

A Study on Risk Factors and Fetomaternal Outcome of Rupture Uterus in Tertiary Care Hospital

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Abstract

Objective: The aim of the study is to explore the various risk factors for uterine rupture and to evaluate the fetomaternal outcomes in these cases. *Methods:* This study was conducted at a tertiary care center during the period of 4 years between 1st January 2014 to 31st December 2017. Cases of uterine rupture were studied retrospectively regarding various risk factors via relevant history and operative findings. Thereafter fetal and maternal outcome were studied retrospectively. *Results:* Analysis of the study suggests that out of all deliveries during 4 years, 25 cases of rupture uterus were found. Various factors were studied. Study suggests that 52% rupture occurred in age group of 24-30. 88% uterine rupture occurred during gestational age >37 weeks. Highest 56% incidence found in second gravid and least 4% incidence was in primigravida. Previous 1 cs has highest 80% and previous 2 r more CS has lowest 4% incidence of rupture uterus. 64% uterine rupture occurred when labor was induced or augmented. 66.7% incidence found in previous CS without VBAC, 19% in cases with 3 or more VBAC, 9.5% in previous CS with 2 VBAC and least 4.8% incidence found in previous CS with 1 VBAC. Incidence of rupture uterus is highest 57.1% when previous CS before <2 years and the incidence subsequently decreases with increased duration of prior CS with least 19.1% when previous CS >4 years. There is 8% mortality occurred in cases of ruptured uterus in this study. Out of 25 cases, obstetric hysterectomy was done only in one case which is 4%. 28% cases had developed DIC. Out of 25 cases, 24% were stillbirths and 12% were motherside. 64% newborns were admitted to NICU. 40% newborns were discharged healthy and 24% newborns were expired. Overall fetal loss in ruptured uterus is 48%. *Conclusion:* Incidence is very much high in previous scar labor than in primigravida or previous normal delivery. Chances of rupture increase with early conception after scar delivery, grand multiparity, induction or augmentation of labor, numbers of VBAC and late gestational age. Age of pregnant women is not affecting the incidence of uterine rupture. Maternal mortality and incidence of obstetric hysterectomy is rare but fetal mortality and morbidity is high in case of ruptured uterus.

Keywords: Rupture of Uterus; Previous CS; VBAC; Hysterectomy; Maternal Mortality.

Introduction

Uterine rupture is a rare catastrophic obstetric condition which has grave fetomaternal outcome. Complete uterine rupture is separation of entire thickness of uterine wall with extrusion of fetal parts to peritoneal cavity [5].

Incidence of primary uterine rupture was prevalent before 1960 due to decrease rate of caesarean section and high rate of multipara pregnancy and home deliveries. Now a days, rate of uterine rupture is increased due to increased rate of caesarean sections and subsequent trial of labor [1].

Risks of uterine rupture includes previous uterine scar, obstructed labor, cephalo pelvic disproportions, grand multipara, augmentation of labor, external trauma etc.

Maternal and fetal condition deteriorate suddenly and lead to grave complication like DIC, massive hemorrhage, obstetric hysterectomy, maternal mortality and morbidity, sudden intrauterine fetal death, NICU admissions, late neurological sequelae etc.

Materials and Methods

The study was carried out in tertiary care center, guru gobind singh hospital and medical college, Jamnagar from 1st January 2014 to 31st December 2017. In this study, total number of deliveries in 4 years were covered. Among these, cases of rupture uterus were retrospectively studied via relevant history and operative finding. Factors like Age, gravidity, gestational age, previous scar and subsequent deliveries, induction of labor or spontaneous labor were covered. Retrospectively, fetal and maternal outcomes were studied. In this, maternal mortality, obstetric hysterectomy, DIC, fetal death and NICU admissions were covered.

Inclusion criteria

All cases of rupture uterus at GGH, Jamnagar during 1st January 2014 to 31st December 2017. irrespective of fetomaternal outcome.

Exclusion criteria

- 1) Uterine rupture before 28 weeks of pregnancy.

Observation and Discussions

Maximum numbers of rupture uterus occur in age group 24-30 and least incidence in 18-24 age group.

This observation is comparable to the study done by kenichiro motomura [2] in the year 2017 (Table 1).

Incidence of uterine rupture increases with gestational age. These observations are similar to that of study done by kenichiro motomura [2] (Table 2).

Highest incidence of uterine rupture found in second gravid patients and least incidence is found in primigravida. This finding is similar to that of study done by dr. Sunanda N. at cheluvamba [3] hospital, mysore in the year 2016 (Table 3).

Study is suggestive that previous 1 CS in very much a risk factor for uterine rupture, whereas there is less incidence of rupture uterus in previous 2 or more CS. This is similar to the study done by dr. Sunanda N [3]. in year 2016. these findings are contradictory to the theory but that's mostly because of timely elective caesarean section and no trial in previous 2 or more scars (Table 4).

Table 1. Age wise distribution of cases

Age	Number (N=25)	Percentage
18-24	4	16%
24-30	13	52%
>30	8	32%
Total	25	100%

Table 2: Distribution according to Gestational Age

Gestational Age (in weeks)	No. of cases(n=25)	Percentage in present study
28 to 34	0	0%
34 to 37	3	12%
>37	22	88%
Total	25	100%

Table 3: Distribution of cases as per Gravidity

Gravida	Number (N=25)	Percentage
1	1	4%
2	14	56%
3	3	12%
4	5	20%
5 and above	2	8%
Total	25	100%

Table 4: Distribution of cases according to history of previous cesarean section

Past obst. history	No. of cases	Percentage of present study
No previous CS	4	16%
Previous CS	20	80%
Previous 2 or more CS	1	4%
total	25	100%

There is increased risk of rupture uterus in cases with induction or augmentation of labour than spontaneous rupture (Table 5).

VBAC itself didn't increase chances of rupture compare to NO VBAC. Increase prior VBAC increase the risk of rupture uterus. According to the study done by David M. Stamilio [4] in the year 2008, there is no increased risk with increased number of VBACs (Table 6).

There is decrease in risk of uterine rupture with subsequent increase in duration from last scar. There is 57% chances of rupture in previous scar before 2 years (Table 7).

There is 8% mortality occurred in cases of ruptured uterus in this study. In study done by dr.Sunanda N. [3] mortality was 10% (Table 8).

Out of 25 cases, obstetric hysterectomy was done only in one case which is 4%. 28% cases had developed DIC in uterine rupture (Table 9).

Out of 25 cases, 24% were stillbirths and 12% were motherside. 64% newborns were admitted to NICU. 40% newborns were discharged healthy and 24% newborns were expired. Overall fetal loss in ruptured uterus is 48% (Table 10).

Table 5: distribution of cases according to wheather rupture was spontaneous or following augmentation of labor.

Risk factors	No. of cases	Percentage in present study
Spontaneous rupture	9	36%
Augmentation or induction	16	64%
total	25	100%

Table 6: Distribution of cases according to VBAC

	No. of cases (n=10)	Percentage
No VBAC	14	66.7%
1 VBAC	1	4.8%
2 VBAC	2	9.5%
3 or more VBAC	4	19%
total	21	100%

Table 7: Distribution of cases according to duration since last scar

	No. of cases	Percentage
<2 yrs	12	57.1%
2-4 yrs	5	23.8%
>4yrs	4	19.1%
total	21	100%

Table 8: Maternal mortality in ruptured uterus cases

	No. of cases	Percentage
Maternal mortality	2	8%

Table 9: obstetric hysterectomy and DIC in ruptured uterus

	No. of cases	Percentage
Obstetric hysterectomy	1	4%
DIC	7	28%

Table 10: fetal outcomes in ruture uterus

A.		
	No of cases	Percentage
Stillbirths	6	24%
NICU admissions	16	64%
Motherside	3	12%
Total	25	100%

B.		
NICU admissions	No of cases	Percentage
Discharged	10	40%
Expired	6	24%
Total	16	64%

Conclusion

As per this study over 4 years, results suggestive that incidence of rupture uterus is more or less related to the factor previous scar. In this duration of previous scar, number of scar, vaginal delivery after scar and its numbers significantly affect the incidence of rupture uterus.

Incidence is very much high in previous scar labor than in primigravida or previous normal delivery. Chances of rupture increase with early conception after scar delivery, grand multiparity, induction or augmentation of labor, numbers of VBAC and late gestational age.

Age of pregnant women is not affecting the incidence of uterine rupture.

This retrospective study suggests that proper antenatal and postnatal counselling regarding contraception and spacing between deliveries, cautious practice of induction and augmentation of labor specially in previous scar, timely elective caesarean in case of multiple scar uterus should be done to reduce the risk of rupture of uterus.

In Rupture of uterus, maternal mortality is not that much high but morbidity and increase chances of DIC is there. Obstetric hysterectomy is rare but should be keep in mind as a life saving procedure in uncontrollable haemorrhage. Fetal morbidity is mostly present more or less in case of rupture uterus. Fetal loss is as high as 48%. Prompt NICU care can improve fetal outcome.

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