Analysis of Uterine Rupture in Tertiary Care Centre

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ABSTRACT

Uterine rupture has continued to be a catastrophic feature of obstetric practice especially in the low-resource settings. This study was aimed at determining the incidence, predisposing factors, treatment options and feto-maternal outcome of ruptured uterus. A 2-year retrospective study of all cases of uterine ruptures that were managed in Universal College of Medical Sciences Teaching Hospital, Bhairawaha, Nepal between 1st January, 2011 and 31st December, 2012 was undertaken. A total of 38 uterine ruptures were managed during the study period out of 7608 deliveries in the institution giving the hospital incidence of 1 in 200 deliveries. A total of 15 patients had cesarean scars and the rest were unscarred uteri. Obstructed labor was the commonest precipitating factor causing uterine rupture (36.8%).Complete uterine rupture was seen in 24 patients. Anterior rupture was common in the scarred (13/15) whereas lateral rupture was more common in unscarred uteri (16/ 23). Repair was possible in 25 cases. Maternal mortality was 5.8% and perinatal mortality was 63.9%, both of these were higher in the unscarred group. Ruptured uterus is a common obstetric emergency and is associated with high maternal and perinatal morbidity and mortality. It is however preventable when the quality of antenatal care, intrapartum care and medical facilities are improved.

Keywords:Uterine Rupture, Scarred, Unscarred.

INTRODUCTION

Uterine rupture during pregnancy is a rare event but is a life threatening obstetric catastrophe leading to maternal and perinatal morbidity and mortality.[1,2] The overall incidence of uterine rupture globally is 1 per 1406 pregnancies (0.07%).[3] The incidence in western world ranges from 1 in 1148 to 1 in 2250 deliveries and it is reported to be as high as 1 in 112 deliveries in Nepal.[1,4]

According to the WHO report approximately 585, 000

women die each year due to pregnancy related causes, 98% of them in the developing countries.[3] The incidence of maternal mortality due to uterine rupture is 5.3% in hospitals across Nepal and as high as 10.3% and 16% in central African countries.[5-9] High incidence of uterine rupture in developing countries is attributed to illiteracy, unawareness, poverty, social, cultural, religious beliefs and more importantly inadequate basic health facilities and even lack of proper antenatal care.[9] The normal unscarred uterus is least susceptible to the uterine rupture as compared to the scarred one.[1] Grand multiparity, neglected labor, malpresentation, breech extraction, uterine instrumentation is predisposing factor of uterine rupture.[1, 2] Even those mothers who escape death due to uterine rupture are left to suffer morbidities such as wound infection, genital sepsis, burst abdomen and even have to lose their future fertility.[8,10] Against this background our study aims to find out the incidence, causes, treatment options, maternal and perinatal outcome of uterine rupture in pregnancy in this part of the country.

MATERIALS AND METHODS

A two-year retrospective study of case records on ruptured uteri from 1st January 2011 to 31st December 2012 was done at Universal College of Medical Sciences and Teaching Hospital, Bhairawaha. The information on the total number of deliveries, number of ruptured uteri and subsequent management of mother and babies were thoroughly scrutinized from records of the delivery room, medical record section, baby care unit and obstetric wards. Out of 7608 deliveries during the study period 38 cases of uterine rupture were encountered. Data was analyzed in terms of incidence, age, parity, gestational age, type and site of the rupture, its causes and operativetreatment. The maternal and fetal outcomes were also analyzed. Permission was taken from the Hospital ethical committee.

RESULTS

A total of 38 uterine rupture were managed during the study period out of 7608 deliveries in the institution giving the hospital incidence of 0.5% (1 in 200 deliveries). A total of 23 cases of uterine rupture was seen in unscarred and 15 were seen in

the scarred uterus. (Fig 1)

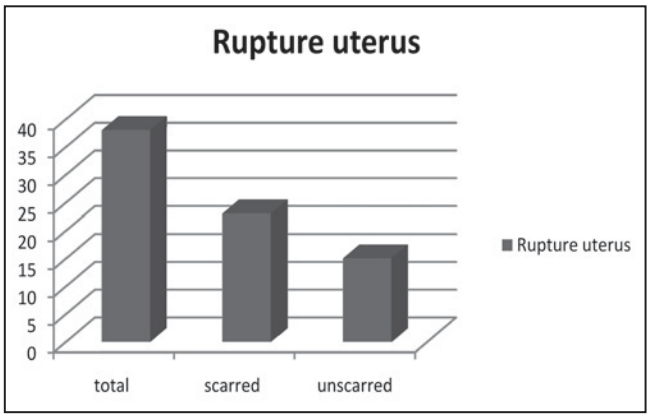

Fig 1. No. of rupture uterus

Age of the patients ranged from 20 to 40 years. Patient aged 31-40 years have the highest incidence of uterine rupture (81.5%). The oldest individual was 45 years and the youngest was of age 20 years. (Fig 2)

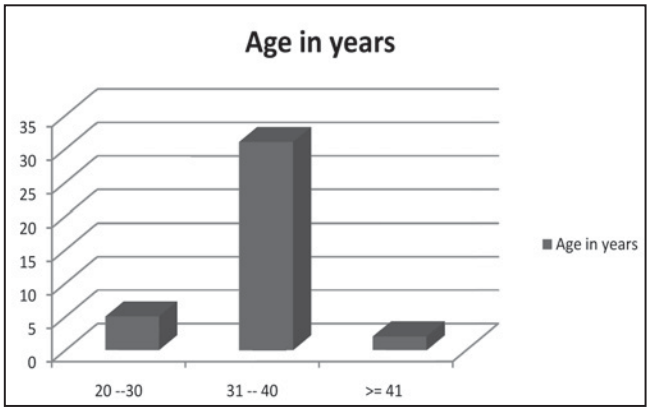

Fig 2. Age Distribution.

The highest incidence of unscarred uterine rupture was seen in the multiparous patient. Maximum patient being in 4th gravid. (Table 1)

Table 1. Parity

Parity	Unscarred Uterus	Scarred Uterus	Total
1	-	-	-
2	-	9	9
3	6	2	8
4	10	3	13
5	6	1	8
6	1	-	1
Total	23	15	38

Only 2 (5.2%) of the patient were registered for the antenatal care, rest 36(94.7%) did not have any sort of antenatal care. The obstructed labor is the commonest precipitating factor causing uterine rupture in our study followed by grandmultiparity. (Table 2)

Table 2. Causes of uterine rupture

Causes	Unscarred	Scarred	Total
Obstructed labor	10	4	14
Grandmultiparity	7	1	8
Instrumental delivery	2	5	7
Oxytocics	1	--	1
Placenta percreta	1	--	1
Malpresentations	2	1	3
Silent scar dehicense	--	3	3
Total	23	15	38

Complete uterine rupture is seen in 24 patients (17 in unscarred and 7 in scarred) where as incomplete uterine rupture is seen in 14 patients (6 in unscarred and 8 in scarred). Anterior rupture was common in the scarred (13/15) whereas lateral rupture was more common in unscarred uterus (16/ 23). (Table 3)

Table 3. Site of Rupture

Site of rupture	Unscarred	Scarred	Total
Anterior	5	13	18
Lateral	16	2	18
Fundal	2	--	2
Total	23	15	38

Various types of surgical procedures were performed to the patient with the uterine rupture. (Table 4)

Table 4. Type of surgical procedure performed

Surgical procedure	Unscarred	Scarred	Total
Repair	4	3	7
Repair with tubal ligation	8	10	18
Subtotal Hysterectomy	2	1	3
Total Abdominal Hysterectomy	9	1	10
Total	23	15	38

Total abdominal hysterectomy was needed in 10 patients (9 in unscarred and 1 in scarred) whereas repair and tubal ligation was possible in 18 patients (8 in unscarred and 10 in scarred uterus).There were only 2 (5.8%) maternal mortality whereas PPH lead the list as the morbidity followed by surgical site infection (SSI). (Table 5)

Table 5. Maternal Morbidity & Mortality

		Unscarred	Scarred	Total
Morbidity	PPH	19	6	25
	Septicemia	2	1	3
	Urinary bladder injury	2	4	6
	VVF	1	--	1
	SSI	5	6	11
Mortality		2	0	2

A total of 14 patient had live birth. Rest had still birth with the perinatal mortality of 63.9%. (Table 6)

Table 6. Perinatal outcome.

Perinatal Outcome	Unscarred	Scarred	Total
Still birth	17	7	24
Live birth	6	8	14
Total	23	15	38

DISCUSSION

Rupture of gravid uterus is one of the life threatening complications encountered in the obstetric practice which leads to maternal and perinatal mortality and morbidity.[1, 2] According to WHO, 585, 000 women die each year due to pregnancy related complications.[3] Less than 1% of these deaths occur in developed countries.[3] The incidence of rupture of gravid uterus in our study is 4.99 in 1000 deliveries (1 in 200 deliveries). Chuniand Padhye from Nepal also found similar incidence in their study.[1,11] This incidence is similar to that reported by Aboyeji *et al* (1 in 210),[9] but higher than that reported from Central India (0.62 per 1000 births), West Africa (1.2 per 1000 deliveries), Ghana (2.4 per 1000 deliveries) and other countries in Asia, Africa and Middle East.[6-10, 12-16] The incidence reported from US is 1 in 16849 deliveries, Singapore is 1 in 6331 deliveries and Ireland is 1 in 4366 deliveries which is far less than our study.[17,18,19] Many reasons have been advanced for the high incidence of uterine rupture in the developing countries. Poverty, ignorance, illiteracy, traditional practice, cultural beliefs, poor transportation facilities and most of all limited and unapproachable health facilities being the contributing factors.[1,2] The reason for the high incidence in Nepal is that approximately 70 % of birth takes place at home.[20] Although there has been establishment of local health care facilities, it is not being used by the general population due to unawareness and diffi culty in approaching to such places.[20] Our study showed that 94.6% of the patient did not avail antenatal care of any kind. In Nepal, less than half of all pregnant women receive antenatal care and less than 35% of births are attended by trained service provider.[21] The reason for this may be economic, difficult geographic terrain, cultural beliefs.[22-25] Institutional problem may be absteenism, minimal staff support, lack of medicine and equipment and defi ciencies in referral system.[25] The age and parity distributions were similar to the report from Nigeria.[2] Similar was reported by Padhye S.[11] Incidence of uterine rupture was highest in Para 4 and Para 5 groups. This is similar to study in Nigeria.[2] The nulliparous uterus has been described as being 'virtually immune to rupture', especially before the onset of contractions.[2] None of the patients in our study was nulliparous, which supports the above saying. The commonest antecedent factor leading to uterine rupture in our study was obstructed labor with higher incidence in the unscarred group (43.47%) where as oxytocin contributed maximally to the scarred group (3.33%). Similar findings were noted in the study done by Chuni.[1] Earlier studies also had similar findings.[11]

Thirteen patients (34.2%) needed hysterectomy which is almost similar to that reported by Padhye in her 20 years review.[11]Chuni reported the need of hysterectomy in 63.5% [1]of the patient which is much higher that we observed in our study. A study done in Japan reported 0.014% hysterectomy and 0.5 hysterectomy per 1000 deliveries was reported from Jordan which is much lower than that observed in our study.[25, 26] Incidence of lateral wall rupture was higher in unscarred uterus necessitating hysterectomy in 11 patients where as anterior site rupture was seen more in scarred uterus and repair could be done in most of the cases.

Morbidity was also higher in the unscarred uteri and long term morbidity in the form of vesicovaginal fistula correlated with the higher incidence of obstructed labor in these patients. Similar reports was obtained by earlier studies in Nepal.[1, 11]

Maternal mortality rate was 5.2%. The incidence reported was similar to that stated by Nepal Maternal Mortality and Morbidity review 2008.[5] Padhye reported the mortality to be 7.9%[11] and Kumari *et al* 8% maternal mortality which is little higher than our study.[27] The maternal mortality rate in our study was less than that reported in Nigeria (16.3%) by Igwegbe *et al* and Chuni(13.5%) from eastern Nepal.[1,2] Overall perinatal mortality was found to as high as 63.15% which is comparable to that reported by Padhye, Kumari *et al* and by Chabra *et al* (68%).[10,11,27] Perinatal and Maternal morbidity and mortality was higher in the unscarred group as compared scarred group. Poor prognosis in unscarred group, higher incidence of obstructed

labor and grandmulitparity highlights the facts that untrained birth attendants give a longer trail in these patients whereas patient with previous caesarean section sought delivery in hospitals or was referred to tertiary care hospital much earlier.[1]

Uterine rupture constitute a major Obstetric emergency has potentially catastrophic implications for both mother and the baby. Caesarean section rate are rising and hence a concomitant rise in incidence of uterine rupture is expected. There is a dire need of antenatal care and skill birth attendants during delivery and this should be emphasized through health education. Patients with scarred uterus must be adequately counseled on the need of hospital delivery in their subsequent pregnancy. Caution should be exercise with the use of oxytocin especially during the augmentation of poorly progressing mulitparous women and those with prior C-section. Finally, most of the cases of uterine rupture are preventable. Strategies should be aimed at improving the access to health care services and provision of resources to deal with obstetric emergencies. Timely diagnosis and to institute swift and appropriate intervention would help to save the life of mother and babies.

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