rate of primary caesarean section and institutional delivery in next pregnancy will ultimately help us achieve our set goals. By providing Respectful Maternity Care, Doula and different Birthing Positions, rate of primary caesarean section can be decreased to some extent. This systematic approach policy is followed at our institute and it is one of the reasons of decreased primary caesarean section rate and no case of uterine rupture from our institute.

Thus, in conclusion more awareness and more preparedness among health workers as well as antenatal women regarding antenatal care and preparedness of labour will help us to decrease primary caesarean section rate and number of cases of uterine rupture in near future.

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