

## **Uterine rupture, frequency of cases and fetomaternal outcome**

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### **Abstract**

**Objective:** To determine the frequency, predisposing factors and maternal and foetal outcome of uterine rupture.

**Methods:** This descriptive case series was conducted at the Department of Gynaecology and Obstetrics, Liaquat University of Medical & Health Sciences, Jamshoro from January 2008 to December 2008.

All cases of ruptured uterus, who were either admitted with this complication or who developed it in the hospital, were included in the study. Patients having ruptured uterus due to congenital abnormality were excluded from the study. Demographic data, details of predisposing factors, type of rupture, the management, maternal and foetal outcome were taken into consideration for analysis. Data was analyzed using SPSS version 10.0.

**Results:** The total number of deliveries during the year January to December 2008 was 2010. There were 15 cases (0.74%) of uterine rupture. Out of these only three (20%) were booked. Most of the patients (60%) presented between the ages 26-30. Majority of uterine rupture occurred in para 2-4, (53.33%).

Common cause of uterine rupture was prolonged neglected obstructed labour. Previous caesarean section scar was found in 41.66%. Anterior uterine wall was involved in 60% of cases. Rupture was complete in 73.33% of cases. Hysterectomy was performed in 53.33%. There were three maternal (20%) and 11 intrauterine deaths (73.33%). Live birth rate was 26.66%.

**Conclusion:** This study showed that prolonged neglected obstructed labour is the main cause of uterine rupture followed by scarred uterus. Proper antenatal care and updated training programmes for health care providers is the need of time to prevent this catastrophic but avoidable complication.

**Keywords:** Uterus, uterine rupture, multiparity, caesarean section (JPMA 61:322; 2011).

### **Introduction**

Uterine rupture in pregnancy is a rare and often catastrophic complication.<sup>1</sup> It is associated with a high incidence of foetal and maternal morbidity.<sup>2</sup> Several factors are known to increase the risk of uterine rupture, these include poor socioeconomic conditions, uncontrolled fertility, illiteracy, adolescent marriages and under developed and contracted pelvis.<sup>3</sup> Uterine rupture during pregnancy is a rare occurrence, whereas uterine scar dehiscence is a more common event<sup>4</sup> that seldom results in major maternal or foetal complication.<sup>1</sup>

The rate of caesarean delivery has risen from 5% in 1970 to 26 percent in 2003<sup>5</sup> despite improvement in obstetrical procedures such as classic caesarean section, internal version, total breech extraction etc.

The incidence of rupture remains high mainly due to the use of oxytocin drug by people not qualified for its use. Several studies suggest that for adequately screened women with prior caesarean section, a trial of labour is safer than elective repeat caesarean section in hospital environment.<sup>6</sup> But due to lack of health education, ignorance or poverty, women in our country do not come for regular antenatal checkup, preferring home delivery by traditional birth attendant, instead of coming to hospital for trial of scar.

They are brought to hospital after prolonged dysfunctional labour when traditional birth attendants fail to deliver them. This results in increased chances of rupture of previous caesarean scar.<sup>7</sup> High maternal mortality and morbidity rate is a consequence of poor maternal care, inadequate socioeconomic and environmental conditions, poor accessibility to health services and poor nutrition habits. Contributing factors are also extremes of maternal age (too young or too old) and too many births within short intervals.<sup>8</sup>

Early diagnosis and treatment results in better chances of maternal and foetal outcome.

The objective of the study was to identify the risk factors for uterine rupture in labour, to report maternal and foetal outcome and to identify preventive measures.

### **Methodology**

This study was conducted over a period from January 2008 to December 2008, in the department of Gynaecology and Obstetrics Unit II Liaquat University Hospital of Medical and Health Sciences. Total number of deliveries conducted during this period was 2010. All cases of ruptured uterus, who were either admitted with or who developed this complication in the hospital, were included

in the study. Patients having ruptured uterus due to congenital abnormality were excluded from the study. Diagnosis was made on history and examination and was confirmed on laparotomy. These cases were analyzed with regard to their clinical presentation, past history complications, management and outcome. The surgical procedure depended on general condition of the patients, parity, and desire for future child bearing, site, severity and extent of rupture. The surgical management comprised one of the three methods: repair of uterus without tubal ligation, repair with tubal ligation or hysterectomy. As this was an observational study, the approval from the Ethics committee of the hospital was not required.

All patients were followed up until their discharge from the hospital. Data was analyzed using SPSS version 10.0.

## Results

Total number of deliveries during the period was 2010 of which 15 were cases of uterine rupture with a frequency of 0.74%. Age range was between 16 to 35 years. Most of the patients (60%) presented between the ages of 26-30, and parity ranged from 1-12 however uterine rupture was more common (53.33%) in para 2-4. Only two women (13.33%) were para one.

There were twelve (80%) un-booked while three (20%) booked cases.

Prolonged obstructed labour was the main cause of ruptured uterus in 8 (53.33%) cases. In all these cases, health care providers used oxytocin without rationalising the need and cause of obstruction. Rupture of previous caesarean scar was the second most common cause. Cases with one caesarean section done in past were 5 (33.3%) whereas those with two were 2 (13.3%) cases. Lower uterine segment was the most common site of rupture in 9 (60%) cases.

Anterior uterine wall was involved in 9 (60%) cases and posterior uterine wall in 4 (26.66%) cases. Both anterior and posterior uterine wall were involved in 2 (13.33%) cases. Rupture was transverse in 8 (53.33%) cases, it was longitudinal in 7 (46.66%) cases.

Rupture was complete in 11 (73.33%) patients while it was incomplete in 4 (26.66%) cases. Bladder was involved in 2 (13.33%) cases. Majority of women arrived in state of shock and required urgent resuscitation measures followed by surgery.

Repair of uterus without tubal ligation was performed in 4 (26.66%) young patients, repair with tubal ligation was done in three (20%) patients and hysterectomy was performed in 8 (53.33%) cases. Repair of bladder was

undertaken in 2 (13.33%) cases.

Maternal death occurred in 3 (20%) cases. Perinatal mortality was 11 (73.33%), live birth rate was 4 (26.66%).

## Discussion

Ruptured uterus 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 rupture.<sup>7</sup>

The frequency of uterine rupture in the presented study was 0.74%. This when compared to other studies, was similar to the study done by Malik H,<sup>7</sup> however this incidence was lower in comparison to a study done by Alam et al,<sup>9</sup> who had a figure of 1.14%. In developing countries like Ethiopia and Nigeria it was higher i.e. 0.03% and 0.83% respectively.<sup>10,11</sup>

The incidence in developed countries is at least ten times lower i.e 0.086% in Australia and 0.023% in Ireland.<sup>11,12</sup> Studies conducted in developing world gives strong evidence that uterine rupture is a major health problem in developing countries, with the rate being higher in rural areas.<sup>13,14</sup> The studies also reveal that socioeconomic and unilateral issues along with poor health services play a major role in determining the frequency of uterine rupture.

Most of the patients in this study (60%) were between the age of 26-30 years. This study was compared with the study done by Khan et al<sup>15</sup> where most women belonged to the age group 31-35 years (47%), followed by the age group 26-30 (38.27%). This was similar to the study done by Malik HS<sup>7</sup> in which majority of women belonged to the age group 26-30 years.

Majority of ruptures occurred in para 2-4 (53.33). Similar result was found in the study done by Malik HS<sup>7</sup> where 42.71% of women were para 2-4.

Majority of patients 80% were unbooked similar result was found in other studies.<sup>7,16,17</sup> Most of these unbooked patients were brought to the hospital from remote areas of Rural Sindh. Prolonged obstructed labour was the main cause of ruptured uterus in 53.33% of cases. This observation was similar to the study done by Ezechi et al<sup>2</sup> where 91.8% of uterine rupture cases were due to prolonged obstructed labour. But in contrast to the study done by Malik HS and others rupture of previous caesarean rcar was the most common cause.<sup>18-20</sup>

The lower segment uterine rupture was the most common site of rupture in this study (60%). Similar observation was found in other studies.<sup>7,20,21</sup> Rupture was complete in 73.33% cases and was incomplete in 26.66%.

Similar results were found in other studies.<sup>7,21,22</sup>

Total abdominal hysterectomy was performed in 53.3% of cases where repair of uterus was not possible. This was in contrast to the study done by Malik HS,<sup>7</sup> but was comparable with study done by Ahmed et al.<sup>19</sup>

Repair of uterus without tubal ligation was performed in 4 of the young patients in whom uterus was repairable.

Repair with tubal ligation was done in 3 multiparous patients. Maternal mortality was 2%. This was comparable with other studies<sup>2,10,23</sup> but it was in contrast to the study by Malik HS in which it was 7.76%. In this study perinatal mortality was 73.33% which was similar to the observations of Adnu RM et al.<sup>24</sup> However, it was higher in Malik HS's observation where it was 81.7%.<sup>7</sup>

### Conclusion

This study concluded that prolonged neglected obstructed labour is the main cause of ruptured uterus followed by scarred uterus. Proper antenatal care and updated training courses of health care providers should be stressed to prevent this catastrophic but avoidable complication.

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