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Original Research Article

Clinical study of cases of ruptured uterus in pregnancy

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ABSTRACT

Background: Rupture uterus is a rare and often catastrophic condition. It is associated with a high incidence of fetal and maternal morbidity and mortality. It is a preventable condition. Timely diagnosis and management results in better outcome. The objective of this study was to determine incidence, risk factor, management, maternal and fetal outcome in cases of uterine rupture.
Methods: A retrospective study of cases of ruptured uterus was done over a period of one year from January 2015 to December 2015. The case sheets of patients were traced through labor room register, operation theatre register and medical record section.
Results: There were 57 cases of ruptured uterus out of total 8112 deliveries in labor room, giving incidence of 7.03/1000 deliveries (0.7%). The most common risk factor was previous caesarean section in 59.7% of cases. In 54.4% cases patients were multiparous (≥3). Most of the patients presented with poor general condition, abdominal pain and tenderness, palpable fetal parts and in shock in 68.4% cases. Patients were treated with immediate resuscitation and laparotomy followed by either repair or hysterectomy. There was high perinatal mortality of 89.5%. Maternal mortality was 3.5%.
Conclusions: Proper antenatal care, appropriate counselling of patients with history of previous caesarean section for hospital delivery, training of skilled birth attendant can reduce mortality and morbidity associated with rupture uterus.

Keywords: Caesarean section, Laparotomy, Multiparous, Perinatal mortality, Ruptured uterus

INTRODUCTION

Uterine rupture occurs when a full thickness disruption of the uterine wall that also involves the overlying visceral peritoneum is present. Uterine rupture is one of the most dangerous obstetric situations carrying an increased risk of maternal and perinatal morbidity and mortality, which is associated with poorly managed labour.[1,2]

The prevalence was found significantly higher in underdeveloped countries of Asia and Africa in comparison to high income countries.[3,4] In developed countries the prevalence of uterine rupture for women with previous cesarean section is around 1%, whereas for women without previous cesarean section is extremely rare (<1 per 10,000). For less and least developed countries uterine rupture is more prevalent and serious problem. Overall most rate range between 0.1% to 1%.[5]

Maternal mortality ranged between 1% and 13%, and perinatal mortality between 74% and 92%.[5] Previous caesarean section is the main risk factor for uterine rupture.[6] Risk factor for uterine rupture in unscarred uterus are: grand multiparity, obstructed labor, polyhydramnios, multiple pregnancy, fetal macrosomia, injudicious use of oxytocic drugs, uterine instrumentation and manipulation and congenital abnormalities of uterus. The signs and symptoms of uterine rupture, largely

depending upon timing, site and extent of uterine defect, are sudden and severe abdominal pain, hemorrhage, tender, distended abdomen with abnormal uterine contour, cessation of uterine contraction, easily palpable fetal parts, absent fetal heart activity, maternal tachycardia, haematuria and hypovolemic shock.

Consequences of uterine rupture depend on the time between diagnosis of uterine rupture and delivery, and can be divided to fetal and maternal. Fetal consequences are admission to neonatal intensive care unit, fetal hypoxia or anoxia, and neonatal death. Maternal consequences are hemorrhage, hypovolemic shock, bladder injury, need for hysterectomy, and maternal death. On the other hand, morbidity and mortality following rupture of the uterus depend on the level of medical care.[7]

Once diagnosed, management must include

- Supportive therapy for mother until surgical intervention can arrest life threatening hemorrhage,
- Delivery of fetus within 10-37 minutes after uterine rupture to prevent serious fatal morbidity and mortality.[8]

After fetus is delivered, type of surgical treatment for mother depend upon:

- Type of uterine rupture
- The extent of uterine rupture
- Degree of hemorrhage
- Mother's general condition
- Mother,s desire for future child bearing.[9]

Hysterectomy is considered the treatment of choice in patient of intractable hemorrhage or uterine rupture sites are multiple. Repair with or without bilateral tube ligation is done in young and stable patients. Repeat caesarean section is done at 36 weeks of gestation in patients with previous uterine repair.[10,11]

The objective of this study was to determine incidence, risk factor, clinical presentation, complication, management, maternal and fetal outcome in patients with uterine rupture in pregnancy.

METHODS

The retrospective study of cases of ruptured uterus was done over a period of 1year in department of Obstetrics and Gynecology from January 2015 to December 2015.

Source of data

Case sheet of all patients of ruptured uterus treated in Department of Obstetrics and Gynecology at RIMS, Ranchi from January 2015 to December 2015.

Inclusion criteria

All cases of ruptured uterus being managed at RIMS, Ranchi from January 2015 to December 2015 were included.

Following cases were included:

- Complete, incomplete rupture and scar dehiscence
- Rupture due to inadvertent use of oxytocics both in scarred and unscarred uterus
- Cases of ruptured uterus in antepartum and intrapartum period
- Pregnancy in anomalous uterus leading to uterine rupture.

Exclusion criteria

Following cases were excluded from study:

- Cases of vaginal delivery without any complication.
- Cases of vaginal birth after cesarean section without any evidence of scar rupture.
- Cases of cesarean section without any evidence of scar dehiscence or rupture.

Study procedure

Case sheets of 57 cases of ruptured uterus which were managed at RIMS, Ranchi during January 2015 to December 2015 were analyzed. Rupture was labeled as complete where there is full thickness rupture of uterine wall along with visceral peritoneum.

Other types were grouped under incomplete rupture. Various parameters like age, parity, gestational age, risk factor, clinical presentation, need for blood transfusion, finding at surgery and type of surgical management done and maternal and perinatal morbidity and mortality were noted.

RESULTS

Incidence

During study period of 1 year there were total 8112 deliveries among which 57 cases were of ruptured uterus giving incidence of 7.03/1000 deliveries.

Risk factors

Most common risk factor was previous caesarean section, which was present in 59.7% of cases. 54.4% of cases were multiparous (≥3) which was also a common risk factor. Other factors were obstructed labor which occurs due to neglected and improperly managed labor and injudicious use of oxytocic for labor induction and augmentation.

Table 1: Risk factors for ruptured uterus.

Risk factors	Percentage
Previous LSCS	34 (59.7%)
Multiparity (≥3)	31 (54.4%)
Obstructed labor	19 (33.3%)
Use of labor inducing agents (oxytocics)	10 (17.5%)

Ruptured uterus in scarred and unscarred uterus

It was present in 23 (40.3%) cases without having any uterine scar and 34 (59.7%) cases with previous caesarean section. In developed countries it is present mostly in patients with previous caesarean section, while in developing countries like India its prevalence in unscarred uterus is also high.

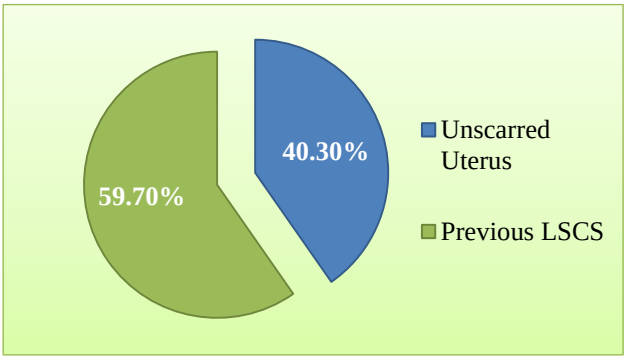

Figure 1: Prevalence of ruptured uterus in scarred and unscarred uterus.

Clinical presentation

Most of the patients with ruptured uterus came to the labor ward in poor general condition with history of prolonged labor and were referred cases from nearby areas. They presented with abdominal pain and tenderness, palpable fetal part, vaginal bleeding and in 68.4% of cases patients were in shock.

Table 2: Clinical presentation of cases of ruptured uterus.

Clinical feature	Percentage
Abdominal tenderness	49 (86%)
Abdominal pain	44 (77.2%)
Palpable fetal part	35 (61.4%)
Severe vaginal bleeding	4 (7%)
Shock	39 (68.4%)

Intra-op finding

During laparotomy, only scar rupture was observed in 29.8% of cases. Uterine rupture was extended to lower segment in 45.6% of cases, to upper and lateral segment in 38.6% of cases. Bladder injury occurs in association with uterine rupture and due to devitalisation of bladder wall in cases of prolonged labor, was observed in 17.6% of cases. In 24.5% of cases there were broad ligament hematoma.

Table 3: Intra operative finding during laparotomy.

Intra-op finding	Percentage
Scar rupture	17 (29.8%)
Extension to the lower segment	26 (45.6%)
Extension to the upper and lateral segment	22 (38.6%)
Bladder injury	10 (17.5%)
Broad ligament hematoma	14 (24.6%)

Management

Patient with ruptured uterus were managed with immediate resuscitation with intravenous fluid, antibiotics and simultaneously prepared for laparotomy. Surgery was done in the form of repair of uterine wall with or without bilateral tube ligation in 29.8% cases and 70.2% cases required hysterectomy.

Table 4: Surgical management in cases of ruptured uterus.

Surgery	Percentage
Repair with bilateral tube ligation	11(19.3%)
Repair without bilateral tube ligation	6 (10.5%)
Subtotal hysterectomy	34 (59.7%)
Total hysterectomy	6 (10.5%)

Morbidity

Maternal morbidity observed in these patients were shock, anemia, requirement of blood transfusion, wound infection, fever, and vasicovaginal fistula formation.

Table 5: Maternal morbidity associated with ruptured uterus.

Morbidity	Percentage
Shock	39 (68.4%)
Anemia	54 (94.7%)
Blood transfusion	52 (91.2%)
Wound infection	8 (14%)
Pyrexia	13 (22.8%)
VVF	2 (3.5%)

Mortality

Perinatal mortality was seen in 51 (89.5%) cases and 2 (3.5%) cases of maternal death was noted.

DISCUSSION

Ruptured uterus is a preventable but potentially life-threatening condition, which require prompt diagnosis and treatment. Incidence of ruptured uterus in the present study was 7.03/1000 deliveries (0.7%). Higher incidence

was noted in study by Mahababu et al (0.83%) and Atam et al (1.14%).[12,13] Our hospital is a tertiary referral centre, with most of the cases being referred in an already moribund state. Studies conducted in developing countries also showed that in rural areas, low socio-economic condition of the people and poor health facilities were the major contributing factor in determining the incidence of ruptured uterus.[14]

In this study ruptured uterus was present in 59.7% of cases with previous caesarean section. While in 40.3% of cases it was present in unscarred uterus. Similar high incidence of ruptured uterus in unscarred uterus was also noted in study by Saini VK et.al.[15] Uterine rupture in unscarred uterus is mostly due to neglected obstructed labor, frequently met in rural areas.In the present study ruptured uterus was present in multiparous women in 54.4% of cases. It was higher than the study by Malik HS (42.7%).[16] Main modality of treatment was immediate resuscitation and laparotomy. Repair was possible in only 29.8% of cases, which was less as compared to study by Rathod S et al (39.2%).[17] It was because many of cases were referred cases coming from remote areas. Perinatal mortality was seen in 89.5% of cases. Similar result was noted in study by Rathod et S al (90.5%).[17] Maternal death rate was 3.5% in the present study similar to result by Sahu L et al (2.76%).[18]

CONCLUSION

Rupture uterus is a serious and life-threatening complication for both mother and the baby. In developing countries like India incidence of ruptured uterus is high, and its occurrence in unscarred uterus is quite higher as compared to developed countries. Education and proper care especially of high risk patients like previous caesarean by competent personnel, early diagnosis and intervention for prolonged labor to prevent further obstruction and rupture, proper use of oxytocics and early referral may help to reduce the incidence of "rupture uterus".

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