

UTERINE RUPTURE: A STUDY OF ITS FREQUENCY AND AETIOLOGY AT MILITARY HOSPITAL RAWALPINDI

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ABSTRACT

Objective: To study the frequency and aetiology of rupture of pregnant uterus.

Material and Methods: This study was conducted at the department of obstetrics and gynaecology, Military Hospital, Rawalpindi from January 1996 to January 1999. Patients were randomly selected. Only those patients were selected who had reported with uterine rupture (UR) or had developed the condition during their management in the hospital. The age, parity, obstetric history, drug history, the presenting features and booking status, were recorded.

Results: Thirty-two patients of UR were managed during the three-year period out of 14128 total deliveries. The frequency of UR was 0.23%. The main etiological factors were previous scar rupture (31.25%), obstructed labour (28.12%), injudicious use of oxytocic drugs (12.50%) and major foetal abnormalities (12.50%).

Conclusion: UR is an obstetrical tragedy, commonly seen in developing countries like Pakistan. It is most frequent in patients who have poor antenatal and intranatal care.

Key words: Uterine Rupture, Caesarean section, Etiology, Frequency.

INTRODUCTION

Childbirth is a normal physiological process. However, there are times when severe injuries may occur during the process and may prove fatal or contribute significantly towards maternal morbidity¹. Rupture of the uterus is a life threatening complication of pregnancy and contributes significantly to perinatal as well as maternal mortality. This preventable catastrophe is more common in developing countries where maternal services are inadequate². In Pakistan poverty, ignorance, illiteracy, traditional practices grand multiparity and aversion from C-section make this serious complication a common occurrence.

Rupture of the pregnant uterus may occur in a previously scarred uterus or in an intact uterus. Main etiological factors associated with rupture of an intact uterus are cephalopelvic disproportion, malpresentation, difficult instrumental delivery, destructive operation, obstetrical manipulation and injudicious use of Oxytocins.

Varying frequencies of UR have been

reported from different countries. It includes 1:416 deliveries in Nigeria³, 1:1500 in United States⁴, 1:284 in Zaire⁵ and 1:189 at Jinnah Postgraduate Medical Centre Karachi⁶.

The purpose of this study was to describe the frequency of UR in the patients reporting to MH, Rawalpindi and to identify the causes in this group.

MATERIAL AND METHODS

This study was conducted at Military Hospital Rawalpindi for a period of three years i.e. from January 1996 to January 1999. Military Hospital Rawalpindi is a tertiary health care centre where the average number of annual deliveries is 5000, of which about 50% are emergency admissions. The remaining are cases booked in the antenatal clinic of the hospital.

The subjects included all the pregnant patients reporting to obstetrics unit Military Hospital Rawalpindi in emergency with UR.

Patients with uterine injury associated with first trimester pregnancy were not included in this study. Majority of the subjects was wives of Armed Forces personnel

residing in Rawalpindi, Islamabad and nearby districts of Punjab, NWFP and Azad Jammu and Kashmir.

A detailed history was obtained from all the subjects, which included details of booking status, their age, parity, literary status and the number of alive children, including their ages.

Signs and symptoms with which these subjects had presented were recorded. The predisposing factors, which had caused the rupture, were also determined. A full general, systemic and obstetrical examination was carried out in each subject.

RESULTS

Thirty-two patients of uterine rupture were managed during 3 years period from January 1996 to January 1999. Total number of deliveries for the same period was 14128. Cases of UR were 1 in 416 deliveries. Rupture of previous caesarean section scar was seen in ten (31.25%) cases. Most of these patients were admitted through emergency. Twenty-five (78.12%) patients were non-booked and were referred from urban and rural areas of Punjab, NWFP and

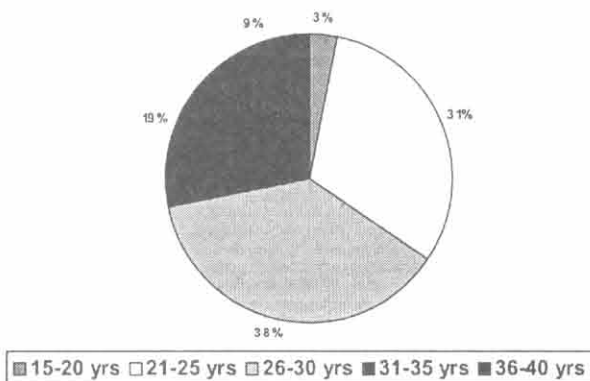


Figure 1

Main aetiological factors of uterine rupture.

Factors	No of cases	Percentage
Previous scar rupture	10	31.25%
Obstructed labour	9	28.12%
Major foetal abnormality	4	12.50%
Injudicious use of oxytocic drugs	4	12.50%
Traumatic	2	6.25%
Malpresentation	2	6.25%
Morbidly adherent placenta	1	3.12%

Table 2

Azad Jammu and Kashmir. Only seven (21.88%) patients had received previous antenatal care.

The youngest patient was an 18-year old primigravida. Most of the patients presented between the ages of 26 and 30 years, their mean age being 29.2 years (Figure 1).

1: Age distribution of patients having rupture of uterus.

Parity of maximum number of patients was between one and four. Many of these

Parity of patients having rupture of uterus

Parity	Number of cases	Percentage
Primigravida	01	3.12%
1-4	21	65.60%
5-7	09	28.13%
8-12	01	3.12%

Table 1

cases had undergone C-section in the past for various reasons.

Majority of the patients (50%) had alive children up to 8 years of age.

Majority of the patients belonged to poor or lower socio-economic group.

Most of the patients were totally illiterate. Only seven percent had received elementary education.

DISCUSSION

Rupture of the gravid uterus is an unexpected and devastating complication of pregnancy. The maternal and perinatal morbidity and mortality associated with this complication continues to pose a serious threat to the pregnant woman and her fetus. A very common event of the past but its

incidence has greatly reduced in the recent years. It occurs in <0.1% of all pregnant women and <1% of women attempting vaginal birth after caesarean section (VBAC)^{7,8} in the developed countries. UR is, undoubtedly an evidence of neglected care. Felmus et al in a review of "spontaneous rupture during pregnancy occurring in an apparently normal uterus" reported: from 1966 to 1985, there were 15 cases of uterine rupture encountered in 52854 deliveries giving an overall incidence of 0.3 per 1000 deliveries⁹. It occurred in 1 in 546 deliveries in a black South African population, in 1 in 425 deliveries in Kenya, in 1 in 119 deliveries in Conakry/Guinea and in 1 in 97 pregnancies in a rural Turkish population.

Eden and associates reviewed earlier experiences with uterine rupture over a 53-year period at Duke University. From 1931 to 1950 it was 1 in 1280 deliveries compared with 1 in 2250 from 1973 to 1983¹⁰.

The frequency of UR in this study was 0.23% which is high when compared to that of developed countries viz. 0.03% in Canada¹¹, and 0.07% in the United States. The incidence is comparable to that of Guinea 0.8%¹² and Jordan 0.42%¹³ but lower than that of Nigeria 1.08%¹⁴ and Ethiopia 2.6%¹⁵. Similar incidence has been noted in studies carried out at Quetta 0.44%¹⁶ and Karachi 0.55%¹⁷.

Possible explanation for this high incidence of uterine rupture is mainly lack of antenatal care. In this study only 21.85% of the patients had received prenatal care while 78.15% were un-booked. Rahman in Libya recorded similar findings. He observed that 95% of his cases of rupture of uterus lacked prenatal care¹⁸. Other contributory factors include illiteracy lack of screening for high risk pregnancies, unsupervised labour conducted at poorly equipped centres, poor referral system and lack of transport for immediate shifting of patients. Patients are only referred to the tertiary centre when vaginal delivery becomes impossible and possibly after uterine rupture has occurred.

Causes of ruptured uterus include previously scarred uterus, obstructed labour due to cephalopelvic disproportion, malposition and malpresentation, uterine hyperstimulation, instrumentation and manipulation. Commonest cause in a scarred uterus is previous C-section. Sepsis following

operation, faulty technique of suturing, implantation of the placenta over the scar and poor nutrition of the patient increase the risk of UR in a subsequent pregnancy¹⁹. The risk also increases with increased number of C-sections²⁰. In literature, a few cases of rupture of myomectomy scars have been described^{21,22}.

Perforation of the uterus in previous pregnancy may cause UR in subsequent pregnancy. There are few reports of UR in pregnancy with previous uterine curettage²³. Morbidly adherent placenta has also been implicated in the aetiology²⁴. Combination of previous curettage and C-section increase the risk significantly²⁵.

Many effective but dangerous oxytocic drugs are used in obstetrical practice²⁶. Injudicious use of these drugs results in iatrogenic uterine rupture due to increased uterine tonus^{27,28}. Cases of uterine rupture have been reported following use of PGF2 alpha and Misoprostol²⁹. However in certain studies, induction of labour with prostaglandins, where it is necessary, is considered safe in women with a previous lower segment uterine scar and has achieved good results. In JPMC Karachi, a study was conducted from Jan 1989 to Dec 1993 and the incidence of UR due to oxytocic drugs was found to be 15.38%. Studies confirm that the risk of uterine rupture during trial of labour is approximately 1%. However, in a Canadian study, vaginal birth after Caesarean section (VBAC) was declared twice as risky as repeat C-section³⁰. In Denver and Salt Lake City hospitals in America, 20 cases of UR were observed during oxytocic stimulated trials of labour³¹.

Versions in labour and manual removal of placenta are few rare causes of UR. A case of uterine rupture with adenomyosis was described in Italy which occurred during labour at 33 weeks³².

Obstructed labour leading to UR is one of the four commonest causes of high MMR in Pakistan. A study from Hyderabad showed that UR accounted for about 6% of maternal deaths. Obstructed labour was the commonest etiological factor identified in the study.

Traumatic rupture occurred in 6.25% cases of intact uteri in the present series. Most of them were due to forceps delivery in small maternity units.

CONCLUSION

Rupture of a pregnant uterus is a preventable obstetrical tragedy. It is commonly seen in the developing countries and is associated with high foeto-maternal mortality and morbidity. This major injury occurs most commonly in patients who have poor antenatal and intranatal care or have had no care at all.

REFERENCES

- Hassan FJ. Obstetrical injuries: a study at Jinnah Postgraduate Med Centre, Karachi. *Pak J Surg* 1994; 10:91-3.
- Iloobachie GC, Agwu T. The increasing incidence and declining mortality of ruptured uterus in Enugu. *Tropical J Obstet Gynaecol* 1998; 306-11.
- Agboola A. Rupture of the uterus. *Nig Med J* 1997;12: 19.
- Hibbard. LT. Rupture of the uterus. In: current problems in Obstetrics and Gynaecology. 5th ed Lange Med Publications 1984; 716.
- Ahuka OL. Obstetric uterine rupture in a rural area in Zair. *Trop Doct* 1994; 24: 90-3.
- Hassan TJ, Karejo R, Jaffary SN. Rupture of uterus in full term pregnancy. *J Pak Med Assoc* 1993; 43: 172-3.
- Helewa M. Rupture of the pregnant uterus: the evidence from this decade on risk factors, predictability and prognosis. *J Soc Obstet Gynaecol Can* 1999;21:864-73.
- Rageth JC, Juzi C, Grossenbacher H. Delivery after previous caesarean: a risk evaluation. Swiss Working Group of Obstetric and Gynecologic Institutions. *Obstet Gynecol* 1999;93:332-7.
- Johanson R. Obstetric Procedures. In: Dewhurst's Textbook of Obs and Gynae for Postgraduates. 6th ed. Blackwell Sci. Ltd; 1999; 323-4.
- Eden RD, Parker RT, Gall SA. Rupture of the pregnant uterus. A 53 years review. *Obstet Gynaecol* 1986;68:671.
- Fedowrkow MD, Wimrod CA, Talor PJ, et al. Ruptured uterus in pregnancy a Canadian hospital's experience *CMAJ*. 1987; 137(1): 27-9.
- Blade MD, Breibach GP, Bastert G. Uterine rupture an analysis of 81 cases in Conakry/Guinea. *Int J Gynaecol Obstet* 1990.
- Akashes F. Rupture of the uterus. Analysis of 104 cases of ruptures. *Am J Obstet Gynaecol* 1968 ;101: 406.
- Elkin ST, Onwulka E, Stovall T, et al. Uterine rupture in Nigeria. *J Reprod Med* 1985: 30: 195.
- Chamiso B. Rupture of pregnant uterus in Shashemeno Gen. Hospital, Ethiopia (a three years study of 57 cases). *Ethiopian Med J* 1995; 33(4): 251-7.
- Qadir S. Management of Ruptured uterus *J Coll Physicians Surg Pak* 1999; 9: 190-2.
- Fatima N. Rupture of uterus at term; *J Coll Physicians Surg Pak* 1998; 8 (3): 137-9.
- Rehman MS, Forthergill. Rupture of the pregnant uterus in Eastern Libya. *J R Soc Med* 1979; 72: 415.
- Rana S. Obstetrics and Perinatal Care for developing countries. 1st ed. Islamabad: SAF Publications: 1998: 1308-11.
- Oyelese Y, Ikomi A, Manyonda IT, et al. Third consecutive complete posterior uterine rupture: A case report. *J Reprod Med* 2001; 46(7): 694.
- Golen. Rupture of post myomectomy gravid uterus-case reports. *J Obstet Gynaecol*. 1999; 4(1): 23-4.
- Hanif S. Rupture of previously scarred uterus of non-Caesarean origin. *Pak J Med Sci* 1998; 15(1): 73.
- Nordin AJ, Richardson JA. Uterine rupture following perforation during curettage *Int. J Obstet Gynaecol* 1993; 41:285-6.
- Gomis, CV. Acute Abdomen In Pregnancy: Uterine Rupture by placenta percreta, a rare cause. Presented at INABIS '98. 5th Internet World Congress on Biomed Sciences, Canada.1998.
- Bevan JR. Uterine rupture, placenta percreta and curettage in early pregnancy *Br J Obstet Gynaecol* 1995; 92 :642-4.
- Alirevic Z. Oral Misoprostol for induction labour (Chochrane review). *Cochrane*

- database syst. 2001; 2: CD001388.
27. Pal JA. Use of Oxytocins in a uterus with previous cesarean section: Pak J Med Sci 2000 ; 16 :87-91.
28. Hawe JA, Olah KS. Posterior uterine rupture in a patient with a lower segment caesarean section scar, complicating prostaglandin induction of labour. Br J Obst Gynecol 1997; 104: 857.
29. Akhan SE, Iyibozurt AC, Turfanada A. Unscarred uterine rupture after induction of labour with Misoprostol: A case report. Clin Exp Obstet Gynaecol 2001; 28(2):118-20.
30. McMahon M, Luther ER, Bowes WA Jr, Olshan AF. Comparison of trial of labor with an elective second cesarean section. N Engl J Med 1996;335:689-95.
31. Jones RO, Nagashima AW. Rupture of low transverse cesarean scars during trial of labor. J Obstet Gynecol 1991;77:815-7.
32. Pafumi C, Farina M, Pernicove G, et al. Adenomyosis and uterus rupture during labour. Zhonghua Yi Xue Za Zhi (Tapei)2001; 64(4): 244-6

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