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Original Research Article

A study of cases of rupture uterus in a tertiary medical college of Jharkhand, India

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ABSTRACT

Background: Uterine rupture is a grave condition which is almost fatal for fetus. The most common risk factor for the uterine rupture is previous uterine surgery. Other major factors are obstructed labor, multiparity, use of uterotonic drugs, placenta percreta and rarely intrauterine manipulations such as internal podalic version and breech extraction.
Methods: This study was conducted over a period from March 2014 to September 2015, in the Department of Gynecology and Obstetrics, RIMS Ranchi, Jharkhand. All cases of rupture uterus, who were either admitted with or who developed this complication in the hospital, were included in the study.
Results: There were 80 cases of rupture uterus out of 10474 deliveries. The incidence of rupture uterus was more (97.5%) in cases who had no previous antenatal checkup at all. Most of cases of previous caesarean section scar rupture during labour was lower segment caesarean section scar (94.11%). The most common causes of traumatic rupture were injudicious use of oxytocics (75%). Majority of cases of rupture uterus were of complete type (96.25%). The most frequent site of rupture was in the anterior wall of lower segment in 68.75% of cases. The maternal mortality rate cases of rupture uterus were 3.75%.
Conclusions: Proper antenatal care and updated training courses of health care providers should be stressed to prevent this catastrophic but avoidable complication.

Keywords: Traditional birth attendant, Uterine rupture, Uterotonic drugs

INTRODUCTION

Uterine rupture is a grave condition which is almost fatal for fetus.[1] Several factors are known to increase the risk of ruptured uterus. These include poor socioeconomic condition, uncontrolled fertility, illiteracy, adolescent marriage and underdeveloped and contracted pelvis.[2] Uterine rupture during pregnancy is a rare occurrence, whereas uterine scar dehiscence is a more common event.[3] High maternal mortality and morbidity is a consequence of poor maternal care, inadequate socioeconomic and environmental condition, poor accessibility to health services and poor nutrition.[5] Injudicious use of oxytocin, use of prostaglandin for induction of abortion or labor, forcible external version under general anesthesia and fall or blow on the abdomen are known to increase the risk of uterine rupture during pregnancy.[4] Several studies suggest that for adequately screened women with prior caesarean section, a trial of labour is safer than elective repeat caesarean section in hospital environment.[6] But due to lack of health education, ignorance or poverty, women in our country do not come for regular antenatal checkup, preferring home delivery by traditional birth attendant, instead of coming to hospital for trial of scar. They are brought to hospital after prolonged dysfunctional labour when

traditional birth attendants fail to deliver them. This results in increased chances of rupture of previous caesarean scar.[7] The most common risk factor for the uterine rupture is previous uterine surgery.[8] Other major factors are obstructed labor, multiparity, use of uterotonic drugs, placenta percreta and rarely intrauterine manipulations such as internal podalic version and breech extraction.[9] Most cases present with maternal tachycardia, signs of fetal distress, and bleeding per vagina.[10] The objective of the study was to identify the risk factors for uterine rupture in labour, to report maternal and foetal outcome and to identify preventive measures.

METHODS

This study was conducted over a period from March 2014 to September 2015, in the Department of Gynaecology and Obstetrics, RIMS Ranchi, Jharkhand. Total number of deliveries conducted during this period was 10474. All cases of rupture uterus, who were either admitted with or who developed this complication in the hospital, were included in the study. Diagnosis was made on history and examination and was confirmed on laparotomy. These cases were analyzed with regard to their clinical presentation, past history complications, management and outcome.

The surgical procedure depended on general condition of the patients, parity, and desire for future child bearing, site, severity and extent of rupture. The surgical management comprised one of the three methods: repair of uterus without tubal ligation, repair with tubal ligation or hysterectomy. As this was an observational study, the approval from the Ethics committee of the hospital was not required. All patients were followed up until their discharge from the hospital.

RESULTS

The present observation was made on 80 cases of rupture uterus admitted in the department of obstetrics and gynaecology in RIMS Ranchi from March 2014 to Sept 2015.

Table 1: Incidence rate.

Total no of deliveries	Total no of rupture uterus	Percentage
10474	80	0.763

In Table 1, we observed the incidence rate of 0.763%.

It is evident from the present observation that the incidence of rupture uterus was more (97.5%) in cases who had no previous antenatal check-up at all.

Incidence of rupture uterus was negligible (2.5%) in cases who had antenatal check-up even in its minimum capacity.

Table 2: Incidence of rupture uterus in booked and unbooked population.

	No. of cases of ruptured uterus	Incidence
Booked	2	2.5%
Unbooked	78	97.5%
Total	80	100%

The Table 3 shows that the incidence of rupture uterus was more (92.5%) in rural population than urban (7.5%).

Table 3: No. of case of rupture uterus.

Type of population	No. of cases	%
Urban	6	7.5
Rural	74	92.5
Total	80	100

Table 4: Age distribution of cases of cases of rupture uterus.

Age	15-20	21-25	26-30	31-35	36 above
Total no. of cases	4	34	30	10	2
Percentage	5	42.5	37.5	12.5	2.5

It has been observed that majority (42.5%) of the patients were in the age group of 21 to 35 years.

Table 5: Distribution of cases according to parity.

Parity	0-1	2-3	4-5	>5	Total
Cases	3	51	20	6	80
Percentage	3.75	63.75	25	7.5	100

It is observed from the above table that most of the cases of the rupture uterus were para 2 to para 3.

Table 6: Distribution of cases according to period of gestation.

Period of gestation (weeks)	No. of cases of rupture uterus	%
16	1	1.25
30-34	4	5.00
35-37	32	40.00
38 onwards	43	53.75
Total	80	100

Table 6 shows high incidence of rupture uterus during 38 or more weeks of pregnancy.

It is observed from the Table 7 that the rupture of uterus is more common during labour (93.75%).

It is apparent from Table 8 that the rupture of uterus during pregnancy was rare. In maximum cases the cause

of rupture was congenital anomaly and previous caesarean section scar.

Table 7: Distribution cases of uterus occurring during pregnancy and or during labour.

No. of cases during pregnancy and labour	Total no. of cases of rupture uterus	%
Pregnancy	5	6.25
Labour	75	93.75
Total	80	100

Table 8: Distribution of cases according to the causes of the rupture uterus during pregnancy.

Causes of rupture uterus during pregnancy	Total no. case of rupture uterus
Congenital anomaly	2
Previously uterine scar	3

It is evident from the Table 9 that spontaneous rupture was the commonest type of rupture during labour incidence being (49.34%). Scar rupture was the next frequent cause.

Table 9: Causes of rupture uterus during labour.

Causes of rupture uterus in labour	No. of cases	%
Spontaneous	37	49.34
Scar rupture	34	45.33
Traumatic	4	5.33
Total	75	100

Table 10: Causes of spontaneous rupture during labour.

Causes of spontaneous rupture	No. of cases of rupture uterus	%
Malpresentation and malposition	16	43.24
Shoulder	2	5.41
Compound	1	2.70
Breech	3	8.11
Occipitoposterior	8	21.62
Grand multiparity with shoulder presentation	1	2.70
Grand multiparity with compound presentation	1	2.70
Contracted pelvis	8	21.62
Hydrocephalous	2	5.41
Manipulation by untrained dais	11	29.73
Total	37	100

From the Table 10, it is apparent that the spontaneous rupture was maximum with malpresentation and malposition (43.24%). This was followed by untrained dais (29.73%).

Table 11: Type of scar rupture during labour.

Type of caesarean section scar	No of cases of rupture uterus	%
Previous classical section scar	2	5.88
Previous lower segment scar	32	94.12
Total	34	100

It is evident from the Table 11 that the most of cases of previous caesarean section scar rupture during labour was lower segment caesarean section scar (94.11%).

Table 12: Causes of traumatic rupture.

Causes of traumatic rupture	No. of cases of rupture uterus	Percentage
Difficult ventouse delivery (outside RIMS)	1	25
Injudicious use of oxytocics	3	75
Total	4	100

It was observed from the Table 12 that traumatic rupture nowadays is becoming rare. The most common causes of traumatic rupture were injudicious use of oxytocics (75%).

Table 13: Distributor of cases according to type of rupture.

Type of rupture	No. of cases of rupture uterus	%
Incomplete	3	3.75
Complete	77	96.25
Total	80	100

Table 14: Distribution of cases according to the site of rupture as seen during laparoratomy.

Site of rupture	No. of cases of rupture uterus	%
Anterior lower segment	31	38.75
Anterior lower segment with bladder involvement	6	7.5
Lower segment with left lateral	13	16.25
Left lateral	8	10
Right lateral	5	6.25
Anterior lower segment with posterior wall	6	7.5
Only posterior wall	3	3.75
Lower segment with right lateral	5	6.25
Upper segment (fundus)	2	2.5
Anterior wall vertical	1	1.25

It is evident from Table 13 that majority of cases of rupture uterus were of complete type (96.25%).

It is apparent from the Table 14 that the most frequent site of rupture was in the anterior wall of lower segment in 68.75% of cases. Left lateral tear of lower segment was more common (26.25%) than right lateral tear of lower segment (12.5%). In 11.25% of cases posterior wall was involved. In 10% of cases left lateral wall and in 6.25% cases right lateral wall were involved.

Table 15: Clinical feature in cases of rupture uterus.

Clinical feature	No. of cases
General condition	
Pallor	70
Dehydration	10
Tachycardia	15
Hypotension	10
Cold clammy skin	08
Perabdominal examination	
Abdominal distension	20
Distended bowel loop	15
Absent foetal heart sound	78
Palpation of superfical foetal parts	74
Loss of uterine contour	74
Cessation of uterine contraction	75
Abdominal tenderness	56
Vaginal bleeding	19
Haematuria	40
Oliguria	10

In present observation, it was noted that the absent foetal heart sound was the commonest feature involved in 78 cases out of 80. Two patients with present foetal heart sounds had live babies and were the cases where a caesarean section was decided upon and on commencing incomplete rupture of the uterus was found at operation.

Palpation of superficial foetal parts was feature in 74 cases, uterine contour was lost in 74 cases and cessation of uterine contraction was elicited in 75 cases.

Abdominal tenderness was feature in 19 cases in the present series and was not seen when the presenting part was impacted.

Table 16: Amount of blood transfusion in cases of rupture uterus.

Amount of blood transfused	No. of cases
1 unit	9
2 unit	37
3 unit	21
4 unit	13
Total	80

It is evident from the Table 16 that 13 of these patients had to be given 4 units of blood. 21 patients whose condition was comparatively good were given 2 units of blood. Only 9 patients who were admitted with stable condition and had timely intervention needed I unit of blood.

Table 17: Surgical management in cases of rupture uterus.

Type of surgery	No. of cases	%
Hysterectomy	43	53.75
Subtotal	32	40
with bladder repair	05	6.25
Without bladder repair	27	33.75
Total	11	13.75
Repair of rupture		
With bilateral tubectomy	24	30.00
With bilateral tubectomy and bladder repair	1	1.25
Repair of tear	12	15
Total	80	100

It is apparent from the Table 17 that in majority of cases (53.75%) hysterectomy was done, as these cases showed ragged tears and were badly infected. In 25 cases, repair with ligation was done. In 12 cases, conservative approach with repair of tear was only done. In 6 cases, there was involvement of bladder also, bladder repair was done along with hysterectomy.

Table 18: Causes of maternal mobidity in cases of rupture uterus.

Maternal morbidity	No. of cases	%
Severe anemia	50	62.5
Renal failure	2	2.5
Wound infection	15	18.7
Peurperal sepsis	5	6.2
Burst abdomen	3	3.75
Peritonitis	2	2.5
Vesicovaginal fistula	3	3.75
Total	80	100

Major causes of morbidity were severe anaemia due to unavailability of blood bank services in the rural areas (62.5%). Variable degrees of wound infection were noted in 15 cases with burst abdomen in 3 cases. 3 cases (3.75%) developed vesicovaginal fistula.

Table 19: Incidence of maternal mortality in cases of rupture uterus.

Maternal death	Total no. of rupture	%
03	80	3.75

It is evident from Table 19 that the maternal mortality rate cases of rupture uterus were 3.75%.

It is observed from Table 20 that perinatal mortality in cases of rupture uterus was very high (97.5%).

Table 20: Incidence of perinatal mortality in cases of rupture uterus.

Time of foetal death	Total no. of cases	%
Still birth	78	97.5
Live birth	2	2.5
Total	80	100

DISCUSSION

The incidence of uterine rupture is reported as 0.012%.[11] With ready access to obstetric care including caesarean section for obstructed labor, rupture of the unscarred uterus should be rare.[9] If a gravid woman presents with hypotension, abdominal pain and fetal distress and vaginal bleeding, rupture uterus should be considered.[10] The frequency of uterine rupture in the present study was 0.763% in comparison to a study done by Ahmadi Set al, who had a figure of 0.038%.[12] Most of the women in this study were between the age group 21-35 years. Majority of patients (97.5%) were unbooked, compared to a study done by Rashmi et al figured as 80%.[13] Majority of the rupture occurred in Para. 2-3 This was similar to the study done by Rizwan N et al.[14] Most of the rupture occurred in labor (93.75%) and 6.25% occurred before labor as against the frequency reported by Nahum G (86% and 14%, respectively).[11] The lower segment uterine rupture was the most common site of rupture in this study (94.12%) which was comparable with the study done by Rizwan n et al (80%).[14] Mismanaged labor, use of oxytocics, obstructed labor, instrumental delivery, prostaglandin gel induction and placenta percreta were found to be the most common risk factors which was similar to the findings of Miller DA et al.[15] The increased risk of uterine rupture attributable to the use of oxytocin in multigravida with unscarred uteri is uncertain which was proposed by Nahum G.[11] In present study, rupture following use of oxytocin was found among 3 cases (75% of all cases of traumatic rupture). Maternal mortality was 3.75%. This was comparable with the study by Ahmadi et al in which it was 7.1%.[12] Maternal death was seen within 30 minutes after laparotomy in 1 case which was similar to a case report of Dane B et al.[16] In this study, perinatal mortality was 97.5 % which was more than that of the observation of Rashmi et al (78.66%) because of late referral from rural areas.[13] Sub-total hysterectomy was performed in 40% which was compared with the study done by Ahmadi S et al (32.1%).[12] In present study, repair of the rupture uterine site was performed in 25 patients.

CONCLUSION

Lack of antenatal care, inappropriate counseling of patients with history of previous caesarian section for hospital delivery, delivery by untrained dai, misuse of oxytocin and 3 delay in seeking management are the main cause of ruptured uterus in this study. Proper antenatal care and updated training courses of health care providers should be stressed to prevent this catastrophic but avoidable complication.

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REFERENCES

1. Kulkarni S, Patil S, Budihal D, Seetaram S. Rupture uterus: A10 years review. J Obstet Gynaecol. 1997;47:344-52.
2. Sieck CC. Vaginal birth after cesarean section: a comparison of rural and metropolitan rates in Oklahoma. Jokla State Med Assoc.1997;90:444-9.
3. Bashin A, Burstein E, Rosen S, Smolin A, Shiner E, Mazor M. Clinical Significance of uterine scar dehiscence in women with previous caesarean delivery: Prevalence and independent risk factors. J Reprod Med. 2008;53:8-14.
4. Dutta DC. Textbook of Obstetrics; Injuries to the birth canal; 4th ed;1998:454-66.
5. Dhaifalah I, Santavy J, Fingerova H. Uterine rupture during pregnancy and delivery among women attending the Al-thawra Hospital in Sana/A city of Yemen republic. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2006;150:279-83.
6. Jongen VH, Halfwerk MG, Bauwer WK. Vaginal delivery after previous cesarean section for failure of second stage of labor. Br J Obstet Gynaecol. 1998;105:1079-81.
7. Malik HS. Frequency, predisposing factors and fetomaternal outcome in uterine rupture. J Coll Physicians Surg Pak. 2006;16:472-5.
8. Walsh CA, Baxi LV. Rupture of the pimigravid uterus: a review of the literature. Obstet Gynaecol Surv. 2007;62(5):327-34.
9. WHO systematic review of maternal mortality and morbidity: the prevalence of uterine rupture. BJOG. 2005;112:1221-8.
10. Mazzone ME, Woolever J. Uterine rupture in a patient with an unscarred uterus: a case study. WMJ. 2006;105(2):64-6.
11. Nahum G. Uterine rupture in pregnancy. Medline. 2010;10.
12. Ahmadi S, Nouira M, Bibi M. Uterine rupture of the unscarred uterus. About 28 cases. Gynecol Obstet Fertil. 2003;31(9):713-7.
13. Rashmi, Radhakrishnan G, Vaid NB, Agarwal N. Rupture uterus- changing Indian scenario. J Indian Med Assoc. 2001;99(11):634-7.
14. Rizwan N, Abbasi RM. Uterine rupture, frequency of cases and fetomaternal outcome. JPMA. 2011;61:322.
15. Miller DA, Goodwin TM, Gherman RB, Paul RH. Intrapartum rupture of the unscarred uterus. Obstet Gynecol. 1997;89(5):671-3.

16. Dane B, Dane C. Maternal death after uterine rupture in an unscarred uterus: a case report. J Emerg Med. 2009;37(4):393-5.

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