

Uterine Rupture: An Audit to Analyze Management Options, Maternal & Fetal Outcome

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Study Design: An analysis of 14 cases of ruptured uterus was done during January 2003 to December 2003 in Obstetrics & Gynae Department of Lahore General Hospital, Lahore. **Objective:** The purpose of this Audit was to analyse the different management options, maternal and fetal outcome in uterine rupture. **Material and Methods:** Total no of births in 2003 was 4840. Total number of ruptured uterus found to be 14 (2.9%/1000) deliveries. Among these incomplete rupture were 3 (21.4%) and complete rupture were 11 (78.4%). Regarding the common sites of uterine rupture lower uterine segment anterior surface = 11 (78.4%). Lower uterine segment posterior surface = 2 (14.2%) and upper uterine segment rupture was = 1 (7.4%). The most common cause of uterine rupture was found to be multiparity and injudicious use of oxytocin by TBA in 5 cases. (35.7%) and previous uterine surgery in 5 cases (35.7%). 2 cases (14.2%) were due to cephalopelvic disproportion due to hydrocephalus and 2 (14.2%) cases were of malpresentation (transverse lie) mostly handled at home by TBAs. Hysterectomy, total or sub total was done in 7 cases (50%). Repair of uterus was done in 5 cases (35.7%), in 2-cases (14.2%). Bladder repair alongwith uterine repair was done. In two cases (14.2%) of scar dehiscence, repeat cesarean section was done. The maternal mortality was found to be zero, while intrauterine death were 10(71.4%) and alive babies were 4 (28.5%) high perinatal mortality of 71% were found. **Conclusion:** Ruptured uterus is avoidable catastrophe by proper education, training of patients and TBA's and by providing effective family planning services, transportation, diagnostic facilities and by reducing the unnecessary caesarean section.

Key words: Ruptured uterus, maternal & fetal outcome and management.

Uterine rupture is an obstetrical emergency and is associated with maternal and perinatal morbidity and mortality. Most commonly it occurs during labour but may occur in the antepartum period especially when there is scar in the upper segment of the uterus¹. Classical scar confers a 3-4% rate of rupture, which rises to 32% if a previous classical scar had ruptured². A lower segment scar confers a 0.25 – 0.5% rate of rupture which rises to 4-10% if a lower segment scar had ruptured³. Multiparity, hyperstimulation of uterus due to injudicious use of drugs, CPD, malpresentation and manipulation like external cephalic version, internal podalic version and manual removal of placenta and instrumental deliveries are other causes of uterine rupture. Uterine rupture can be spontaneous i.e. in absence of iatrogenic manipulation, trauma/oxytocic drug or without previous scar on uterus or it can be traumatic i.e. following manipulation, oxytocic, drug, violence, or trauma. In incomplete rupture there is separation of the uterine wall without extension in the entire thickness. While in complete rupture the covering peritoneum is also torn¹. In complete rupture patient present with bleeding per vaginum, abdominal pain, fetal part palpable outside the uterus and fetal head which retract back into abdomen⁴. While in incomplete rupture there is foetal distress, maternal tachycardia, scar tenderness, vaginal bleeding and undue delay in progress of labour occur.

Once diagnosed uterine rupture can be managed either by hysterectomy total or subtotal or by uterine repair with or without tubal ligation depending upon type, site, severity and parity of patient.

Material and methods:

This retrospective study was carried out for a period of one year from January, 2003 to Dec. 2003 in obstetric and Gynaecology Department, Lahore General Hospital, Lahore. During this period 14 patients with rupture uterus were managed in the hospital. All patients admitted with rupture uterine or those developed this condition in the hospital were included. Perioperative findings, surgical procedure and management of complication were recorded.

All the available record's regarding present and past obstetrical history, details of intrapartum events, investigation results, operation notes were reviewed. An effort was made to detect avoidable etiological factors, to ensure a decrease in prevalence of rupture of uterus and its associated maternal and fetal morbidity and mortality.

Results:

Total number of births occurred in year 2003 in Obstetrics / Gynaecology department of Lahore General hospital were 4840. The incidence of rupture uterus was found to be 0.29% (2.9%/1000) among which 3(21.4%) were incomplete rupture, while 11(78.5%) were complete rupture. Table I.

Common sites for rupture were lower uterine segment anterior surface 11(78.4%), lower uterine segment post surface =2(14.2%) and upper uterine segment = 1(7.4%). Table II.

Incidence of rupture uterus was found to be high in older and multiparous patients i.e. 5 cases (35.7%) who had been given oxytocin by Dai and TBAs. The two youngest patients were G₂P₁ in which incomplete uterine

rupture was due to scar dehiscence and they managed by repeat Caesarean section without any complications.

The second most common cause for rupture uterus was previous surgery in 5 cases (35.7%). Among which 4 (28.57%) patients were having previous one uterine surgery, while one (7.14%) was having previous 2 uterine surgery. Cephalopelvic disproportion with oxytocic drugs led to uterine rupture in 2(14.2%) patients where as malpresentation with dai handling was associated with uterine rupture in 2 (14.2%) cases.

Intraoperative finding showed complete uterine rupture was found in 11(78.4%) of cases while incomplete uterine rupture was found in 3(21.4%) cases. Table III

Management was tailored according to type and site of rupture, parity and condition of the patient.

7(50%) cases of uterine rupture ended up in hysterectomy either total or subtotal depending upon, the intraoperative finding. Uterine repair was done successfully in 5 cases (35.7%). In 2(14.2%). Cases there was associated bladder injury which was repaired in the presence of urologist without any subsequent complications. Repeat caesarean section was done in 2 cases of scar dehiscence. In those patients who were

multiparous and had clean tear, uterus were repaired along with bilateral tubal ligation. Table IV.

Maternal outcome was overall good. There was no maternal deaths. While 7 mothers lost their uterus (Table V). Regarding fetal outcome, there were 10 (71.4%) intrauterine deaths. These were usually occurred in multigravida who had either previous uterine surgery or had taken the trial of labour at home by dai or TBAs by oxytocic drugs. Only 4 (28.5%) babies were alive. (Table VI).

Table I: Percentage of uterine rupture

	n=	%age
Total No. of birth in 2003	4840	29
Total No. of rupture uterus	14	0.39
*Incomplete rupture	3	21.2
*Complete rupture	11	78.4

Table II: Common sites of rupture

	n=	%age
Lower uterine segment anterior surface	11	78.4
Lower uterine segment posterior surface	02	14.2
Upper uterine segment	1	7.4

Table III: Table showing the parity, type and site of rupture probable causes, management, fetal outcome and complications.

Parity	Type of Rupture	Site of Rupture	Probable Cause	Management	Fetal Outcome	Complications
G ₂ P ₁	Incomplete	Scar dehiscence	Prev. 1 C/S	Repeat C/S	M 2.5 kg	Nil
G ₁₇ P ₁₄₊₂	Complete	From Lat. Ut. Wall to broad ligament	Multiparity + Injudicious use of oxytocin	TAH	F 4.5 kg IUD	Nil
G ₃ P ₂	- do -	-do-	CPD (Hydroceph)	Repair	F 5.0 kg IUD	Nil
G ₂ P ₁	Complete rupture	Scar ruptured	Injudicious use of oxytocin + previous 1 C/S	Repair	F 3kg IUD	Nil
G ₄ P ₃₊₁	Complete rupture	Scar ruptured	Previous 2 C/S	Repair of Ut + BTL + Bladder repair	M 2.5 kg IUD	Bladder repair
G ₈ P ₇	Complete rupture	Post surface laceration	Multiparity + Injudicious use of oxytocin	Repair of Uterus	Alive	Nil
G ₈ P ₇	Complete rupture	Ant Surface transverse laceration from one broad ligament to other	Multiparity + Injudicious use of oxytocin	TAH	M 3.5 kg IUD	Nil
G ₆ P ₅	Complete	Lower Ut. Segment Ant. Surface	Injudicious use of oxytocin + CPD	Sub-total hysterectomy	F 3Kg IUD Hydroceph.	Nil
G ₆ P ₅	Complete	Lower Ut. Segment upto vagina	Retained 2 nd twin (transverse lie)	TAH	F 2Kg IUD	Nil
G ₅ P ₄	Complete	From rt. Lat. Wall upto fundus	Malpresentation + dai handling	TAH	F 3Kg IUD	Nil
G ₇ P ₅₊₁	Complete	From post. Surface of uterus upto post. Fornix	Multiparity + Injudicious use of oxytocin	Sub-total hysterectomy	F 3.8Kg IUD	Nil
G ₉ P ₇₊₁	Complete	From ant. Surface of uterus upto lat. fornix	Multiparity	TAH+repair of bladder	M 2.5Kg IUD	Rupture of Bladder
G ₂ P ₁	Incomplete	Scar dehiscence in lower segment	Previous 1 C/S	Repeat C/S	F 3 Kg A/S 6/10, 9/10	Nil
G ₃ P ₁₊₁	Complete	Previous scar	Prev. classical C/S 1	Repair	F 2.5 kg A/S 6/10, 9/10	Nil

TAH: Total abdominal hysterectomy; IUD: Intrauterine death; CPD: Cephalopelvic disproportion

Table IV: Management (n=14)

	n=
Repeat caesarean section due to scar dehiscence	2
Repair of uterus	5
Hysterectomy	7
*Subtotal hysterectomy	2
*total hysterectomy	5
Bladder repair	2

Table V: Maternal outcome (n=14)

	n=
Maternal mortality	0
Females who lost their uterus	7

Table VI: Fetal outcome (n=14)

	n=
Intrauterine death	10
Alive babies	04
Perinatal mortality	71

Discussion:

Rupture of the pregnant uterus is a life threatening complication associated with high maternal and fetal mortality and morbidity and loss of fertility due to resultant hysterectomy inevitable in some cases⁵. It is an obstetrical catastrophe, which is preventable⁶.

The incidence of rupture uterus in our hospital during the period of one year was 0.29% (2.9%/1000) which is comparable to 0.4% in Sandeman hospital Quetta⁷ and 0.549% in Jinnah Postgraduate Medical Centre, Karachi⁸.

The developed countries have successfully lowered the incidence of uterine rupture down to 0.3%/1000 deliveries¹. In Canada the incidence is 0.03%⁹ and in United States 0.07%¹⁰. Which is comparable to Nigeria 0.6%¹¹. In our country the dilemma of uterine rupture is still common and is responsible for many fatalities. The incidence is reflective of over all health care system, illiteracy, poverty, lack of vigilant obstetric care, lack of documentation of previous uterine trauma of surgery, delayed referral and poor facilities for transport of patients from remote areas are accounted for high incidence. Multiparity, injudicious use of oxytocic drugs and previous uterine surgeries followed by trial from dai and TBA's were found to be the major cause of uterine rupture in our country. It was because LGH is situated in situation where the people surrounding it are mostly illiterate, poor, avoid antenatal care at hospital try to deliver at home by TBAs is or by a senior family member and are referred to the hospital late in labour when delivery fails to occur. Therefore, they may develop life-threatening complications of pregnancy and the fatality rate associated with conditions like rupture is quite high.

In Pakistan 30,000 women die each year due to pregnancy and child birth related causes. This increase in incidence is attributed to malfunctioning of public health services and unsatisfactory quality of maternal health

care¹². The need is that the present basic health units and rural health centers should provide 24 hour health services and TBAs should be trained not to cause complication but to recognized them and to make referral at proper time.

In our study the major causes of uterine rupture include multiparity. Injudicious use of oxytocic drugs and previous cesarean section. These causes can be reduced by education of people regarding effective family planning, encouraging people to have proper antenatal care and to avoid deliveries at home. According to National Health Survey of Pakistan, 89% deliveries take place at home and out of these 80% are conducted by traditional birth attendant¹². The misery is that instead of providing good health care, they send patients with complications such as obstructed labour, uterine rupture and intrapartum death etc. This arises the need that training programmes should target traditional birth attendants, community health worker's, midwives and nurses so that they can provide effective antenatal, intrapartum and postpartum care. They can recognize and identify risks in time and timely referral with out delay to the hospital can be made. Multiparity was another risk factor, 50% of patients were para 5 or more. This was comparable to large study from Fatima Jinnah Medical College where 48% of patients with rupture uterus had parity ≥ 5 .

Scared uterus was found to be another major causative factor in uterine rupture. Most of the people of illiterate lower socioeconomic class think that caesarean section is reproductive failure and such people try to avoid antenatal care and hospital delivery in next pregnancy, to avoid caesarean section, therefore, these are the patients who are at major risk of uterine rupture. Such patient should be counsel properly regarding the indications of caesarean section and should be encouraged to have regular checkup and should be advised to have hospital delivery to avoid such catastrophe.

Hysterectomy rate was found to be high (50%) either total or subtotal depending upon type and site of rupture and condition of patient. These can be avoidable by timely hospital referral. Prompt and swift management of high risk cases. In developed countries, where rupture uterus is mostly due to caesarean scar rupture, hysterectomy is not performed so often, instead it is usually repaired¹⁴.

Maternal mortality was luckily nil. This could be due to prompt diagnosis, better blood transfusion services, good anaesthetic management and effective antibiotic coverage. However, the perinatal mortality rates were high that is because the fetus is always at great risk in such situations and even a minor delay in management can lead to fetal death. This can be reduced by caring high risk patient in tertiary care centre, early referral, counseling of patients and their relative's and training of medical staff.

Conclusion and Recommendations:

In order to reduce the high incidence of rupture uterus we have to focus on the:

1. Training of TBA's so that they should be able to recognize the problem in time and be able to seek the help of essential obstetrical services. They should not be allowed to use oxytocin without the supervision of a trained doctor.
2. Basic health units and rural health centres should be well equipped with trained personals
3. Indication's of caesarean section should be Audit to avoid unnecessary scar uterus. So as to avoid complication's in subsequent pregnancy and those with scar uterus, should be encouraged to have hospital delivery.
4. Contraception and family planning services should be made more effective to prevent unwanted pregnancy and grand multiparity.
5. People should be educated regarding antenatal care services and possible diagnosis of complications.
6. Roads and communication should be improved so that the people can reach earlier to secondary or tertiary level health care in case of need. They should be provided with ambulances etc. This problem can only be worked out if government pay attention and improve health budget.
7. USG facilities should be available at primary, secondary and tertiary level for timely diagnosis of congenital anomalies, malpositions, malpresentations.

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