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Original Research Article

Ruptured uterus outcome among the pregnant women admitted in a tertiary care centre

Ranu Jain¹, Mamta K. Shewte^{2*}

¹Department of Obstetrics and Gynecology, N.S.C.B Medical College, Jabalpur, Madhya Pradesh, India

²Department of Community Medicine, BJGMC, Pune, Maharashtra, India

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***Correspondence:**

Dr. Mamta K Shewte,

E-mail: mamtaShewte2@gmail.com

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ABSTRACT

Background: Rupture of a previously unscarred uterus is usually a catastrophic event resulting in death of the baby and sometimes even maternal death from blood loss. Incidence of rupture uterus varies from 0.3/1000 to 7/1000 deliveries in India accounting for 5% to 10% of all maternal deaths. Hence, the present study was conducted to study the proportion of ruptured uterus among the antenatal women admitted, their associated clinical spectrum and maternal outcome.

Methods: A cross sectional study was carried out among 46 antenatal women presented with ruptured uterus in the department of Obstetrics and Gynaecology at N.S.C.B medical college and Hospital at Jabalpur, (M.P) during 1st August 2011 to 31st August 2012.

Results: The incidence of ruptured uterus was 1 in 118 (0.84%) of all hospital deliveries. Mostly, 18 (39.1%) patients were in 26 -30yrs of age. Maximum, 22 patients (47.83%) with ruptured uterus were in second gravidae. Most common site of scar rupture was lower uterine segment, observed in 42 (91.30%) patients. The most common form of management was rent repair done in 36 (78.26%) patients, followed by subtotal hysterectomy (STH) in 8 (17.39%) and total hysterectomy (TH) in 2(4.34%) patients. A perinatal mortality was seen in 38 (82.60 %) cases with 1 maternal death was observed.

Conclusions: Reducing the primary cesarean section rate and early diagnosis with active surgical management will go a long way in reducing the incidence of ruptured uterus and maternal and fetal mortality.

Keywords: Maternal mortality, Rent repair, Subtotal hysterectomy rupture uterus, Uterus

INTRODUCTION

Uterine rupture means breach in the continuity of the uterine wall beyond 28 weeks of gestation.¹ Rupture of a previously unscarred uterus is usually a catastrophic event resulting in death of the baby, extensive damage to the uterus and sometimes even maternal death from blood loss.² In developed countries, increased risk of uterine rupture and perinatal death reported are common among women with previous caesarean section undertaking trial of labour compared with elective repeat caesarean section.³ Uterine rupture in Black African women is due to obstructed labour because of contracted pelvis.⁴ Other

risk factors for uterine rupture include grand multiparity, the use of uterotonic drugs to induce or augment labour, placenta percreta⁶ and rarely intrauterine manipulations such as internal podalic version and breech extraction.^{2,5} In developing countries, the incidence is high due to a greater number of unbooked obstetric emergencies, often originating from rural areas with poor antenatal care.⁷

The incidence in developed and developing countries varies from 1 in 250 to 1 in 5000 deliveries depending upon standard of obstetric care and the population dealt with.⁸ Incidence of rupture uterus varies from 0.3/1000 to 7/1000 deliveries in India accounting for 5% to 10% of

all maternal deaths.⁹ The initial signs and symptoms of uterine rupture are typically nonspecific, which makes diagnosis difficult and sometimes delays definitive therapy. From the time of diagnosis to delivery, only 10-37 minutes are available before clinically significant fetal morbidity becomes inevitable.¹⁰ Identifying the high-risk pregnancies for rupture uterus and their timely referral from grass root level is an important step in secondary prevention.

An early diagnosis and prompt treatment of the rupture uterus is the most important factor in improving maternal and perinatal outcome. With this perspective, the present study was conducted to study the proportion of ruptured uterus among the antenatal women admitted, their associated clinical spectrum and maternal outcome.

METHODS

The present cross-sectional study was carried out in the department of Obstetrics and Gynecology at N.S.C.B medical college and Hospital, a tertiary care centre at Jabalpur, Madhya Pradesh in central India, during 1st August 2011 to 31st August 2012. Considering the high maternal mortality rate of the region, each pregnant woman coming to our department are managed depending on level and number of complications in them. Maximum antenatal cases with emergencies are referred to labour room initially.

For all the ruptured uterine cases referred, after doing their initial resuscitative management and emergency investigations, they are transferred to operation theatre for emergency laparotomy.

Obstetrics hysterectomy or suturing of ruptured scar done depending upon condition of the patient, parity, presence or absence of infection etc. Post operatively patient's vital parameters are monitored intensively. Broad spectrum antibiotics are given and patients requiring assisted ventilator support are shifted to surgical intensive care unit as and when required.

Our study subjects were all pregnant women registered and unregistered clinically suspected to have a ruptured uterus, presented with varying degree of shock, abnormal uterine contour, absent FHS, bleeding per vagina, pain in abdomen, hematuria, with spontaneous labor in cases of scarred, unscarred uterus, with previous vaginal delivery, previous transverse, vertical lower caesarean, upper segment cesarean section.

Cases of rupture of scarred uterus due to other operations like Myomectomy, hysterotomy, operations for correcting uterine anomalies and cases with scar dehiscence and direct uterine trauma were excluded from the study.

Approximately after 5 days of treatment done for ruptured uterus, after assessing the vital status of study

subjects and if they were in the position to give interview, then only the data was collected by interview technique otherwise proxy interview of accompanying relative was taken.

The questionnaire had two parts, first part had socio-demographic profile, obstetrics history, information regarding pregnancy registration and services availed during pregnancy.

The second part of the questionnaire had questions regarding type of rupture, site of rupture, modalities of treatment, maternal morbidity and mortality and perinatal mortality. The participation of study subjects was on voluntary basis, written informed consent was obtained from study participants, anonymity and confidentiality was assured and emphasized. The data entered in Microsoft excel 2007. All the continuous variable summarized using mean and SD while the categorical variables as percentage and proportion.

RESULTS

During the study period 5425 antenatal women were admitted, out of which 1412 had cesarian section and 4241 delivered by normal vaginal delivery and 46 antenatal women presented with ruptured uterus giving an incidence of 1 in 118 (0.84). Out of 46 ruptured uterus cases, 38 (82.6%) cases were referred as emergency cases. 32 (69.56%) patients belonged to urban area and 14 (30.44%) patients were from rural area. Most common age group was between 26 -30yrs.

Figure 1 indicates that 18 (39.1%) patients were in age group of 26- 30 years. The cases were equally distributed among 20-25 years and 31-35 years age group, collectively as 28(60.8%) patients.

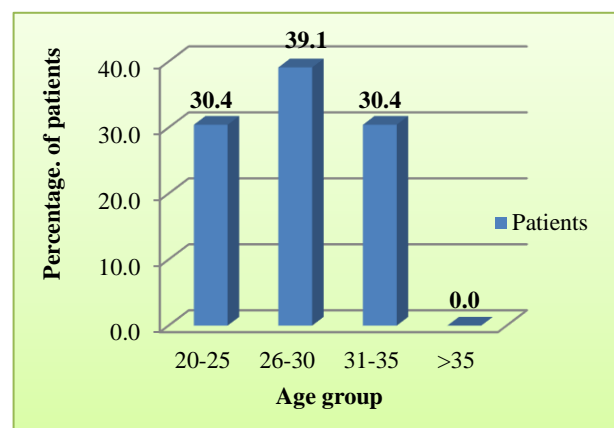


Figure 1: Distribution of patients according to age group.

No patients were above 35 years age group. Figure 2 shows that uterine rupture was maximum in second gravidae, i.e 22 patients (47.83%), followed by 20 (43.48%) among multigravidae patients. 4 (8.69%)

patients with ruptured uterus were primigravidae. All the cases of ruptured uterus were seen during labor, of which 20 (43.47%) rupture were seen in intact uterus, 22 (47.84%) were seen in scarred uterus and 4(8.69%) uterine rupture were drug induced. No ruptured uterus seen in antenatal period.

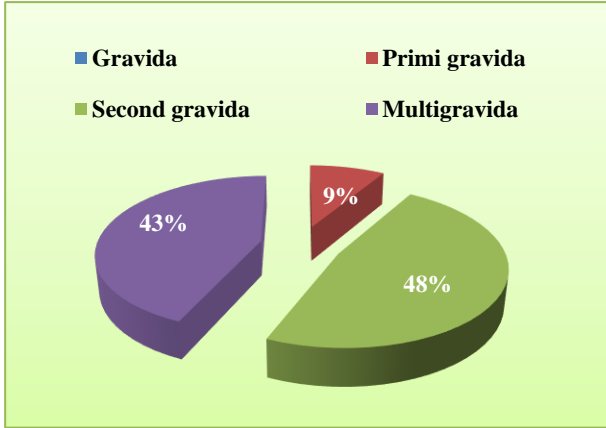


Figure 2: Distribution of patients according to gravida.

Table 1 shows that most common site of scar rupture was lower uterine segment, observed in 42 (91.30%) patients. In lower segment, anterior wall rupture was seen in 30 (65.21%) patients, anterior wall rupture with extension to lateral wall was seen in 13 (28.2%) patients.

Extension to bladder was seen in 5 cases (10.86%) and extension to cervix and vagina was seen in 8 cases (17.39%). Broad ligament hematoma seen in 10 (21.73%) cases. Least common site was fundal rupture seen in 3 (6.52%) patients.

Table 1: Distribution of patients according to rupture site on laparotomy.

Site of rupture	No. of Patients	Percentage
Fundus	1	1.7
Upper segment	3	6.5
Lower segment	42	91.3
Anterior wall	30	65.2
Posterior wall	4	8.7
Broad ligament hematoma	10	21.7
Extension to lateral wall	13	28.2
Extension to cervix and vagina	8	17.4
Extension to bladder	5	10.9
Ureter involvement	0	0

Table 2 indicates the uterine repair were done in maximum, 36 (78.26%) patients. Subtotal hysterectomy was required in 8 (17.39%) number of patients. Total hysterectomy was done in 2(4.34%) patients. Associated surgeries include uterine artery ligation in 12 (26%) and bladder repair in 5 (10.86%) number of patients. Internal

iliac artery ligation required in 2 (4.34%) to control haemorrhage.

Table 2: Distribution of patients according to treatment modalities.

Modality of treatment	No. of Patients	Percentage
Repair of uterus	36	78.26
Subtotal hysterectomy	8	17.39
Total hysterectomy	2	4.34
Uterine artery ligation	12	26
Internal artery ligation	2	4.34

Figure 3 shows that most common post-operative complication was fever, present in 20 (43.47%) patients, followed by hypovolemic shock in 15 (32.60%) and paralytic ileus in 12 (26.08%) number of patients.

Figure 3: Distribution of patients according to post-operative complications

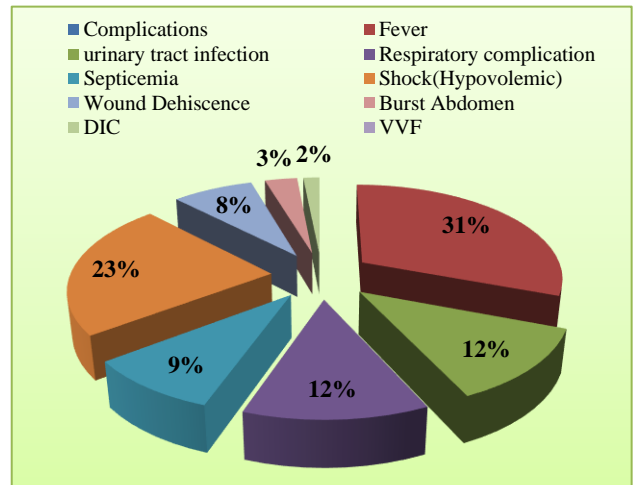


Table 3 denotes the 1 out of 46 patients expired due to early hemorrhagic shock following spontaneous rupture and could not be survived post-operatively, which gives maternal mortality rate as 2.17%. The perinatal mortality was seen in 38 (82.60%) cases and 8 (17.39%) number of babies survived.

Table 3: Distribution of patients according to maternal and perinatal outcome.

Peri natal outcome	No. of cases (N = 46)	Percentage
Fetal outcome		
Intrauterine Death	38	82.6
Live Birth	8	17.4
Maternal Outcome		
Survived	45	97.8
Repair of uterus	36	78.3
Hysterectomy	10	21.7
Died	1	2.2

DISCUSSION

In our study 46 antenatal women presented with ruptured uterus giving an incidence of 1 in 118 (0.84) which is comparable with that of other developing countries like, 1 in 124 (0.8%) in Ghana 0.76% in Uganda 0.74% in Pakistan 0.9% in Nepal and 2.8% in Ethiopia. Studies from developed countries showed incidences recorded as 0.035%.¹¹⁻¹⁶ This wide variation in incidence between developed and developing countries are due to socio economic factors, cultural practices and lack of access to antenatal and intrapartum care. Majority, 18 (39.1%) patients were in age group of 26- 30 years, lesser than that of Sahu L, who observed 73.12% of the women in the age group of 20-30 years.⁹ In our study, uterine rupture was maximum in second gravidae, i.e 22 patients (47.83%) with scarred uterus, followed by 20 (43.48%) among multi gravidae patients which is lesser than that that observed by Sunitha K et al who too observe high incidence of rupture in second gravida with 73.3% of them were scar ruptures.⁷ In our study, 4 (8.69%) uterine rupture were drug induced. High incidence of drug induce ruptured uterus was observed by Sahu L. In the present study as well as other Indian studies, rupture of cesarean section scar was the leading cause of rupture uterus.^{9,17} The cause for high incidence of scar rupture is that most of these patients came to the hospital after establishment of labor pains. In countries like Yemen and Nigeria where family size is more, obstructed labor due to multi parity and malpresentations is the leading cause of rupture uterus.^{15,18} Reports from Nigeria, Ghana, Ethiopia and Bangladesh indicated that about 75% of cases of uterine rupture were associated with unscarred uterus. In our study uterine repair were done in 36 (78.26%) patients, subtotal hysterectomy in 8 (17.39%) and total hysterectomy in 2 (4.34%) patients. In the present maximum number of uterine repair was possible because most of the cases were cesarean scar ruptures which were amenable to repair. In other studies, hysterectomy was done in more number of cases when compared to rent repair. The difference may be due to more number of obstructed labor cases in those studies. The decision to perform uterine repair or hysterectomy in cases of uterine rupture is influenced by the parity, number of living children, extent of uterine rupture, condition of the tissues and the general condition of the patient. Repair of the uterine rupture is a logical approach and should be performed in women with scar rupture and in those with a linear tear.

Major complications like septicaemia was present in 6 (13.04%) which is comparable with that of Ghadei R, who observed that puerperal sepsis in 13% of the subjects.¹⁹ In present study, hypovolemic shock was present in 15 (32.60%) which is higher than that of Ghadei R and Team which observed shock in 4.3% of study subjects. In our study we had not find a single case of vasico vaginal fistula but a study from Yemen reported a 3.3% incidence of VVF.⁷ The other complications reported in the literature are bilateral adnexectomy to

control intraoperative bleeding and DIC (disseminated intravascular coagulation). Minor complications like febrile morbidity, urinary and respiratory infections and paralytic ileus were comparable to those in other studies.²⁰ In the present study only one maternal deaths was recorded. This could be because of the predominance of cesarean scar ruptures which were amenable to early diagnosis and repair. The main causes of maternal mortality in rupture uterus are failure to diagnose the condition at the first referral centre and arrival at the tertiary centre in a moribund condition.¹⁷ The perinatal mortality is high in all the studies, including the present study. Many studies also found an increased risk of low APGAR score for infants who survived a uterine rupture.²¹ But in the present study all the surviving infants had good APGAR scores except for one infant which had a low APGAR necessitating NICU admission. admissions.

CONCLUSION

Reducing the primary cesarean section rate and optimizing care for women with previous cesarean section will go a long way in decreasing the incidence of rupture uterus. The education of the pregnant women and her relatives about the need for a carefully supervised and planned delivery in a well-equipped hospital needs to be emphasized. Great caution should be exercised when managing a trial of labor in women with a previous uterine scar, especially if labor has failed to progress. High index of suspicion and quick referral to a well-equipped centre with availability of experienced obstetricians, anesthesiologists and neonatologists will reduce the incidence of uterine rupture.

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REFERENCES

1. Saradhi Reddy PS, Pateel A. A Study of Rupture Uterus Maternal and Foetal Outcome. *J Dent Med Sci.*2016;15(6):26-9.
2. Hofmeyr GJ, Say L, Gülmezoglu AM. WHO systematic review of maternal mortality and morbidity: the prevalence of uterine rupture. *BJOG: Int J Obstet Gynaecol.* 2005;112(9):1221-8.
3. Guise JM, McDonagh MS, Osterweil P, Nygren P, Chan BK, Helfand M. Systematic review of the incidence and consequences of uterine rupture in women with previous caesarean section. *BMJ.* 2004;329(7456):19.
4. Fisk NM, Shweni PM. Labor outcome of juvenile primiparae in a population with a high incidence of contracted pelvis. *Int J Gynaecol Obstet* 1989;28(1):5-7.
5. Neilson JP, Lavender T, Quenby S, Wray S. Obstructed labour. *Br Med Bull* 2003;67(1):191-204.

6. Topuz S. Spontaneous uterine rupture at an unusual site due to placenta percreta in a 21-week twin pregnancy with previous caesarean section. *Clin Exp Obstet Gynecol.* 2004;31(3):239–41.
7. Sunitha K, Indira I, Suguna P. Clinical Study of Rupture Uterus - Assessment of Maternal and Fetal Outcome. *J Dent Med Sci.*2015;14(3):39-45.
8. Sahu M, Natasha HK and Mandpe P. Case analysis of complete uterine rupture in a tertiary health care center *Int J Reprod Contracept Obstet Gynecol* 2016 Dec;5(12):4401-4.
9. Sahu Latika A. 10-year analysis of uterine rupture at a teaching institution. *J Obstet Gynaecol India.* 2006; 56 (6):502-6.
10. Gaikwad R A, Chavan N N. Study of cases of rupture uterus in a tertiary institute and its maternal and perinatal outcome. *Int J Reprod Contracept Obstet Gynecol.*2017;6(9):4023-7.
11. Fofie CO, Baffoe P. A Two-Year Review of Uterine Rupture in a Regional Hospital. *Ghana Med J.* 2010; 44(3):98-102.
12. Mukasa PK, Kabakyenga J, Senkungu JK, Ngonzi J, Kyalimpa M, Roosmalen VJ. Uterine rupture in a teaching hospital in Mbarara, western Uganda, unmatched case-control study. *Reprod Health.*2013; 10(1):29.
13. Rizwan N, Abbasi RM, Uddin SF. Uterine rupture, frequency of cases and fetomaternal outcome. *J Pak Med Assoc.*2011;61(4):322-4.
14. Padhye SM: Rupture of the pregnant uterus: a 20 year review. *Kathmandu Univ Med J.* 2005;3(11):234-8.
15. Omole O, Attah,. Uterine rupture: risk factors and pregnancy outcome. *Gynecol Obstetric.*2011;1:1.
16. Ofir K, Sheiner E, Levy A, Katz M, Mazor M. Uterine rupture: differences between a scarred and an unscarred uterus. *Am J Obstet Gynecol.*2004;19: 425–9.
17. Rashmi, Radhakriskan G, Vaid NB, Agarwal N. Rupture uterus--changing Indian scenario. *J Indian Med Assoc.*2001;99(11):634-7
18. AE Diab. Uterine rupture in Yemen. *Saudi Med J.*2005;26(2):264-9.
19. Ghadei R, Behera A. Uterine Rupture: A Two-Year Review at a Teaching Institution. *Annals of Int Med Dent Res.*2017;3(6):9-12
20. Turgut A, Ozler A, Evsenc MS, Soyuncu HE, Goruk NY, Karacor T. Uterine rupture revisited: Predisposing factors, clinical features, management and outcomes from a tertiary care center in Turkey. *Pak J Med Sci.*2013;29(3):753-7.
21. Martínez-Biarge M, García-Alix A, García-Benasach F, Gaya F, Alarcón A, González A et al. Neonatal neurological morbidity associated with uterine rupture. *J Perinat Med.* 2008;36(6):467-554.

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