

Analysis of Uterine Rupture in Pregnancy at a Tertiary Care Hospital

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ABSTRACT

Aims: To analyze patients with uterine rupture in pregnancy.

Methods: This was a cross-sectional retrospective study undertaken at Paropakar Maternity and Women's Hospital. Two years' medical records of uterine rupture between 14 April 2017 and 13 April 2019 were reviewed. Information on patient characteristics, age, parity, mode of previous deliveries, onset of labour spontaneous or induced, type and site of rupture, maternal and perinatal outcome, management and complications associated with it were retrieved and was analyzed using SPSS version 16.0.

Results: Among 29 uterine rupture cases, majority of cases occurred in 25-29 years (48.3%), para1 (79.3%) and unbooked cases (72.4%). Most of them occurred in previous scar 23(79.3%); rupture was complete in 13 and incomplete in 10 cases. Six (20.6%) were unscarred uterine rupture. Rupture repair was done in 24(82.7%) and peripartum hysterectomy (subtotal hysterectomy) in 5(17.2%) cases. The most common complications were postpartum hemorrhage (55.2%), hospital stay >7 days (55.2%), blood transfusion (48.3%) and ICU admission (41.3%). There was no maternal mortality. Perinatal death was 15 (51.7%)-13 stillbirths and 2 neonatal deaths.

Conclusions: Majority of the uterine rupture occurred in previous scar (79.3%). Most of the cases underwent repair of the uterus (82.7%) and remaining were peripartum hysterectomy (17.2%). There was no maternal mortality. However, perinatal mortality occurred in 51.7%.

Keywords: peripartum hysterectomies, previous scar, repair of uterus, uterine rupture.

INTRODUCTION

Uterine rupture is one of the life threatening obstetric complications with grave sequelae to both mother and the fetus. Incidence of rupture uterus varies from 0.3/1000 to 7/1000 deliveries in India accounting for 5-10% of all maternal deaths.¹ 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. Maternal mortality as a consequence of uterine rupture occurs at a rate of 0-1% in developed and 5-10% in developing countries.²

Uterine rupture is classified as either complete or incomplete. In complete uterine rupture, all the layers of the uterine wall are separated with or without expulsion of the fetus or placenta. In incomplete uterine rupture, there is separation of the uterine muscle, but the visceral peritoneum is intact.³

In a WHO systematic review of maternal mortality and morbidity, the prevalence of uterine rupture in previous cesarean section was found to be 1%.² Most common causes of uterine rupture include previous scar giving way. Other causes like obstructed labour, injudicious use of oxytocics, previous myomectomy scar, uterine anomaly, direct trauma to uterus and rarely concealed abruption can also cause uterine rupture. Maternal outcome mainly depends on the integrity of previous scar, cause and site of rupture, interval between rupture and surgery, prompt referral and early detection and management. High perinatal mortality of 80-95% is seen in these cases.⁴

The purpose of this study is to analyze patients' characteristics with uterine rupture in pregnancy.

METHODS

This was a cross-sectional retrospective study performed at Paropakar Maternity and Women's

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Hospital (PMWH), Thapathali, Kathmandu. Ethical approval was taken from the hospital IRC. The medical records of uterine rupture in pregnancy were reviewed from April 14, 2017 to April 13, 2019. The charts were collected from medical record section. Data pertaining patient characteristics, age, parity, mode of previous deliveries, onset of labour spontaneous or induced, type and site of rupture, maternal and perinatal outcome, management and complications associated with it were retrieved and was analyzed using SPSS version 16.0.

RESULTS

A total of 29 cases of uterine rupture in pregnancy were recorded in two years. During this period, total number of deliveries was 39607 including 11269 Cesarean Sections. The rate of cesarean section in this hospital during the study period was 28.4%. The incidence of uterine rupture was 0.07%. Majority of ruptures were in age group of 25-29 years, multipara and scarred uterus [Table-1].

Table-1: Characteristics of patients (n=29)

Characteristics	N (%)
Age (years)	
15-19	1(3.4)
20-24	7(24.1)
25-29	14(48.3)
30-34	4(13.8)
35-39	3(10.3)
Parity	
P0	1(3.4)
P1	23(79.3)
P2	4(13.8)
P3	1(3.4)
Booking status	
Booked	8(27.6)
Unbooked	21(72.4)
Status of uterus	
Previous scarred uterus	23(79.3)
Previous unscarred uterus	6(20.6%)

Regarding unscarred uterine rupture, four cases presented to emergency department, each presented with fetal distress, vaginal bleeding, hanging breech and septic shock. Of the remaining, one was induced with Misoprostol and another had precipitate labour.

Besides six unscarred uterine rupture 23 had past Cesarean Section. Among previous scarred uterus, previous one lower segment cesarean section (LSCS) were 20 cases and previous two LSCS were 3 cases; and 13 had complete rupture and 10 with incomplete rupture.

Repair of rupture was done in 24 (82.7%) and peripartum hysterectomy (subtotal hysterectomy) in 5 (17.2%) cases. Among twenty four cases of uterine repair five underwent bilateral tubal ligation as well.

Common complications were postpartum hemorrhage (PPH), prolonged hospital stay, blood transfusion and ICU admission [Table-2].

Table-2: Complications

Complications	n(%)
Postpartum hemorrhage (PPH)	16(55.2)
Hospital stay >7 days	16(55.2)
Blood transfusion	14(48.3)
ICU admission	12(41.3)
Peripartum hysterectomy	5(17.2)
Bladder injury	2(6.9)
Septicemia	1(3.4)

There was no maternal mortality. Perinatal mortality was 15 (51.7%); 13 were stillbirth and 2 neonatal deaths (NND) both weighing 1100 grams.

DISCUSSION

The incidence of uterine rupture in this study was 0.07% which was similar to a study by Sinha et al.⁵ (0.06%).

Majority of the cases were in the age group of 20-29 years (72.4%) which was similar to the study by Sahu et al.¹ (73.1%). Most of them were parity one (79.3%) which was in contrary to other studies done by Pritam et al.⁶ and Beck et al.⁷ where rupture was seen in multiparity. This could be because this study had more of previous scar ruptures.

In this study, 21 (72.4%) were unbooked cases which was comparable with Kalewad et al.³ and Pritam et al.⁶ which showed 65.3% and 77.1% respectively.

Rupture of previous cesarean scar was the most common cause of uterine rupture (79.2%) which was similar (80%) to the study conducted by Sunanda et al.⁸ Various other studies^{1,3,6} also revealed the scar rupture as the most common cause revealing 50.6%, 66% and 48.5% respectively. In this study, among the previous cesarean scar, 13/23 were complete rupture and 10/23 were incomplete rupture. Ahmed et al.⁹ observed 76 complete rupture and 10 incomplete ruptures and Admassu¹⁰ observed 62 complete rupture and 8 incomplete ruptures depicting more of complete ruptures in these studies.

Regarding unscarred uterine rupture in this study,

most of them were spontaneous ruptures and reached the hospital late, another was malpresentation with fetal congenital anomaly (hydrocephalus) presented with hanging breech and the next was induced with misoprostol. Spontaneous rupture and late arrival at hospital was also seen in the study by Beck et al.⁷ Spontaneous rupture was also the commonest type observed in Naik et al¹¹, Amanael et al¹² and Khan et al¹³ studies. Obstructed labour, malpresentation and multiparity were the leading causes of uterine rupture in studies conducted by Diab¹⁴ and Ezechi et al.¹⁵

In this study, most of the cases of uterine rupture underwent repair 24(82.7%) and peripartum hysterectomy (subtotal hysterectomy) in 5(17.2%) cases. This is comparable to various other studies by Kalewad et al³ (66.6%/21%), Pritam et al⁶ (54.2%/20%), Sunanda et al⁸ (75%/25%), and Sahu et al¹⁶ (53.83% repair), where repair was the commonest than the peripartum hysterectomy. However, Beck et al⁷ study had more of peripartum hysterectomy (53.5%) than the uterine repair (15%).

In this study, peripartum hysterectomy (17.2%) was lower than Pritam et al⁶ study and slightly lower than Sunanda et al⁸ accounting for 45.7% and 25% respectively, as majority of the rupture occurred in previous cesarean section and most of them were reparable. In this study, bladder injury was 6.9% which was similar to study by Beck et al⁷ (6.2%), however, higher incidence was seen in Pritam et al⁶.

Sunanda et al⁸ and Rizwan et al¹⁷ revealing 14.2%, 30% and 21.1% respectively. Other complications like PPH (55.2%), blood transfusion (48.3%) and ICU admission (41.3%) were seen which were higher than in Kalewad et al³ study depicting 5.8%, 14.5% and 5.8% respectively as in this study, most of the cases were unbooked and arrived late in the hospital. Hospital stay of >7 days was 55.2% in this study because of prolonged use of catheterization, wound infection and development of post partum gestational hypertension. This finding was slightly higher than in Sunanda et al⁸ study (45%).

Fortunately, there was no maternal mortality during the study period. However, different studies^{6-8,16} depicted 11.4%, 3.75%, 10% and 3.8% respectively. Perinatal mortality in this study was 51.7% as most of the cases were IUFD. In a study by Sunanda et al,⁸ it was 35% while much higher perinatal mortality was seen in other studies^{6,7,16} revealing 85.7%, 97.5% and 100% respectively.

CONCLUSIONS

Majority of the uterine rupture occurred in previous scar (79.3%). Most of the cases underwent repair of the uterus (82.7%) and remaining were peripartum hysterectomy (17.2%). There was no maternal mortality. However, perinatal mortality occurred in 51.7%.

Conflict of interest: None

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