Rupture of Previously Scarred Uterus

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Objective: To determine causative factors, find out associated maternal and fetal morbidity and mortality and to discuss preventive measures. **Design:** A prospective study. **Place and duration of study:** Department of Obs. And Gynae, Lahore General Hospital, (PGMI), Lahore for a period of four years, Jan. 2002 to Dec. 2003. **Subject and methods:** This study was conducted on sixty patients, with rupture of previously scarred uterus. **Results:** Total number of deliveries during these four years was 15,628. Rupture of uterus occurred in 0.47% cases (1:214). Out of these 8 cases of previously scarred uterus occurred in 82% cases. Most of the patients were between ages 21 – 30 years unbooked illiterate, belonged to poor class. 83% caesarean sections had been done in the study. **Conclusion:** Total patients had no labour pains at time of admission. The maternal mortality in this study was 3.33% and fetal mortality was 60%. Patients with scarred uterus should be educated to have regular antenatal checkup and hospital delivery in next pregnancy.

Key words: Caesarea section, uterine rupture. Mortality, Maternal health services.

Rupture of gravid uterus is an obstetrical catastrophe and is associated with high maternal and perinatal mortality. Nowadays, the common cause of uterine rupture is rupture of previous scar. Rupture of uterus can be (i) complete which involves entire thickness of uterine wall and visceral peritoneum. Foetus and placenta may be expelled into the peritoneal cavity, (ii) Incomplete rupture or scar dehiscence when the uterine muscles have given away but visceral peritoneum in intact.

The main reason for rupture of uterus in that despite of previous caesarean sections, the patients take trial at home by traditional birth attendants, who assure them for vaginal delivery and scarring that if they will go to the hospital, caesarean section would be done again. Moreover the rate of caesarean section is increasing day by day in our country, it has led to the emergence of serious problems.

This study was conducted in Department of Obstetrics and Gynaecology, Lahore General Hospital, Lahore, which is affiliated with post Graduate Medical Institute, Lahore. LGH is a tertiary care center where patients are referred from all the southern areas of Lahore in addition to the villages of Kasur and adjacent districts. The aims of this study were to determine the causative factors responsible for rupture of previously scarred uterus, to find out associated maternal and fetal morbidity and mortality and to discuss preventive measures.

Patients and methods:
This was a prospective study carried out for a period of four years i.e. from Jan 2000- Dec 2003 in the said department only those cases of rupture were included who had one or more previous caesarean section. A detailed history was taken including that of present and past pregnancies. Patient’s age, parity, social class, booking status and educational status was enquired. Information’s were taken regarding number of previous caesarean sections, place of previous surgery. Indications and complication, duration of this labour, interference by TBA and use of any medication. A full general, systemic and obstetrical examination was then carried out. Time taken from home to reach hospital centre was noted and problems of transportation were considered.

Results:
During the study period there were 15,628 deliveries in our unit. Rupture of uterus occurred in 73 cases making an incidence of 1 per 214 births or 0.47%. Out of these 73 cases, 60 (82%) had previous caesarean section.

Majority of the patients had age between 21-30 years, parity 2-5, 85% belonged to poor class. 96.66% were none booked, 95% were illiterate (Table 1) Gestational age varied between 37-42 weeks. As the patients came from far flung areas associated transport problem was seen in nearly all the patients. Only 5 patients brought their previous discharge card, in rest of the patient’s information was collected from the patient herself or her attendants.

<table>
<thead>
<tr>
<th>Table 1 Distribution of patients age and parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
</tr>
<tr>
<td>15-20</td>
</tr>
<tr>
<td>21-30</td>
</tr>
<tr>
<td>31-40</td>
</tr>
<tr>
<td>41-50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>23</td>
</tr>
<tr>
<td>3-5</td>
<td>34</td>
</tr>
<tr>
<td>&gt;5</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Class</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower middle class</td>
<td>9</td>
</tr>
<tr>
<td>Poor class</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Booking Status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Booked</td>
<td>2</td>
</tr>
<tr>
<td>Non booked</td>
<td>58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>57</td>
</tr>
<tr>
<td>Upto class 5</td>
<td>5</td>
</tr>
</tbody>
</table>
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Table II shows patients characteristics regarding previous caesarean section. 50% patients had previous one caesarean section. 83.33% of the caesarean sections were done on some peripheral non teaching hospitals. As previous discharge cards were not available in most of the cases so we had no documentation of extension of tears, if previous classical caesarean section was done or any intra operative complications. In 25% patients they don’t know the indication for previous caesarean section, while majority of the caesarean sections were done due to CPD, failure to progress and fetal distress. 15 patients gave history of wound infection, gaped wound and restitching.

**Table II Patients Characteristics**

<table>
<thead>
<tr>
<th>No. of previous caesarean sections.</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Two</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>Three</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

**Place of previous caesarean section**

<table>
<thead>
<tr>
<th>Indications</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPD</td>
<td>18</td>
<td>30</td>
</tr>
<tr>
<td>Failure of progress</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>Foetal distress</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Malpresentation</td>
<td>7</td>
<td>11.66</td>
</tr>
<tr>
<td>Patient don’t know</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
</table>

Duration of labour is depicted in table III. Eight patients were not in labour at time of admission and were diagnosed during elective caesarean section. Rest of the patients were diagnosed as a case of rupture uterus before delivery, so they were opened up, none of them were delivered vaginally. Types of interferences carried out by TBA/LHV included direct I/M syntocinon injection, PGE2 vaginal tablets, uterine massage and internal manipulations. In 60% patients there was complete rupture of uterus while scar dehiscence occurred in 40% patients (Table IV). Caesarean hysterectomy was done in only 5 patients, in rest, repair was done either alone or with bilateral tubal ligation.

Regarding post operative complications, patients had more than one complication. 90% patients were anemic. Maternal mortality was 3.33% (Table V), while fetal mortality was 60% (Table VI). Average hospital stay of patients was 12 days.

**Table III Duration of labour**

<table>
<thead>
<tr>
<th>Duration (hours)</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>1-6</td>
<td>4</td>
<td>6.66</td>
</tr>
<tr>
<td>7-12</td>
<td>30</td>
<td>50.00</td>
</tr>
<tr>
<td>13-24</td>
<td>10</td>
<td>16.66</td>
</tr>
<tr>
<td>&gt;24</td>
<td>8</td>
<td>13.33</td>
</tr>
</tbody>
</table>

**Table IV Outcome and management**

<table>
<thead>
<tr>
<th>Complication</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scar dehiscence</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>Rupture of uterus</td>
<td>36</td>
<td>60</td>
</tr>
<tr>
<td>Rupture of urinary bladder</td>
<td>5</td>
<td>8.33</td>
</tr>
<tr>
<td>Broad ligament haematomata</td>
<td>7</td>
<td>11.66</td>
</tr>
<tr>
<td>Cervical tear</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>Repair of uterus</td>
<td>20</td>
<td>33.33</td>
</tr>
<tr>
<td>Repair of uterus + BTL</td>
<td>35</td>
<td>58.33</td>
</tr>
<tr>
<td>Caesarean hysterectomy</td>
<td>5</td>
<td>8.33</td>
</tr>
</tbody>
</table>

**Table V Maternal morbidity**

<table>
<thead>
<tr>
<th>Complication</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia</td>
<td>54</td>
<td>90</td>
</tr>
<tr>
<td>Fever</td>
<td>36</td>
<td>60</td>
</tr>
<tr>
<td>Wound infection</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>Burst abdomen</td>
<td>2</td>
<td>3.33</td>
</tr>
<tr>
<td>DVT</td>
<td>1</td>
<td>1.66</td>
</tr>
<tr>
<td>Maternal death</td>
<td>2</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**Table VI Fetal morbidity**

<table>
<thead>
<tr>
<th>Complication</th>
<th>n=</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetal death</td>
<td>36</td>
<td>60</td>
</tr>
<tr>
<td>Baby with A/S &gt;5</td>
<td>16</td>
<td>26.66</td>
</tr>
<tr>
<td>Baby with A/S &lt;5</td>
<td>8</td>
<td>13.33</td>
</tr>
</tbody>
</table>

**Discussion:**

About 83% of ruptures occurred in patients with a history of previous caesarean section hence the presence of prior uterine scar was the major contributing factor. In the studies carried out in Karachi8, Lahore9 and Faisalabad10, the corresponding figure was 47%, 58% and 37 respectively. A study reported from Kuwait11 revealed 56% of rupture was attributed to previous uterine scar. The increase incidence in our study may be due to the fact that most of our patients were uneducated, belonged to poor social class and came from far flung areas. The long distance from referral hospital, rough roads, primitive mode of transport and reluctance to operative delivery again made them high risk for rupture uterus.

In this study 50% of the patients had previous one caesarean section, this is in contrast to study by Iskander12, who reported this figure to be 67%. It was noted that despite of previous one, two or even three caesarean sections patients took trial at home or at small centre in the village, where all sorts of injudicious interventions were tried without considering the grave consequences. The health education of rural people, the training and supervision of TBA and availability of transport may reduce incidence of uterine rupture13.

During the last two decades the rate of caesarean section had been doubled and trippled. In small clinics and centers most of the caesarean sections are done without legitimate indication by unskilled persons resulting in various problems. Extension of incision and tears during previous surgery and assurance of post operative infective
morbidity especially endometritis increases the risk of rupture in next pregnancy due to weak scar formation. This should be told to the patient during daily rounds and documented properly without hiding the facts. They should be educated to keep the previous discharge slip, have regular antenatal checkup in next pregnancy and hospital delivery. The most important cause of rupture in this study was process of labour not monitored properly. According to a study from karachi prolonged active phase of labour was found to be associated with increase risk of uterine rupture.

Repair of uterus was done in 33% patients, repair with bilateral tubal ligation in 58% and caesarean hysterectomy was done in 8% cases. In study from Quetta corresponding figure were 9.1%, 86.5% and 4.5%. GreenWood et. al. suggested the option of embolization of internal iliac artery with gel foam in order to reduce intra and post partum hemorrhage. The maternal mortality is high in cases of uterine rupture because of hypovolemic, septic and neurogenic shock. It was 3% which is lower than that reported in studies from Ethiopia. Perinatal mortality was 60%, it was lower than that reported from Zambia, where it was 100%.

Conclusion

1. First caesarean section should only be done if genuinely indicated, by some skilled obstetrician, in well equipped hospital.
2. At time of discharge patient should be educated to home regular antenatal checkup and hospital delivery in next pregnancy.
3. The discharge slip should be complete, mentioning any extension of tears during caesarean section, post operative endometritis, wound infection.
4. Trial of scar should be carried out only in teaching hospital with one to one monitoring by experience staff.
5. There should be public awareness programmes that no TBA or nurse should handle any patient with previous caesarean section, refer it to teaching hospital.

Particular attention to regulation of training and practice of TBA is required.
6. There should be motivation of the couples to seek family planning advice.

References