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Woman Health; Uterus Rupture, Its Complications and Management in Teaching Hospital Bannu, Pakistan

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ABSTRACT

Objectives: *To evaluate risk factors, management, maternal and fetal outcomes of ruptured uterus at Women and Children Teaching Hospital Bannu, Pakistan.*

Study design: *The prospective observational study was designed from January 2009 to December 2009. A total 64 patients were found with ruptured uterus evaluated in Women and Children Teaching Hospital Bannu, Pakistan. The aim of the study was to evaluate risk factors, management, maternal and fetal outcomes.*

Results: *Frequency of ruptured uterus in hospital was found in 9/1000 deliveries, higher than most other studies. Amongst etiological factors the most important were great multiparity 27 (42.2%), injudicious use of Oxytocin 33 (51.6%), obstructed labour 8 (12.5%) and previous caesarean section 12 (18.8%). Of the total number of patients, 49 (76.6%) underwent abdominal hysterectomy (either subtotal or total), 3.1% of them needed bladder repair and 15.6% underwent repair of uterus. 5 (7.8%) died either due to irreversible shock or disseminated intravascular coagulation, 4% of patients had incontinence of urine, 53 (82.8%) of cases delivered dead babies and 9 (14.1%) had severe birth asphyxia needing neonatal intensive care.*

Conclusion: *Uterine rupture is amongst the preventable obstetric complication that carries severe risks both to the mother as to the baby. Health education of people, training and supervision of health personal may reduce incidence especially in remote areas.*

Keywords: Uterine rupture, risk factors management, maternal and fetal outcomes

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INTRODUCTION

Uterine rupture (UR) is one of most dangerous obstetric situations carrying an increased risk of maternal and perinatal morbidity and mortality, which is associated with poorly managed labour (1,2). UR related with some instant hitches, such as shock, anaemia, and a ruptured bladder, may leave surviving patients with term complications like vesicovaginal fistula and inability to deliver children (3).

The prevalence was found significantly higher in under developed countries of Asia and Africa in comparison to high income countries (4,5). The incidence of uterine rupture has dropped significantly in developed countries and is most often encountered while attempting vaginal birth after caesarean section (CS) (6). The risk of experiencing ruptured uterus during child birth is 50 times higher if the mother already had a caesarean section (CS) (6). The situation is gloomy in developing countries like Pakistan, where this obstetric complication is frequently faced with disastrous consequences. Neglected labour is common in developing countries, especially in semi urban and rural areas. Many women are dying at home as home delivery is frequent due to culture taboos, lack of awareness, low socioeconomic group and inadequate access to medical care (7).

Causes of uterine rupture in unscarred uterus are: grand multiparity, injudicious (medically not recommended at this stage but prescribed) use of oxytocin, neglected labour, previous CS and myomectomy, uterine instrumentation and manipulation, labour induction, congenital abnormalities of uterus and uterine distension due to polyhydramnios, multiple pregnancy and fetal macrosomia. An 8 time increased incidence of uterine rupture i.e.1 in 920 cases is seen in developing countries due to cited causes (8).

The signs and symptoms of uterine rupture, largely depending on timing, site and extent of uterine defect, are severe haemorrhage, palpable fetal parts, recession of presenting fetal parts, loss of uterine contractility and rarely blood stained urine, appearance of placenta at vulva and prolapsed of loops of gut into vagina (9). The uterine rupture is most appropriately diagnosed on the basis of standard signs and symptoms, because of short time available to diagnose uterine rupture, time consuming diagnostic methods and sophisticated imaging modalities have a limited utility.

Once diagnosed, management must include (i) supportive therapy for mother until surgical intervention can arrest life threatening haemorrhage (ii) delivery of fetus 10-37 minutes after uterine rupture- necessary to prevent serious fatal morbidity and mortality (10).

After fetus is delivered the type of surgical treatment for mother depends on the following factors:

a) the type of uterine rupture b) the extent of uterine rupture c) the degree of haemorrhage d) the mother's general condition e) the mother's desire for future childbearing (11). Hysterectomy is considered the treatment of choice in patients with intractable haemorrhage or when uterine rupture sites are multiple. Repair of ruptured site with or without tubal ligation is done in young stable patients. Repeat c/section is done at 36 weeks of gestation in patients with previous uterine repair (12,13). ❑

MATERIAL AND METHODS

A prospective observational study was conducted from January 2009 to December 2009 at Gynae unit for Women and Children Teaching Hospital Bannu, District Bannu, Pakistan, which is situated in the central South part of Khyber Pakhtun-Khawa (North West Frontier), being a province of Pakistan with 942,230 population and male to female ratio 1:1.08 (14). Women and Children Teaching Hospital Bannu is a secondary level referral hospital and, the Gynaecology unit of the hospital is the largest unit in this area where emergency obstetric surgery is performed. Annually, 7000 to 8000 patients are attended in the labour room regarding different Gynaecological & Obstetrical problems and 13 to 15 deliveries are being conducted on daily basis. The data was collected from the maternity ward and operating theatre registers as well as from the patients' case files at the hospital medical records office. During this period, 64 patients having ruptured uterus, mostly referred, and a few delivered in hospital were studied. The average age at marriage in this area is 13-14 years. Parity of patients was studied and patients divided into primigravida, multigravida and grand multigravida. Delay in management was found due

to long distances from the hospital. Record was made of injudicious use of oxytocin, forceful attempt to deliver at home, previous CS scar and other uterine surgery. Management was recorded in the form of total or subtotal hysterectomy, repair of ruptured uterus or bladder with or without tubal ligation. Maternal outcome in form of recovery, residual damage [Vesico-vaginal fistula (VVF) or ureteric fistula] or death and fetal outcome as fetal death, perinatal death and low APGAR score was recorded. The data obtained was entered and analysed using the Statistical Package for Social Sciences version 16.0 (SPSS In., Chicago, IL, USA). ❑

RESULTS

From January 2008 to December 2009, 4092 deliveries were conducted in the hospital and the patients with ruptured uterus represented 64 cases. Overall incidence rate was found 1.6%, which gives the ratio of 1:64 of deliveries. Majority of patients were in 21-30 years age group representing 28 (43.8%), followed by the 31-40 years age group representing 23 (35.9%). House wives represented 61 (95.3%) of the cases, while 25 (39.1%) and 21 (32.8%) of the patients were Bannussai followed by Wazir respectively, by tribe. The majority of the patients 50 (78.1%) lived more than 10 kilometres away from the hospital and 95.3 % cases were ruptured either at home, or with traditional birth attendant or at lower level health centres. In addition, 4 patients were ruptured while admitted in hospital and 60 patients were referred with obstructed labour or ante partum or postpartum haemorrhage.

Out of 64 cases, 27 (42.2%) of patients were great grand multi-para showing that parity was an important risk factor for rupture uterus. Two primigravidas also had ruptured uterus, both with injudicious (medically not recommended but prescribed) use of oxytocin at home. One of these primigravidas had silent rupture, diagnosed after 24 hours when emergency laparotomy was performed. In both cases a forceful attempt to deliver (one with breech presentation and other with hydrocephalus) at home was recorded.

Of multiparas, most of the patients (who had no other intervention) were those with obstructed labour. These were patients who first tried at home and then carried to hospital in very moribund state. History of previous CS was seen in 18.8% cases, mostly those with classical scar and previous repair of ruptured uterus.For the majority of patients (76.6%) abdominal hysterectomy was performed. Repair was performed in lower segment clear rupture-while tubal ligation was performed in multiparas. Repair of bladder was done in cases with ruptured bladder. 7.8% patients died either due to heavy and prolonged haemorrhage leading to irreversible shock or disseminated coagulation. Fetal outcomes were recorded in the form of fetal death in 82.8% cases. The rest delivered live babies, 3.1% had perinatal death and 14,1% needed admission in neonatal ICU due to low APGAR score. ❑

DISCUSSION

The findings of the study showed that the incidence of ruptured uterus in this part of Pakistan was 1:64 deliveries, much higher than in some studies 2,5,15. However, compared with other local studies, frequency of the problem in this study is still higher than other big

Age (Years)	**No. (%)**
16-20	6 (9.4)
21-30	28 (43.8)
31-40	23 (35.9)
> 40	7 (10.9)
Occupation	
House wife	61 (95.3)
Employed outside the home	3 (4.7)
Tribe	
Bannussai	25 (39.1)
Wazir	21 (32.8)
Khattak	4 (6.2)
Marwat	7 (10.9)
Indigenous Bannu	7 (10.9)
Resides more than 10 km from Hospital	
Yes	50 (78.1)
No	14 (21.9)
Parity	
Primary Parity	2 (3.1)
Multi-Parity	15 (23.4)
Grand multi-parity	20 (31.3)
Great Grand multi-parity	27 (42.2)
Delivery Place	
Traditional (Home + Mid wives)	61 (95.3)
Hospital	3 (4.7)
History Risk Factor	
Obstructed or Neglected Labor	8 (12.5)
Injudicious use of Oxytocin	33 (51.6)
Previous Caesarean Section	12 (18.8)
Previous Pelvic Surgery	1 (1.6)
Obstructed or Neglected labor & Injudicious use of Oxytocin	10 (15.6)

TABLE 1. Sociodemographic characteristics of patient admitted with ruptured uterus to the woman and children hospital Bannu, Pakistan

Sign and Symptoms	
Shock+ Abdominal pain+ Palpable fetal parts	24 (37.5)
Abdominal pain+ Palpable fetal parts	18 (28.1)
Shock+ Abdominal pain+ Severe hemorrhage	10 (15.6)
Shock+ Palpable fetal part	7 (11.0)
Shock+ severe hemorrhage	3 (4.7)
Shock+ Palpable fetal part+ Recession of presenting fetal part	2 (3.1)

TABLE 2. Observed Clinical Sign and Symptoms

Surgical Management	No. (%)
Repair of Ruptured Uterus	10 (15.6)
Repair with Tubal ligation	3 (4.7)
Subtotal Hysterectomy	32 (50.0)
Total Hysterectomy	17 (26.6)
Hysterectomy with repair of ruptured bladder	2 (3.1)

TABLE 3. Surgical Management

Maternal Outcome	No. (%)
Recovery	57 (89.1)
Death	5 (7.8)
Recovery + Incontinence of Urine	2 (3.1)
Fetal Outcome	
Fetal death	53 (82.8)
Low APGAR Score	9 (14.1)
Perinatal Death	2 (3.1)

TABLE 4. Out Comes

cities of the country being 7.6/1000 deliveries, in a study from Lady Willington Hospital Lahore (16) and 5.5/1000 deliveries in JPC Karachi (17). The occurrence of ruptured uterus varies in different parts of the world. Current century has witnessed a marked improvement in the reduction of pregnancy related morbidity and mortality however there seem to exist disparities of obstetrical complications in developed and developing countries. In developed countries the frequency has dropped significantly at 5/1000 deliveries, mostly noticed in patients with previous CS, in Lagos University Teaching Hospital (l8). Nevertheless it is still a major public health problem in developing countries in general. An 8 times increased incidence of ruptured uterus of 0.11% has been noted in countries like Zimbabwe, Nigeria, Doha and Senegal (18). Increased incidence is attributable to neglected and obstructed labour due to inadequate access to medical care, injudicious use of oxytocin by untrained people, mismanagement of patients with previous CS, several shortcomings in health care system as lack of antenatal booking, lack of specialist staff, failure in referral and transport system between health care centres 2. Lack of emergency transportation is a particular problem in rural areas of Pakistan. Improving referral and transport system between hospitals, health education of rural people and assigning trained health workers can overcome the problem of distances 12. In this study we found that 78.1% patients were residing more than 10 kilometres away from hospital, which is a reported risk factor for uterine rupture, and this is similar to the findings of reported research (19).

In the present study, 95.3% cases were home delivery or traditional birth attendants (TBAs). It seems that these patients would try as much as possible to deliver at home or with TBAs, and women unable to attend the recommended hospital visits. Under such conditions, it was not possible to detect any recognizable risk factors during the antenatal period. In the end, most of the women experiencing obstructed and prolonged labour, unrecognized by untrained people, subsequently progressed to rupture. This may also be a sign of the overall utilization of reproductive health services (2). Most affected were great grand multi paras 27 (42.2%). Other studies have found those grand multipara (five or more previous deliveries) are more prone to ruptured uterus, which strengthen the result of the current study (4,5).

Inevitable per partum hysterectomy is an emergency life saving osurgery performed for the majority of patients, which is under the pipe line with reported study 20. The most critical aspect of treatment is timely diagnosis and minimizing the duration from signs and symptomps' time of onset until start of definitive surgical treatment. Once diagnosis of ruptured uterus is established the immediate stabilization of mother and delivery of fetus is imperative. Therefore all available resources must be quickly and effectively be mobilized to successfully institute timely surgical treatment that results in favourable outcome for mother and new born. In current study management of patient was dependent on type and extent of uterine rupture, degree of haemorrhage, general condition of mother, mother's drive for future childbearing. Hysterectomy was performed when uterine tear was longitudinal rather than transversal whereas uterine repair was performed for women with low transversa; uterine rupture with no extension of tear to broad ligament, cervix or paracolpos, easily controllable haemorrhage, good general condition of mother, desire for childbearing and no cli-

nical or laboratory evidence of coagulopathy (21).

Maternal outcomes recorded in different studies were cystotomy, hypovolemic shock, VVF, RVF, foot drop, psychological trauma, need for hysterectomy and death. 4% of the patients in the study had VVF comparable with a study by Hilton (22). Five (7.8%) patients in the study died and most common cause of death was disseminated intravascular coagulation (DIC) or irreversible shock. 82.8% of foetuses died while those delivered alive had low APGAR score, acidosis needing admission in neonatal Intensive care unit (ICU). Maternal and perinatal mortality figures are representative for available health care facilities. 7.8% of maternal and 3.1% of fetal mortality was noticed here. Furthermore, it was found that the total maternal deaths in 2009 were 44, among these 5 (11.4%) were due to ruptured uterus. It was reported that 2/3 of maternal deaths due to complications of labour occurred in India and Pakistan (12). About 25% of maternal deaths in developing world are due to primary postpartum haemorrhage and 60% of these are due to uterine rupture (12), and the prevalence of postpartum haemorrhage (PPH) in Pakistan is 34% (12). ❑

CONCLUSION

Frequency of ruptured uterus was 1:64 deliveries in the study period. Uterine rupture is among one of the most preventable obstetric complications that carries grave risks to the mother as well as for her baby. Even if women survive, the future reproductive potential is reduced or lost forever. Majority of ruptured uterus are traumatic. Important causative factors were grand multi-parity, injudicious use of oxytocin, neglected or obstructed labour due to poorly developed health system and difficulties in referral to hospital especially in remote areas. The health education of rural people, training and supervision of TBA's and availability of emergency transport may reduce incidence in remote areas.

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