Original Article

Uterine Rupture at LUMHS: A Review of 85 Cases

Nabila Hassan, Pushpa Sirichand, Zakia Zaheen and Fouzia Shaikh

ABSTRACT

OBJECTIVE: To evaluate risk factors, management and pregnancy outcome of patients with uterine rupture at teaching hospital

DESIGN: Prospective observational study.

SETTING: Obstetrical and Gynecology Unit II, Liaquat University Hospital Hyderabad-Pakistan; from 1st January 2004 to 31st December 2007.

PATIENTS AND METHODS: All patients diagnosed as case of intrapartum uterine rupture were approached. A pre-designed proforma was used to collect the demographic features, predisposing risk factors, management and feto-maternal outcome. Data fed to SPSS program version 10 to analyse the results.

RESULTS: Total maternity admissions were 12678 with 11961 deliveries. A total number of 85 cases of uterine rupture were identified, giving a ratio of 0.7% or 1:141 deliveries. There were 46 cases in scarred and 39 cases with unscarred uteri. Highest incidence was found in age group 25-30 years (57.6%) and in parity group 1-3 (62.3%). Misuse of oxytocics (85.8%), scarred uterus (54.1%), obstructed labour (42.3%) and grand multiparty (21%) were found as main predisposing factors. Uterine repair was done in 61% of cases while hysterectomy was performed in 39% cases. Bladder repair was additionally required in 9.5% of cases. There were 6 (7%) maternal and 64 (75%) perinatal deaths due to uterine rupture.

CONCLUSION: Uterine rupture is yet a common obstetrical emergency in our area. The significant morbidity and mortality deserves our special attention by a collaborative approach. Regular antenatal checks, careful selection of patients for vaginal delivery, vigilantly monitored labour with smooth switch-over to operative delivery can reduce this drastic obstetrical complication.

KEY WORDS: Uterine rupture, scarred uterus, grand multiparty, hysterectomy, uterine repair.

INTRODUCTION

The current century has witnessed a marked improvement in the reduction of pregnancy related morbidity and mortality [1]. However there seems disparity of the obstetrical complications in the developed and developing countries[2]. Though most of the obstetrical complications are unpredictable, the prompt identification and management create the difference between the two worlds.

Uterine rupture is among one of the preventable obstetrical complication that carries grave risks to the mother as well as her baby. Even if the woman survives the future reproductive potential is reduced or lost forever[3].

The incidence of uterine rupture has dropped significantly in the developed world and most often encountered while attempting vaginal birth after caesarean section.[4] Rupture of unscarred uterus is extremely rare, estimated as <1/10,000 to <1/1,000. The situation is gloomy in developing countries like us where this obstetrical complication is frequently faced with disastrous consequences[5]. Besides unscarred uterine rupture, the developing countries are now having increased incidence of scarred uterine rupture due to rising rate of caesarean sections - a new problem to be addressed[6].

Our unit, being a part of tertiary care centre, receives a high number of patients having uterine rupture with significant adverse outcome and this has drawn our attention to evaluate the spectrum of problem. This study will also help to identify the changing trends in our area and to plan the appropriate guidelines for making the pregnancy and labour a safe event.

METHODS

A prospective observational study was carried out at Obstetrical and Gynecology Unit II, Liaquat University Hospital Hyderabad-Pakistan from 1st January 2004 to 31st December 2007. The study included all patients admitted with a diagnosis of intrapartum uterine rupture. A pre-designed proforma was used to collect

the information from the patients, their attendants and any previous case files. Data were obtained to collect the information about the demographic features, details of labour, risk factors, management and pregnancy outcome. SPSS programme version 10 was used to analyze the results in terms of frequency and percentages.

RESULTS

Total maternity admissions were 12678, with 11961 deliveries. Eighty-five cases of uterine rupture were included giving the ratio of 1:141 deliveries or 0.71%. Majority was unbooked (n=64, 75.2%). Highest frequency was seen in age group 25-30 years (n=49, 57.6%) and parity group 1-3 (n=53, 62.3%). Scarred uterine rupture was seen in 46 (54.1%) cases while 39 (45.8%) cases were seen in unscarred uteri. Injudicious use of Oxytocics (85.8%), scarred uterus (54.1%), obstructed labour (42.3%) and grand multiparty (21%) were observed as the main predisposing factors **(Table I)**. Out of 46 scarred uterine ruptures, 29 patients had the trial of vaginal delivery with augmentation of labour by syntocinon infusion (23 patients with previous one and 6 with previous two caesarean sections). None of these patients had the trial at well equipped centers. Surgery was performed in 84 cases, while one patient remained un-explored as she died soon after the admission while being prepared for the surgery. The clinical scenario of this unexplored patient supported the diagnosis of complete uterine rupture. At surgery 79 patients had complete uterine rupture while 5 had incomplete uterine rupture. Associated bladder injury was seen in 8 patients along with complete uterine rupture. Uterine repair was done in 51 (61%) cases, hysterectomy required in 33 (39.25%) patients. Bladder repair was done in 8 (9.5%) patients **(Table II)**. Six (7%) maternal deaths were contributed by uterine rupture. Complete uterine rupture with fetus lying in the peritoneal cavity was seen in 5 patients (5.88% of total maternal deaths). Out of these maternal deaths four had massive irreversible hemorrhagic shock, one had the cardiac arrest during surgery while one died on 6th post-operative day due to sepsis. Regarding fetal outcome, 29 (34.1%) babies delivered alive; however, 8 (9.4%) babies died in early neonatal period . There were 45 fresh intra-uterine deaths (still births) and 11 old macerated intra-uterine deaths giving the overall perinatal mortality as 75.2% **(Table III)**.

TABLE - I
RISK FACTORS (n= 85)

Risk Factors	Numbers	Percentages
Injudicious use of oxytocin	73	85.8
Scarred uterus	46	54.11
a. Scarred uterus with augmentation with syntocinon	29	34.11
b. Scarred uterus with spontaneous labour	15	17.7
c. Scarred uterus plus induction with prostaglandin E2	02	2.4
Obstructed labour	36	42.3
Grand multiparity	18	21.1
Transverse lie	05	5.8
Prostaglandin administration in un scarred uterus	02	2.3
Fundal pressure	02	2.3
After-coming head obstruction	01	1.1

Note: Majority of the patients had a combination of risk/predisposing factors.

TABLE-II
SURGICAL MANAGEMENT (n=84)

Surgical procedure	Numbers	Percentages
Uterine repair with tubal ligation	26	31
Uterine repair	23	27.3
Uterine repair with bladder repair	02	2.3
Hysterectomy	27	32.1
Hysterectomy with bladder repair	06	7.1

Note: one patient died soon after admission without surgical exploration.

TABLE-III
FOETAL OUT COME (Total No. 85)

Fetal Outcome	Number	Percentages
Fresh IUFD*	45	52.9
Live	29	34.1
Macerated IUFD*	11	12.9

**Intrauterine fetal demise.*

DISCUSSION

In the present study the incidence was found as 1:141, higher than reported by Zanconate [7](1:424) from Mozambique, Nagarkatti [8](1:730) from India and Ezechi OC [3](1:273) from Nigeria. World wide the reported incidence has been varied from 1:38 to 1:16849 depending upon the level of obstetric care[1]. Our results do correlate with those of Chuni [9] (1:112) from Nepal, Ezegwui [10](1:106) from Nigeria, Diabe AE [11] from Saudi Arabia (1:92); the results were also comparable with other Pakistani studies such as 1:132 by Tazeen [12] and 0.55% by Malik [13] notifying that uterine rupture is yet a persistent obstetrical emergency in the developing countries .

More than half number of cases (54%) was found in patients with a previous caesarean section, inspite of the fact that these patients had been counseled in the past about the likely need of operative delivery. The constraints of poverty, the influence of family peers, traditional birth attendants and in a few cases the health staff at the peripheral units kept them away to seek the proper care at tertiary care centre. Rising trend of caesarean deliveries and more demand of vaginal birth after caesarean section has led to increased number of ruptured uteri. Though the safety of vaginal birth after caesarean section has been well documented, there is always a risk of uterine rupture[14]. Such risk can best be minimized by reducing the rate of caesarean section and a more focused counseling of patients with involvement of their family members about the future prospect of delivery. These patients need to be reviewed by senior obstetrician to share balanced information about the safety, risks and probability of success. Vaginal delivery should always be attempted on standard guidelines with a smooth switch-over to immediate caesarean section when alarming events noted.

Injudicious use of oxytocin is the continuing culprit for uterine rupture as reported earlier by Offir from Israel,[15] and Chuni from Nepal [9]. Out of 73 patients who received syntocinon particularly to manage the prolonged labour, 29 had it in the presence of scar, 4 had the infusion after the insertion of Prostaglandins E_2. The main reasons for misuse of oxytocic agent are the common myth as a best remedy to cure the obstructed labour and the easy availability of the drug. All health personnel including the traditional birth attendants must be educated regarding the proper use of oxytocin to avoid its hazardous consequences over the feto-maternal health. Over-the-counter sale of oxytocic agents should be prohibited.

Prolonged obstructed labour is no more a contributor in the developed countries,[10,16] however it had the alarming contribution (36/85, 42.3%) to uterine ruptures in our setup. This was seen in co-relation with the reports from WHO [2], Ezechi from Nigeria[3] (91.8%) and Chuni from Nepal[9] (46.5%). It was gloomy that majority of the patients had their trial of labour at the nearby clinics or local maternity homes under supervision of nurses, lady health visitors and doctors, yet there was a delay in decision making for operative delivery. In Pakistan currently there is no governing body to check the standards and quality of obstetric care provided by such centers and the establishment of such system is the need of the day to avoid these obstetrical mishaps.

A high incidence was seen in parity group 1-3. This can be related to the fact that most of them had a scarred uterus. Grandmultiparty was seen in 18 patients, all with unscarred uterus. Many authors have considered multiparity as a risk factor for uterine rupture. Golan and Schrinsky noted more than 30% of uterine ruptures in parity of more than five[17]. Fuchs and colleagues found uterine rupture 20 times more likely in high parity in comparison to low parity[18]. The significant risks of grand multiparty can only be avoided by vigilant intra-partum care and offering post-partum contraception.

Majority of patients underwent repair with or without tubal ligation. Hysterectomy was required in 39% of patients. Ezechi OC reported higher incidence of hysterectomy (53%) in their patients with uterine rupture[3]. In our study the decision to conserve or sacrifice the uterus was influenced by the condition of uterus, age, fertility wishes, and the socio-cultural acceptability. Never-the-less 2/3rd of patients lost their reproductive or menstrual function. Loss of such functions in our country is usually considered as loss of womanhood and results in increased incidence of marriage breaks with social trauma; a fair price to pay for a preventable condition.

We found a higher incidence of maternal deaths related to uterine rupture (7%) than the earlier reports such as 1.7% by Diabe[11] and 2.1% by Sabeena[19], however our results are comparable with those of Malik (7.7)[13] and Rahman (5%)[20]. Though the live fetal outcome was 46%, early neonatal death followed in 9.4% of cases with overall perinatal mortality of 75%. The feto-maternal outcome after uterine rupture largely depends upon the speed of surgical rescue since most of the patients were delayed referrals; the large contribution to the feto-maternal deaths was inevitable.

In conclusion uterine rupture is yet a frequent obstetrical emergency. The grave consequence can only be avoided by the provision of a well motivated collaborative approach. A preventable strategy is to be adopted for the diagnosis and management of high risk pregnancies at all centers providing obstetrical care.

Reducing rate of caesarean sections, enhancing contraceptive usage, improvement of social status are the other potential areas to be focused. Regular monitoring of the health centers for the provision of a quality obstetric care and up grading the knowledge of all health staff for the practice on standard guidelines and arranging refresher courses should be included in health plans.

REFERENCES

1. Rashmi, Kirshan G, Vaid NB. Rupture uterus-changing indian scenario. J Indian Med Assoc. 2001; 99:634-7.
2. Justus Hofmeyr G, Say L, Metin-Gulmezoglu A. WHO systemic review of maternal mortality and morbidity. 2005; 112:1221-8.
3. Ezechi OC, Mabayoje, Obiesie LO. Rupture uterus in south east Nigeria: a reappraisal. Singapore Med J. 2004; 45:113-6.
4. Menihan CA. Uterine rupture in women attempting a vaginal birth following prior caesarean birth. J Perinatol. 1998; 18:440-3.
5. Tayab S. Rupture of gravid uterus still an obstetrical problem. A three year clinical analysis. J Coll Physician Surg Pak. 1996; 6:144-7.
6. Latika S. A10 years analysis of uterine rupture at a teaching institution. J Obstet Gynecol India. 2006; 56:502-6.
7. Zanconate G, Machungo F, Soler A, Bergstrom S. Audit of Uterine Rupture in Maputo: a tool for assessment of obstetric care. Gynecol Obstet Invest. 1994; 38(3):151-6
8. Nagarkatti RS, Ambiye VR, Vaidya PR. Rupture uterus: changing trends in etiology and management. J Postgrad Med. 1991; 37:136-9
9. Chuni N. Analysis of uterine rupture in a tertiary centre in Eastern Nepal: lessons for obstetric care. J Obstet Gynaecol Res. 2006; 32:574-9.
10. Ezegyui HU, Nwogu- Ikojo EE. Uterine rupture in Enugu, Nigeria. J Obstet Gynaecol. 2005; 25:260-2.
11. Diabe AE. Uterine rupture in Yemen. Saudi Med J. 2005; 26:264-9.
12. Munim TF, Hussain SMA, Usman E, Raza BSM, Rehman A. Ruptured uterus: A three years study. J Surg Pak. 2002; 7:6-8.
13. Malik HS. Frequency, predisposing factors and feto maternal out come in uterine rupture. J Coll Physicians Surg Pak. 2006;16(7):472-5.
14. Toppenberg KS, Block WA. Uterine rupture: What family physician need to know? Family Physician Am Fam Physician.2002; 66:823-8.
15. Ofrir K, Sheiner E, Levy A, Katz M, Mazor M. Uterine Rupture: differences between a scarred and an unscarred uterus. Am J Obstet Gynecol. 2004; 191(2):425-9.
16. Stephine Yap OW, Kin ES, Laros HR. Maternal and neonatal Outcome After uterine rupture in Labour. Am J Obstet Gynecol. 2001; 184(7): 1576-81.
17. Nahum GG, PhamQK. Uterine rupture in pregnancy 2008. Available at http://emedicinemedscape.com/article/275854 accessed on 14th December, 2008.
18. Cunnigham FG, McDonald PC, Grant NF, Gilstrap LC, Leveno JK. Injuries to birth canal in William Obstetric. 19th ed. USA: Appleton & Lang; 1993.
19. Qadeer S. Management of ruptured uterus. J Coll Physician Surg Pak. 1999; 9:190-2.
20. Rahman J, Al-Sibai MH, Rahman MS. Rupture of the uterus in labour. A review of 96 cases. Acta Obstet Gynecol Scand. 1985; 64(4):311-5.

AUTHOR AFFILIATION:

Dr. Nabila Hassan *(Corresponding Author)*
Senior Registrar, Gyane Unit II,
Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro, Sindh-Pakistan.
E-mail:- nhs_hassan@yahoo.com

Dr. Pushpa Sirichand
Professor, Department of Gynecology & Obstetrics
LUMH, Jamshoro, Sindh-Pakistan.

Dr. Zakia Zaheen
Senior Registrar, GU III,
LUMH, Jamshoro, Sindh-Pakistan.

Dr. Fouzia Shaikh
Assistant Professor
Department of Gynecology & Obstetrics
LUMH, Jamshoro, Sindh-Pakistan.