Original Research Article

Obstructed Labour: A Preventable Tragedy but Still a Long Way to Go In Developing Countries

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ABSTRACT

Background: Obstructed labour is a major cause of both maternal and newborn morbidity and mortality in developing countries. This study was conducted in order to determine the burden of obstructed labour in our setup so that effective measures could be taken to prevent it.

Objective : To review the incidence, socio-demographic details, causes and fetomaternal outcome of obstructed labour in the Department of Obstetrics & Gynecology, UP Rural Institute of Medical Sciences & Research, Saifai, Etawah, Uttar Pradesh, India.

Method: A retrospective review during the period from January 2013 to April 2015 was done and all the details of the patients admitted with the diagnosis of obstructed labour were noted.

Results: Out of 12,223 deliveries reviewed, 199 or 1.63% had obstructed labor. Majority of the patients were unbooked, primigravidas, illiterate and belonged to low socio-economic status and rural area. The commonest cause of obstructed labour was cephalopelvic disproportion (72.3%). Caesarean section was the only mode of delivery. Perinatal mortality was 20.60%. Incidence of rupture uterus was 3.5%. Maternal mortality was 1.5%.

Conclusion: Obstructed labour is a preventable condition. Antenatal detection of the factors likely to produce prolonged labour, continuous vigilance, timely referral, use of partograph and timely intervention can prevent obstructed labour.

Keywords: Obstructed labour, Cephalopelvic disproportion, Caesarean section, maternal mortality, Perinatal mortality.

INTRODUCTION

Obstructed labour is one where inspite of good uterine contractions, the progressive descent of the presenting part is arrested due to mechanical obstruction. The common causes of this condition are cephalo-pelvic disproportion (CPD), fetal malposition and malpresentation.

In few cases soft tissue obstruction in maternal passage (like pelvic tumors) or congenital malformation of fetus (like hydrocephalus) can also lead to obstructed labour. [1]

Fortunately, advances in obstetric care have made obstructed labour nearly obsolete in the developed world. However,
obstructed labour is still a major preventable and avoidable cause of maternal morbidity and mortality and also of perinatal mortality in developing countries. Obstructed labour causes 8% maternal mortality in developing countries like India. [2] Maternal mortality from obstructed labour is largely the result of ruptured uterus or puerperal infection, whereas perinatal mortality is mainly due to asphyxia. Significant maternal morbidity is associated with prolonged labour, since both post-partum hemorrhage and infection are more common in women with long labour. Obstetric fistulas are long-term problems. Traumatic delivery affects both mother and child. [3,4]

Antenatal detection of the factors likely to produce prolonged labour, continuous vigilance, timely referral, use of partograph and timely intervention can prevent obstructed labour.

Before proceeding for any definitive operative treatment, rupture of uterus must be excluded. A balanced decision should be taken about the best method of relieving the obstruction with least hazards to the mother. The management of cases where the fetus is alive requires urgent caesarean section. However, with the fetus either dead or having severe fetal distress and the mother is severely dehydrated with features of ascending infection, use of destructive procedures or caesarean section is debatable. Prior to the advent of antibiotics and their rapid evolution, the popular method was to reduce the bulk of the fetal head or trunk by destructive operations to allow its extraction through the birth canal. These procedures had very high mortality and morbidity. In the modern era, lower segment caesarean section (LSCS) under good antibiotic coverage has a very low mortality and morbidity and seems to be the best option. [5]

This study was conducted in order to review the burden of obstructed labour in our setup so as to decide strategy and effective measures for its prevention or at the least early diagnosis and management.

MATERIALS AND METHODS

This was a hospital based retrospective study conducted in the Department Of Obstetrics And Gynecology in a rural tertiary institute in Uttar Pradesh, India between the time period of Jan 2013- April 2015. All the antenatal women admitted in the Labour room with the diagnosis of obstructed labour were included in the study. The data regarding socio-demographic details, parity, previous obstetric history, antenatal care, duration of labour, details of referral history, examination findings, management given and fetomaternal outcome were recorded from the delivery and operation theatre record register. Standard terminology was used to define the terms.

RESULTS

During this study period, total number of deliveries was 12,223, out of which 199 cases were diagnosed to have obstructed labour. Thus, the incidence of obstructed labour in our setup is 1.63%. (Table-1)

<table>
<thead>
<tr>
<th>Statistical data</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of deliveries</td>
<td>12,223</td>
<td></td>
</tr>
<tr>
<td>Total no. of caesarean deliveries</td>
<td>4210</td>
<td>34.44</td>
</tr>
<tr>
<td>Total no. of vaginal deliveries</td>
<td>8013</td>
<td>65.56</td>
</tr>
<tr>
<td>Incidence of obstructed labour</td>
<td>199</td>
<td>1.63</td>
</tr>
</tbody>
</table>

Maximum of the patients (89.4%) were in the age group of 20-30 years. The highest frequency (64.3%) was found among the primigravida. Majority of the patients (71.3%) were illiterate. Majority of the patients (89.9%) were from low socio-economic status and belonged to rural area (88.9%). Maximum patient (57.9%) did not
attend any antenatal clinic, 38.6% had irregular antenatal checkups. (Table-2)

Table-2 Socio-demographic details of obstructed labour cases (n=199)

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (in years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;19</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>20-25</td>
<td>127</td>
<td>63.8</td>
</tr>
<tr>
<td>26-30</td>
<td>51</td>
<td>25.6</td>
</tr>
<tr>
<td>31-35</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>&gt;35</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primi</td>
<td>128</td>
<td>64.3</td>
</tr>
<tr>
<td>1-4</td>
<td>65</td>
<td>32.6</td>
</tr>
<tr>
<td>&gt;4</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>Educational status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>142</td>
<td>71.3</td>
</tr>
<tr>
<td>Primary</td>
<td>52</td>
<td>26.1</td>
</tr>
<tr>
<td>Highschool</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>179</td>
<td>89.9</td>
</tr>
<tr>
<td>Middle</td>
<td>20</td>
<td>10.1</td>
</tr>
<tr>
<td>Upper</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>177</td>
<td>88.9</td>
</tr>
<tr>
<td>Urban</td>
<td>22</td>
<td>11.1</td>
</tr>
<tr>
<td>Antenatal checkup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>115</td>
<td>57.9</td>
</tr>
<tr>
<td>Irregular</td>
<td>77</td>
<td>38.6</td>
</tr>
<tr>
<td>Regular</td>
<td>7</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Table-3 Causes of obstructed labour (n=199)

<table>
<thead>
<tr>
<th>Causes</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cephalopelvic disproportion</td>
<td>144</td>
<td>72.3</td>
</tr>
<tr>
<td>Malposition</td>
<td>32</td>
<td>16.1</td>
</tr>
<tr>
<td>Malpresentation</td>
<td>12</td>
<td>6.1</td>
</tr>
<tr>
<td>Fetal anomaly</td>
<td>8</td>
<td>4.0</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>100</td>
</tr>
</tbody>
</table>

The commonest cause of obstructed labour was cephalo-pelvic disproportion (72.3%). Malposition like occipito-posterior, brow, face was present in 16.1% of the cases. 61.1% of the cases had malpresentation. Fetal anomaly (hydrocephalus) was present in only 4% of the cases. Pelvic tumor and myoma accounted for only 1.5% of cases. (Table-3)

Caesarean section was the only mode of delivery performed. 7(3.5%) cases were diagnosed to have ruptured uterus for which laparotomy was performed. Out of these 7 cases, repair was performed in 4 patients and subtotal hysterectomy in 3 patients. (Table-4)

Table-4 Distribution of modes of delivery (n=199)

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caesarean section</td>
<td>192</td>
<td>96.5</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>With repair of rupture</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>With subtotal hysterectomy</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>100</td>
</tr>
</tbody>
</table>

Perinatal outcome is shown in Table-5 and Table-6. Thirty one foetuses (15.6%) were still birth and one hundred and sixty eight foetuses (168) were live births. Complications noted among live born were birth asphyxia (30.9%), meconium aspiration syndrome (24.4%), septicaemia (23.2%), neonatal jaundice (22.6%), convulsions (8.9%). Many of the neonates have more than one complications. There were total 10 neonatal deaths. Thus, the perinatal mortality was 20.60%.

Table-5 Distribution of fetal condition during birth (n=199)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Still birth</td>
<td>31</td>
<td>15.6</td>
</tr>
<tr>
<td>Live birth</td>
<td>168</td>
<td>84.4</td>
</tr>
<tr>
<td>Total</td>
<td>199</td>
<td>100</td>
</tr>
</tbody>
</table>

Table-6 Distribution of complications among the live births (n=168)

<table>
<thead>
<tr>
<th>Complication</th>
<th>Frequency*</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth asphyxia</td>
<td>52</td>
<td>30.95</td>
</tr>
<tr>
<td>Meconium aspiration syndrome</td>
<td>41</td>
<td>24.4</td>
</tr>
<tr>
<td>Septicemia</td>
<td>39</td>
<td>23.2</td>
</tr>
<tr>
<td>Neonatal jaundice</td>
<td>38</td>
<td>22.6</td>
</tr>
<tr>
<td>Convulsion</td>
<td>15</td>
<td>8.9</td>
</tr>
<tr>
<td>Neonatal death</td>
<td>10</td>
<td>5.95</td>
</tr>
</tbody>
</table>

*Many of the neonates have more than one complications.

Many of the patients had more than one complication. Common being maternal sepsis (20.1%) paralytic ileus (12.5%), postpartum hemorrhage(12.06%). Rupture uterus was present in 7(3.5%) cases and subtotal hysterectomy performed in 3 cases.

There were three maternal mortalities, two due to hemorrhagic shock in case of rupture uterus and one due to septicaemia with multiorgan failure. (Table-7)
In West Bengal India, Mondal et al [11] in their study, observed following as the causes of obstructed labour-cephalopelvic disproportion (55.59%), malposition (23%), and malpresentation (18.21%). Gupta et al [12] in a study done in Rajasthan India, showed that 63% patient had cephalopelvic disproportion and 27% malposition. Islam et al [10] in Bangladesh noted that the commonest cause of obstructed labour was cephalopelvic disproportion (44.8%) followed by malposition (persistent occipito-posterior) (25.7%), malpresentation mostly shoulder presentation (10.5%) and breech presentation (9.5%). Fetal abnormality was found mostly severe hydrocephalous (2.8%). Fantu et al [6] in Ethiopia the causes of obstructed labour were cephalo-pelvic disproportion in 67.6% and malpresentation in 27.9%. In Sudan, Dafallah et al. [13] showed that 57% cases suffered from cephalopelvic disproportion. In a study in Enugu, Nigeria, by Nwogu-Ikojo et al., [7] they showed that the cause of obstructed labour was cephalopelvic disproportion in 56.6% cases. A study conducted in University of Ilorin, Nigeria, by Aboyiye et al. [9] showed that the commonest cause of obstruction was fetopelvic disproportion in 56.7% of cases.

Caesarean section was the only mode of delivery performed. Destructive operations were not performed. Gupta et al in their study in India, performed cesarean in all the cases. Mondal et al [11] from India performed caesarean in 85.4%. Konje et al., [14] from Ibadan, performed LSCS in 82%. A study from India by Adhikari et al. [5] showed that 63.27% were delivered by LSCS and 36.73% by destructive operations. In a study conducted at Ethiopia, Gessessew et al. [15] that cesarean section was performed in 88 of the 195 cases (46.1%), craniotomy in 31 (16.2%), instrumental
delivery in 27 (14.1%), hysterectomy in 28 (14.6%), and repair of ruptured uterus in 17 (8.9%), among 5980 hospital deliveries during the study period. A study in Enugu, Nigeria, by Nwogu-ikojo et al. [7] showed the most common intervention was LSCS. Advent of new generation of antibiotics, better surgical method, anesthetic facilities, good pre-operative and postoperative care has made caesarean section safe and destructive operations obsolete. Patients on discharge were counselled for early antenatal booking in subsequent pregnancies and deliver in well established health care facilities where adequate monitoring is available with facilities for caesarean section.

Regarding the perinatal outcome, perinatal mortality in our study was 20.60%. Thirty one foetuses (15.6%) were still birth and one hundred and sixty eight foetuses (84.4%) were live births. Complications noted among live born were birth asphyxia (30.9%), meconium aspiration syndrome (24.4%), septicemia (23.2%), neonatal Jaundice (22.6%), convulsions (8.9%). which was comparable to that reported by Mondal et al. [11] Perinatal mortality reported in various studies are as follows: Gupta et al 22.8% , [12] Dafallah et al. [13] 27.1%, and Nwogu-ikojo et al. [7] 30%. In our study, perinatal outcome was better from many studies, because of better NICU facilities.

In present study, maternal mortality rates were 1.5%. Maternal complications reported were also lower. Maternal mortality rates in other studies were higher than those reported by Mondal et al [11] (1.6%), Adhikari et al. [5] (2.04%), and Nwogu-ikojo et al. [7] (3.3%). Melah et al. [8] suggested that puerperal sepsis was the most frequent morbidity. Aboyeji et al. [9] showed that the common complications included wound infection (34.3%) and genital sepsis (31.3%). In the study by Mondal et al, [11] the common maternal complications included pyrexia (49.8%), PPH (33.9%), UTI (10.9%), subinvolution (9.3%), and wound infection (7.7%).

CONCLUSION
Obstructed labour is totally preventable but unfortunately it is yet not prevented. Poor referral system, low socioeconomic status, illiteracy, and inadequate antenatal care services produce many cases of obstructed labour. Our main aim should be to provide universal good obstetric care and avoid obstructed labour. Good antenatal care, education of primary health care providers and traditional birth attendants on dangers of obstructed labour and the need for early referral is suggested to reduce the incidence of this condition.

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