Original Article

Incidence, Risk Factors and consequences of Rupture of Unscarred Uterus: Experience in a Tertiary Referral Hospital

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ABSTRACT:

Introduction: *Uterine rupture is an uncommon but potentially fatal complication of pregnancy and labour.* ***Objectives:*** *The aim of this study is to identify the etiology of rupture of unscarred uterus & outcome of pregnancy.* ***Materials & Methods:*** *A retrospective study was carried out in Obstetrics and Gynaecology Department of Dhaka Medical college & Hospital over a period of two years. (July 2003 to June 2005).* ***Results:*** *There were 54 cases of rupture of unscarred uterus. The common aetiological factors of rupture were obstructed labour (68.51%), injudicious use of oxytocin (59.25%), mal-handling by dai (50%). Shock was a prominent presenting feature (46.29%). Subtotal hysterectomy was done in 66.66% cases. Common postoperative complications were paralytic ileus (35.29%), shock (19.60%), wound infection (9.86%). Maternal mortality was 12.96% & perinatal mortality was 100%.* ***Conclusion:*** *The incidence of rupture of unscarred uterus is still high in Bangladesh. High parity, illiteracy and ignorance coupled with inadequate maternity services, injudicious use of oxytocics were identified as risk factors for rupture of unscarred uterus. This type of rupture is a potentially devastating complication that threatens the life of the foetus and mother. Necessary steps can reduce the incidence & outcome of rupture of unscarred uterus.*

Key Words: *Uterine rupture, Unscarred uterus, Obstructed labour.*

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INTRODUCTION:

Uterine rupture is an uncommon but potentially fatal complication of pregnancy and labour. Dissolution in the continuity of the uterine wall at any time beyond 28 weeks of pregnancy is called rupture of uterus. The condition usually occurs during the course of labour; although occasionally it can happen in later weeks of pregnancy, when uterus is scarred. Rupture of a previously unscarred uterus is becoming a rare event in the developed countries,

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however it is quite present in the developing countries of Asia and Africa. It is especially prone to occur in women of grand multi-parity, particularly when associated with disproportion and /or oxytocin induction or augmentation of labour. Spontaneous ruptures are virtually always intrapartum and characteristically involve the lower uterine segment. As there is no confined weak area, the scar may progress and involve vital adjacent organs leading to more serious complications. Eastman in a review of four studies reported a maternal mortality of 20% to 40% contrasted with 3% after rupture of a caesarean section scar.[1]

Objective of the study was to evaluate the cases of rupture of unscarred uterus, to identify the etiology and outcome of pregnancy.

METHODS AND MATERIALS:

It is a retrospective observational study that was carried out from July 2003 to June 2005 (2 years). Sample size was 54 (fifty-four). Out of all obstetric patients admitted in different maternity units of Dhaka Medical College Hospital, a total of 54 cases of rupture of unscarred uterus were found and selected purposively for the study.

All necessary information was collected from previous records obtained from record room, DMCH, and noted in a predesigned data collection sheet. Patients' files were searched and information were then extracted and recorded. All the case sheets collected were reviewed thoroughly. Babies record we also noted from maternity ward record and from Neonatal unit record.

Approval for the study was obtained from the authority of Bangladesh college of physicians and surgeons. Permission was obtained from the Director of DMCH to work in the record room. Finally, the findings were compiled and necessary statistical analysis were done using SPSS version 15. The results are shown in different tables.

RESULTS:

There were 12362 deliveries in Dhaka Medical College Hospital from July 2003 to June 2005, of which 54 cases were rupture of unscarred uterus giving an incidence of 1 in 228 deliveries. Majority 25 (46.3%) of the patients of group belonged to 26-30 years, next in order is 31-35 years' age group 23 (42.6%). Only 2 was <26 years and 4 was >36years. Mean age was 35$\pm$6.18years. Mean parity was $\pm$ SD 3.7 $\pm$2.2, none was nulliparous, rest are as follows.

Table-I: Parity Distribution of Patients (n=54)

Parity	No of Patients	Results(%)
1	8	14.82
2	12	22.22
3	16	29.63
4	8	14.82
5>5	10	18.51

Grand multi-parity was 33.33%. Regarding educational status 55% (30) were illiterate, 20 had completed primary education and only 4 had education bellow SSC.

Table-II: Distribution of antenatal check-up (n=54)

Antenatal check up	No of patients	Percentage
Un-booked	31	57.40
Booked	23	42.60
	0	0
Regular		
	12	22.22
Irregular		
Not recorded	11	20.38

More than half of the patients were un-booked cases. The common etiological factors of rupture of unscarred uterus found were obstructed labour (68.51%), injudicious use of oxytocin (59.25%) mal-handling by dai (50%). Shock was a prominent presenting feature (46.29%), followed by respiratory distress, chest pain, abdominal pain. Complete rupture was present in 48 (94.12%) cases and incomplete rupture in 3 (5.88%) cases, 3 Patients died undelivered

Table- III: Per-operative Findings (n=51)#

Per-operative Findings	No of Patients	Percentage
Upper segment rupture	3	5.88
Lower segment rupture	48	94.11
Broad Ligament haematoma	6	11.76
Bladder Rupture	7	13.72
Extension of rupture to-		
Anteroloteral wall	34	66.66
Posterior wall	9	17.64
Cervix	8	15.68
Vagina	5	9.80

#3 Patients died undelivered

Table- IV: Types of Surgery (n-51) #

Type of Surgery	No of Patients	Percentage
Subtotal hysterectomy	34	66.66
Total hysterectomy	3	5.88
Repair of uterus	10	19.60
Repair with tubectomy	4	7.84

#3 Patients died undelivered

Among 54 Patients 51 were operated. 3 Patients died before operation. Subtotal hysterectomy was done in Majority (66.66%) of cases. Four patient died after operation giving a maternal mortality rate of 12.96%. Common postoperative complications were paralytic ileus (35.30%), shock (20%), wound infection (10%), others are burst abdomen (4%), UTI and Renal failure. All the babies born were

either stillborn or died within seven days of birth leading to perinatal mortality of 100%.

DISCUSSION:

This study was conducted in DMCH which is a tertiary referral teaching hospital. Here the incidence of rupture of unscarred uterus was 1 out of 228 deliveries. In a prospective study done by Parveen K in DMCH, there were 26 cases of rupture of unscarred uterus found in total 65 cases of ruptured uterus among 6313 deliveries giving the incidence of 1 in 242 deliveries.[2] In her study scar rupture was the commonest cause (60%) of rupture uterus followed by obstructed labour (27.69%). Study by Nadira in MAG Osmani Medical College Sylhet (1997-1998) showed 51 cases of rupture of unscarred uterus found in total 68 cases of ruptured uteruses among 3991 deliveries giving the incidences of 1 in 78 deliveries.[3]

Rupture of unscarred uterus is rare in developed countries involving 1:17000-20,000 deliveries.[4] In developed countries, where the level of obstetric care is adequate, its occurrence is rare.[5,6,7] The same cannot unfortunately be said for countries where poverty, ignorance, illiteracy, traditional practices and grand multi-parity make this serious complication a common occurrence.[8] This observation is same from other previous studies done in this country.[9,10] In Bangladesh the incidence of rupture of unscarred uterus is decreasing due to introduction of Partograph and establishment of various EOC services which is playing a role in preventing obstructed labour and subsequent rupture.

In this study, 46.29% of the patients of group belonged to 26-30 years, next in order is 31-35 years' age group. Grand multi-parity was encountered in 33.33% cases, no case of rupture in a primi-gravida. Study conducted by Boyej AP in Nigeria maternal age 40 years and above and grand multi-parity were detected as the risk factor.[11] Regarding educational status 55% (30) were illiterate, 20 had completed primary education and only 4 had education bellow SSC, which is similar to study conducted by Parvin K and Khanam R.[2,8]

In this study over half of the cases (57.40%) had no antenatal check-up. Among the rest some had irregular antenatal check-up. These findings are almost similar in other studies by Akter N and Sabur HA.[9,10] Obstructed labour (68.51%) was the commonest cause of rupture followed by injudicious use of oxytocin and mal-handling by dai. Prolonged obstructed labour has long been identified as the most common etiological factor of rupture of uterus reflected in many studies.[3,5,9,10] In about 59.25% of cases injudicious use of oxytocin was the cause of rupture. In 3 cases- there was evidence of use of misoprostol for induction of labour. Mal handling by untrained dai (50%) are other important factors of rupture of uterus in our country. Most of Patients were exposed to more than one factor.

Shock and respiratory distress was prominent feature in majority. Lower segment was the commonest site of the rupture in the present series (94.11%) which is similar to findings in most other

studies.[5,9,10] Out of 54 patients, 3 Patients were brought to hospital in irreversible shock and expired, 34 patients had undergone subtotal hysterectomy and 3 patients had undergone total hysterectomy. subtotal hysterectomy was done in most cases (66.66%) due to poor general condition which allowed the shortest possible operating time. Subtotal hysterectomy commonly performed in the studies.[8,9,10] The immediate common post-operative complications were paralytic ileus (35.3%) % and shock (20%). Other complications were wound infection (10%), burst abdomen (4%), UTI and renal failure, almost similar findings were present in other previous studies.[8,9,10] Among 54 cases 3 patients were brought to the hospital in irreversible shock & died. One died after operation due to hemorrhagic shock and renal failure, one from Mendelson's syndrome and one from septicemia. Maternal death rate was 12.96% this observation is similar to previous studies.[8,9,10,13,14,15] Perinatal mortalities are 100% in this study. Perinatal mortality is low in developed countries where scar rupture is becoming un common.[12,13,]

CONCLUSION:

The incidence of rupture of unscarred uterus is still high in Bangladesh. High parity, illiteracy and ignorance coupled with inadequate maternity services, injudicious use of oxytocics were identified as risk factors for rupture of unscarred uterus. This type of rupture is a potentially devastating complication that threatens the life of the foetus and mother.

Rupture of the gravid uterus is associated with high maternal and perinatal mortality and morbidity. Necessary steps can reduce the incidence & outcome of rupture of unscarred uterus. Community awareness must be developed regarding regular antenatal checkup. In case of home delivery skilled birth attendant must be ensured. EOC services must be more extensive. Oxytocics should be used with due precaution regarding dose, route of administration, careful case selection and monitoring. Family planning must be reinforced to reduce the incidence of grand multi-parity. Although prevention is most important to reduce mortality and morbidity early and adequate treatment may be life-saving.

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