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# A Retrospective Study of Uterine Rupture in Tertiary Care Hospital Over One Year

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***Abstract***
*INTRODUCTION : Rupture uterus is a rare but life threatening obstetric complication. This is a one year (May 2019 - May 2020) retrospective study of cases of uterine rupture in labor room in tertiary care centre .*
*AIM : The aim of our study was to evaluate the incidence of uterine rupture, obstetric risk factor, cause of uterine rupture, management modalities & associated maternal & fetal outcome*
*MATERIAL AND METHOD : Retrospective analytical study of 19 cases of uterine rupture in A.N.M.M.C.H, GAYA, BIHAR was collected from case record of 1,490 deliveries during one year span (May 2019 – May 2020) . Parameter like age , gravida and parity, cause of rupture, type of rupture, site of rupture, surgical management & fetal outcome were recorded.*
*Statistical analysis : categorical variables are presented in number and percentage(%) .*
*Result --Out of 1,490 deliveries during one year period their were 19 cases of uterine rupture with incidence of 12.75 in 1000 deliveries. Mean age of rupture was 28 year. Most of the cases were multigravida with incidence of (18/19) 94.73% & all were unbooked pregnancy. Previous history of cesarean sectionwas present in 84.21% of cases. Prolonged labor was seen in 10.5%of cases. Inadvertent use of oxytocin was associated with 5.26% cases of uterine rupture. Lower segment uterine rupture was seen in 84.21% of cases . Apart from minor post operative complication ,5.26% had associated bladder injury . Vesico vaginal fistula seen in one patient .Repair was possible in 73.68% (14/19).Emergency obstetric hysterectomy was done in( 26.3%) to save the life of patients. Perinatal mortality was in 89.47% cases. No maternal death occurred.*
*Conclusion –There is need of vigilant monitoring of first & second stage of labor by Partograph and CTG especially in cases of VBAC as most of the cases of rupture were seen in patients with history of previous caesarean section. The use of oxytocin should be Judicious . Timely intervention should be done in cases of prolonged & obstructed labor . Proper antenatal councelling & instrumental deliveries will play a major role in reducing its incidence.*

***Keywords:*** *Rupture of uterus, cesarean section, fetal mortality , maternal morbidity.*

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## I. Introduction

Uterine rupture is one of the serious & potentially life threatening obstetric complication with severe maternal & perinatal morbidity & mortality .Uterine rupture results from breach in the layer of myometrial wall including serosal layer .This catastrophic complication occur most often in women attempting a vaginal birth after previous cesarean section. In a WHO systematic review of maternal morbidity & mortality, prevalence of uterine rupture in previous scarred uterus was 1%.(1)

The incidence of uterine rupture in develop & developing countries varies from 1 in 250 to 1 in 5000 deliveries. Depending upon the quality of obstetric care given & the population dealt with, incidence of uterine rupture in India varies from 0.3/1000 to 7/1000 deliveries in India. The incidence of uterine rupture is high in women with previous scarred cesarean section (0.3 to 1.7)% in comparison to unscarred uterus where it ranges from (0.03 to 0.08) % which seems to very rare. Spontaneous rupture of intact uterus may be due to injudicious use of oxytocin , Cephalopelvic disproportion, malpresentation ,multiple pregnancy, uterine anomaly etc.(2)

Most of the time initial sign & symptoms are non - specific making diagnosis difficult. Commonly patients complain of loss painful uterine contractions with generalized pain abdomen associated with clinical signs like maternal tachycardia, anemia, non- reassuring fetal heart rate, bleeding per vaginum ,loss of station of presenting part loss of uterine contour, with superficial palpable fetal parts. So care ful monitoring of labor for uterine contour, fetal well being & maternal vitals is paramount for early detection. Fortunately uterine rupture is a preventable condition ,and it is essential to determine the risk factors for ruptured uterus ,which is a leading cause of maternal mortality in developing countries despite current knowledge.(3)

Objective of our study is to analyze the cases of uterine rupture according to risk factor, type, site of rupture , associated complication & surgical management to evaluate maternal & perinatal outcome.

## II. Maretial & Method

The present study retrospectively reviewed the case sheets of all patients of uterine rupture , admitted or diagnosed of uterine rupture in emergency department of Obstetric & Gynecology , A.N.M.M.C.H GAYA, a tertiary care hospital over a period of one year(May 2019- May 2020).Total of 19 women with per operative finding of uterine rupture and who were managed with uterine repair or hysterectomy were included in study. Their relevant details like clinical diagnosis, laboratory reports, cause of uterine rupture and surgical procedures required were evaluated in detail from case sheets. Intraoperative findings regarding site , extent of rupture, associated complication & adjacent organ injury were noted. Post operative maternal & neonatal morbidity and mortality were studied and perinatal outcome were measured.

## III. Result :

Total delivery during one year period was 1,490 and there were 19 cases of uterine rupture with incidence rate of being 12.75 per 1000 deliveries.( table 1).majority of cases were of 26 -30 year of age. Median age was 28 years (table 2).Most of the women were multipara 94.73%(table 3).all the patient were unbooked suggesting inadequate antenatal care (table 4).previous cesarean section deliveries were most common cause(84.2%) of cases had lower segment rupture. In developed countries uterine rupture mostly occur in scarred uterus in previous cesarean section mainly at term & during labor & in even more frequent when labor is induced or augmented. Awareness of this has a risk of controlled to a more conscious policy towards trial of labor after cesarean ( TOLAC) (TABLE 6).Conservative management in the form of rent repair was done in 73.68% of cases. obstetric hysterectomy was required in 26.31% of cases. One patient had associated bladder injury( table 7).other post –operative morbidity included paralytic ileus( 10.52%), wound infection(21.05%) and fever(5.26%). All patient required two or more blood transfusion. 50% patient required longer hospital stay of more then 7 days. Perinatal mortality was seen in 89.47% of cases. out of total 5 maternal death, no maternal death was associated with uterine rupture.

TOTAL RUPTURE – 19

**TABLE 1:** STATISTICAL DATA NUMBER

| | |
|---|---|
| Total deliveries | 1490 |
| Uterine rupture | 19 |
| incidence | 12.75/1000 deliveries ( 1.27%) |

**Table 2:** distribution according to age

| Age ( years) | number | average |
|---|---|---|
| 20-25 | 6 | 24 |
| 26-30 | 10 | 28 |
| Above 30 | 3 | 35 |

**Table 3 :** distribution according to GRAVIDA

| GRAVIDA | NUMBER | INCIDENCE |
|---|---|---|
| Primi | 1 | 5.2% |
| multi | 18 | 94.73% |

**Table 4 :** distribution according to ANC

| ANC CARE | NUMBER | PERCENTAGE |
|---|---|---|
| emergency | 19 | 100% |
| registered | 0 | 0% |

**Table 5 :** cause of uterine rupture

| Etiology | no of cases | percentage( %) |
|---|---|---|
| Previous cesarean section | 16 | 84.2 |
| Obstructed labor | 2 | 10.5 |
| Instrumental delivery | 0 | 0 |
| oxytocin | 1 | 5.26 |
| Grand multipara | 18 | 94.73 |

**Table 6:** intraoperative findings

| | | Number | percentage |
|---|---|---|---|
| Site of rupture | upper segment | 1 | 5.26 |
| | lower segment | 16 | 84.21 |
| | both | 2 | 10.52 |

| | | | |
|---|---|---|---|
| Mode of repair | Rent repair | 14 | 73.68 |
| | Obstetric hysterectomy | 5 | 26.3 |
| Intra op complications | broad ligament hematoma | 0 | 0 |
| | Bladder injury | 1 | 5.26 |
| Blood transfusion | More then 2 | 19 | 100 |

**Table 7 :** post op complication

| Complication | number | percentage |
|---|---|---|
| Paralytic ileus | 2 | 10.52 |
| Wound infection | 4 | 21.05 |
| Septic shock | 0 | 0 |
| fever | 1 | 5.26 |

**Table 8** : Feto maternal outcome

| Mortality | number | percentage |
|---|---|---|
| Maternal | nil | nil |
| fetal | 17 | 89.47 |

## IV. Discussion

Rupture uterus is one of the major life threatening obstetric complication affecting fetomaternal outcome significantly. The incidence of uterine rupture came to be 12.75 / 1000 deliveries which is more then other indian studies like rashmi et al(4). study of the case record of showed that almost all of cases of rupture were unbooked pregnanc y highlighting the need for antenatal councelling and institutional deliveries. some women under gone vaginal birth after cesarean delivery (VBAC) spontaneously especially in villages which may be associated with fewer complications than elective repeat cesarean delivery but failed TOLAC is associated with more complications which in turn is associated with increased maternal and perinatal morbidity. (5)

A WHO systematic review of maternal morbidity and mortality showed the prevalence of rupture uterus ranged between 0.006% for women without previous cesarean section from a developed country and 25% for women with obstructed labor in a least developed country(1) . But incidence rate is quite high in other indian studies like mehbuba et al(6) who had a figure of 1.14% . In other developing countries it is reported to be 0.8% in Ghana, 0.76% in Uganda , 0.74% in Pakistan ,0.9% in Nepal, studies from developed countries showed incidence as low as 0.035% ( 6)

Major factor leading to difference in different incidence rates in different states of same country is due to lack of health awareness , illiteracy ,poverty, poor antenatal care , home delivery by traditional birth attendants and delay in referrals contributing to increased risk for uterine rupture.

In our study, 10 cases were in the 26-30 year age group ( table 2) this was similar to the study by sunanda et al.(7). 94.73% cases were multi gravida. This was found comparable with above studies who found 92-95% multi among cases of rupture uterus(4,1)in our study, all the cases unregistered indicating importance of regular antenatal checkup for better perinatal & maternal outcome.

Patient with previous uterine surgery were more susceptible to uterine rupture in subsequent delivery depending upon the indication of previous LSCS , Interconceptional period and number of cesarean deliveries . Multigravida with previous LSCS are most high risk cases vulnerable for rupture .Most commom cause of rupture in present study was previous LSCS seen in 84.2% of cases comparable to other indian studies(2,4). Uterine rupture in unscarred uterus was associated with multigravida with obstructed labor (10.5%)and inadvertent use of oxytocics( 5.26%) leading to uterine hyperstimulation.

Most common site of rupture was anterior wall lower uterine segment seen in 84.21% cases where as in other cases rupture involved upper segment as well lower uterine segment which indicates rising trends of LSCS rather then difficult vaginal delivery(8). Management modality varied according to intraoperative findings . 73.68% cases were managed conservatively by repair. Blood transfusion was required in almost all cases. Bladder injury occurred in one patient. During post operative period, 10.52% developed paralytic ileus, 21.05% had wound sepsis & 5.26% had post op fever.(9)

Maternal outcome depend upon the coexisting medical or obstetric condition, type of rupture , time interval between rupture and treatment, operative procedure and availability of advanced facilities. In our study , all the patient with uterine rupture were managed with no maternal mortality .As compared to maternal outcome

, perinatal outcome was poor with 89.47% fetal mortality .Early diagnosis and immediate operative intervention can improve the maternal as well as fetal outcome.

## V. Conclusion:

Uterine rupture is a cause of major concern for maternal & fetal morbidity and mortality. Vigilant monitoring of first and second stage of labor by partograph & CTG , judicious use of oxytocics timely recogination and early intervention of prolonged & obstructed labor & scar dehiscence in high risk pregnancies like multigravida & previous LSCS will reduce the incidence of uterine rupture.Regular antenatal councelling and care will definitely play a major role in improving maternal and fetal outcome.

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