

TRENDS IN FREQUENCY AND CAUSES OF UTERINE RUPTURE IN A TERTIARY CARE CENTER BETWEEN YEAR 2001 AND 2011

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ABSTRACT

Objective: To analyze the trends in frequency and causes of uterine rupture between year 2001 and 2011.

Methodology: An observational study was done at Lady Reading Hospital Peshawar in year 2011 from 1st January 2011 to 31st December 2011 to analyze the trends in the frequency and causes of ruptured uterus and data was entered in a structured proforma. Same proforma was used to collect data of ruptured uterus in year 2001 from delivery registers, operation room record and patient charts.

Results: In year 2011 there were total 5313 deliveries including 1229 caesarean sections. Mean age was 35.0±2.0 years. Total 56 cases of ruptured uterus were noted. Frequency of ruptured uterus was 1.05%. Sixty % patients had previous caesarean section. While in year 2001 there were total 3885 deliveries including 716 caesarean sections. Mean age was 33.0±2.0 years. Total 25 (0.64%) cases of ruptured uterus were noted. Obstructed labour in grand multigravidas was the commonest cause of ruptured uterus. A 3 fold increase in ruptured uterus was seen in association with scarred uterus i.e. in year 2001, 12% patient with ruptured uterus had scarred uterus while in year 2011, 35.7% cases had scarred uterus.

Conclusion: Increase trend in frequency of uterine rupture was noted between year 2001 and year 2011. Moreover uterine rupture was more common in scarred uterus following trial of vaginal delivery compared with unscarred uterus in year 2011.

Key Words: Uterine Rupture, Previous caesarean section, Obstructed labour.

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INTRODUCTION

Uterine rupture is a rare peripartum complication associated with severe maternal and perinatal morbidity and mortality, and is one of the most common causes of medical litigation in the developed world¹.

Causes of uterine rupture are grand multiparty, injudicious use of oxytocin (medically not recom-

mended at this stage but prescribed), obstructed labour, previous caesarean section and myomectomy, uterine instrumentation and manipulation in labour induction, congenital abnormalities of the uterus and fetus and uterine distention due to polyhydramnios, multiple pregnancies and fetal macrosomia^{2,3}. Because the rate of caesarean section is increasing worldwide, we are dealing with an increasing number of mothers with previous caesarean section, with consequent high risk of uterine rupture in next pregnancy⁴.

The main cause of uterine rupture in a scarred uterus is lack of appropriate counseling and inadequate or absence of antenatal care with increasing number of women undergoing trial of labour after a previous caesarean section, in an anticipation of vaginal delivery, separation of previous caesarean scar has become a common cause of rupture especially in unskilled hands^{5,6}. The occurrence of uterine rupture varies in different parts of the world. In the developed countries the frequency has dropped significantly but still it is the major health problem in

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the developing countries like Pakistan⁷.

Lady Reading Hospital is a tertiary teaching hospital where cases are referred from maternity homes, private hospitals, general practitioners of Peshawar and other parts of Khyber pakhtoonkhwa and Afghanistan. Due to poor transport facilities and long distance, most of the patients are brought late in shock and moribund state. The aim of the study was to analyse the trends in frequency and causes of uterine rupture between year 2001 and 2011.

METHODOLOGY

This observational study was conducted at Lady Reading Hospital from 1st January 2011 to 31st December 2011. All patients admitted in gynaecology A labour room of Lady Reading Hospital Peshawar via emergency with ruptured uterus were included in this study. After informed consent from the patient or from immediate relative if the patient was unable to talk, patient was prepared for emergency laparotomy, resuscitated blood arranged, intravenous antibiotics given, relevant investigations done, laparotomy performed, and hysterectomy or repair done according to the situation. Abdomen closed according to standard protocol and post operative care was instituted according to individual patient. Cause of uterine rupture was determined. All these findings including demographic data, pre hospital

management, per-operative findings and causes were entered in a structured proforma. Similar data was collected from hospital charts, OT and labour room record of year 2001. Data was entered in SPSS version 16 and descriptive statistics were applied for analysis.

RESULTS

In year 2011 there were total 5313 deliveries including 1229 caesarean sections. Total 56 cases of rupture uterus were noted. Frequency of rupture uterus was 1.05%. The causes of rupture uterus were obstructed labour in 32.1% cases, mishandling by unskilled people in 35.7% cases, fetal malpresentation and malpositions in 12.5% cases, direct trauma in 1.78% cases, instrumental delivery in 3.57% cases, congenital abnormality of the baby in 7.14% cases, while 5.35% cases has uterine rupture during hospital stay. Previous caesarean scar was noted in 35.7% cases. While in 2001 these were total 3885 deliveries including 716 caesarean sections. Total 25 cases of ruptured uterus were noted. Frequency was 0.64%. The causes of uterine rupture were obstructed labour in 32% cases mishandling by unskilled persons in 28% cases, fetal malpresentations and malpositions in 20% cases, congenital abnormality of the fetus in 12% cases and direct trauma in 0.5% cases. Previous caesarean scar was noted in 12% cases.

Table 1: Causes of uterine rupture

		2001 (n=25)		2011 (n=56)	
1	Mishandled by unskilled birth attendant and injudicious use of oxytocin	07	28%	20%	35.7%
2	Malpersentation and malposition	05	20%	07	12.5%
3	Direct Trauma	02	0.5%	01	1.78%
4	Obstructed Labour	08	32%	18	32.14%
5	Instrumental Deliveries	-	-	2	3.5%
6.	Rupture during stay in hospital			3	5.35%
7	Silent scar dehiscence			01	
8	Congenital abnormality	03	12%	4	7.14%
9	Pervious caesarian section scar	03	12%	20	35.7%

Table 2: Parity of patients with rupture utreus

Parity	2001 (n=25)		2011 (n=56)	
	Rupture with scarred uterus	Rupture with unscarred uterus	Rupture with scarred uterus	Rupture with unscarred uterus
Primigravida	0	0	0	0
Multigravida	03 (12%)	08 (32%)	14 (25%)	19 (33.9%)
Grandmultigravida	0	08(32%)	06(10.7%)	15 (26.7%)
G.Grandmultigravida	0	06 (24%)	0	02 (3.5%)

Table 3: Comparison of cases of ruptured uterus 2001-2011

	Total Deliveries	Total C/section	C/section Rate	No of Ruptured uterus	% of rupture	p value
2001	3885	716	18.4%	25	0.64%	<0.05
2011	5313	1229	23.13%	56	1.05%	

DISCUSSION

Uterine rupture still remains one of the serious obstetric complications, lack of health information, illiteracy, poor antenatal care, poverty, home deliveries by traditional birth attendants and delay in referrals all contribute to uterine rupture⁸.

The frequency of uterine rupture in this study was 0.64% in 2001 and 1.05% in 2011 which has almost doubled. This is similar to a local study conducted in Hayatabad Medical Complex⁵. Same incidence is quoted by a local study at Karachi. In another study at Jinnah Postgraduate Medical Centre it is 0.549%. In another study at Sandeman Hospital Quetta, the frequency is 0.4% (5). Frequency of 0.74% is reported by Rizwan N at Liaquat University Jamshoro Sindh⁸ and Malik HS⁹.

The incidence in developed countries is at least ten times lower i.e. 0.086% in Australia and 0.023% in Ireland^{10, 11}. 12.5% incidence is reported by Ummi Habiba at Swat¹². 12.5% at Military Hospital Rawalpindi¹³. The wide variation in incidence is due to divergent characteristics of the obstetric population in different regions and quality and quantity of obstetric services.

Main cases of ruptured uterus in 2001 were obstructed labour in 32% cases, mishandling by traditional birth attendants and injudicious use of oxytocin in 28% cases. Previous caesarean scar was noted in 12% cases. While in 2011 mishandling by traditional birth attendants was seen in 35.7% cases. Among these 60% patients had scarred uterus, previous caesarean scar was noted in 35.7% cases, and obstructed labour in 32.14% cases. 5.35 case with previous scar ruptured during hospital stay due to some administrative problems and lack of available facilities like operation theatre table and continuous electronic fetal heart rate monitoring etc. Labouring patients with previous caesarian section are very high risk and they need continuous monitoring, which is sometimes not possible in our setup due to increased work load and deficient staff. Causes of obstructed labour were cephalopelvic disproportion superimposed by lack of transport facilities and traditional family taboos against seeking medical advice. All these patients were unbooked, very poor and brought from backward areas in shock and moribund state.

Congenital malformations like gross hydrocephalus and hydrops foetalis were seen in 03 cases in year 2001 and 04 cases in year 2011. These patients had no antenatal checkups and the anomalies were diagnosed at laparotomy. These patients had spontaneous onset of labour and uterine rupture. Local studies at Abbotabad¹⁴, Bannu², Hyderabad¹⁵, Lahore¹⁶ and Karachi¹⁷ has cited obstructed labour and injudicious use of oxytocin and other forms of mishandling by TBA as main causes of ruptured uterus. There is only a small change in frequency of obstructed labour over the past one decade. Same is the condition in developing countries like Nigeria¹⁸ where incidence of obstructed labour is the highest i.e. 91.8% leading to ruptured uterus. There has been a significant increase in the frequency of ruptured uterus in scarred uterus from 2001 i.e. from 12% to 37.5%. This is due to world wide increase in caesarean section rate. The local incidence of rupture of a scarred uterus is very variable i.e. 18.8% at Bannu, 54.1% at Hyderabad¹⁵, 14.7% at Abbottabad¹⁴, 31.25% at Rawalpindi¹³. 44.44% at Peshawar⁵, 41.66% at Jamshoro⁹, 50% at Lahore⁶ while 13% incidence is reported by Abbasi A from Lady Reading Hospital, Peshawar in 1993¹⁹. International studies conducted at Norway¹ and Ghana Uganda² has shown that previous caesarean section followed by VBAC is the main cause of ruptured uterus. In contrast a systematic review from USA has shown that incidence of ruptured uterus in patients with previous caesarean section followed by VBAC is not significant and 263 elective repeat caesarean sections will be needed to prevent one uterine rupture²¹. Most of the ruptures in patients included in this study could have been avoided if a decision regarding their mode and time of delivery had been made by experienced personnel beforehand. This would have been possible if these patients had proper antenatal surveillance and were all convinced to have hospital delivery. Patients were generally illiterate and belonged to a lower social class, because of the attitude and traditional beliefs of this class, caesarean section is regarded as a reproductive failure. This militates against booking for hospital delivery in the subsequent pregnancy, thus leaving the mother to the services of untrained and unskilled personnel. Women with two or more previous caesarean sections are more likely to seek medical care in subsequent pregnancies, as compared to those with one caesarean section, because of general belief that after two caesarean sections

vaginal delivery becomes risky. TBAs usually refer the case with two or more previous caesarean sections for hospital booking while they do their level best to deliver the cases with one prior caesarean section and thus end up with ruptured uterus.

In year 2001 parity was more than 6 in 44% patients which is consistent with many studies²² showing that grand multiparity is a cause of ruptured uterus. While in year 2011 58.4% patients were para 1-4 among which 33.9% patients had previous caesarean scar. In a local study conducted by Mobasher et al, maximum parity of patients was 1-2 (n=14) and majority had previous caesarean section (n=12). Subtotal hysterectomy was the commonest procedure both in year 2001 and 2011, followed by repair of uterus which is similar to other studies.

CONCLUSION

A threefold increase in uterine rupture was noted between year 2001 and year 2011. Moreover uterine rupture was more common in patients with previous caesarian section, and patients mishandled by traditional birth attendants in year 2011 while in year 2001 obstructed labour in grand multigravida was the commonest cause of uterine rupture. .

RECOMMENDATIONS

The indications for primary caesarean section should be well justified so as to avoid unnecessary caesarian sections and thus rupture at previous caesarean section scar site in next pregnancy. At the time of discharge, the woman should be clearly informed about the nature of operation and importance of hospital delivery in subsequent pregnancy. TBAs and all concerned health personnel must be educated about the risks in women with previous scar and advised to refer all patients with a previous caesarean section to appropriate hospital. In antenatal clinics, the mode and time of delivery in patients with scarred uterus should be planned well in time at around 36 weeks; the patients selected for the elective caesarean section must be dealt with at 38 weeks. The cases in labour trial should have vigilant intrapartum care and monitoring in well-equipped hospital by experienced staff capable of dealing with all emergent complications.

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CONTRIBUTORS

LZ conceived the idea, planned and wrote the manuscript of the study. SB helped in the write-up of the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.