

## Frequency of maternal morbidity in women with obstructed labor: A study at Liaquat University Hospital Hyderabad Sindh

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### ABSTRACT

**Objective:** To determine the frequency of early morbidity in women with obstructed labor.

**Methodology:** This hospital-based retrospective study was conducted from 1 June 2014 to 30 November 2014 in the Department of Gynecology and Obstetrics, Liaquat University Hospital, Jamshoro. All mothers who were admitted to the labor room during the period with obstructed labor were included in the study. Women with medical disorders, previous cesarean section, and multiple pregnancies were excluded. Demographics and confounder were analyzed by SPSS software version 17.0.

**Results:** During the study period, there were a total of 1,650 deliveries occurred at Liaquat University Hospital and 107 (6.4%) were presented with obstructed labor. Majority (91.7%) had taken a trial of labor by some traditional birth attendant or local doctor. Postpartum hemorrhage with atony of uterus occurred in 19 (17.8%) cases. The commonest morbidity was urinary tract infection 39 (36.4%) followed by extension of uterine incision 27 (25.2%), 17 (15.9%) with ruptured uterus, and 7 (6.5%) with ruptured bladder.

**Conclusion:** Obstructed labor remains a major cause of maternal and prenatal morbidity and mortality in rural Sindh Pakistan.

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### KEYWORDS

Obstructed labor; maternal outcome, fetal outcome

### Introduction

Labor is considered obstructed when the presenting part of the fetus cannot progress into the birth canal despite strong uterine contractions. The most frequent cause of obstructed labor is cephalopelvic disproportion—a mismatch between the fetal head and the mother's pelvic brim. Some other causes of obstructed labor may be malpresentation or malposition of the fetus (shoulder, brow, or occipito-posterior positions). In rare cases, locked twins or pelvic tumors can cause obstruction [1,2].

Fortunately, advances in obstetric care have made obstructed labor nearly obsolete in the developed world. However, this problem continues to plague thousands of women each year, accounting for about 8% of all maternal deaths in developing countries [3,4]. World Health Organization has estimated that approximately 40,000 women die each year as a

result of obstructed labor and an additional 73,000 suffer from the persistent and devastating consequences of obstetric fistula [5]. It is a major cause of obstetric fistula [6]. It is a major cause of perinatal mortality, accounting for 100–180 deaths/1,000 live births. Perinatal mortality is highest in the developing countries, particularly in Africa [7].

To overcome obstructed labor, the alternatives of cesarean delivery (CD) and destructive operations are often debated. There is a natural tendency to avoid CD if the fetus is already dead but perforation and embryotomy carry a grave risk of shock, hemorrhage, and trauma [8,9].

### Material and Methods

This hospital-based retrospective study was conducted from 1 June 2014 to 30 November 2014

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in the Department of Gynecology and Obstetrics, Liaquat University Hospital, Jamshoro. All mothers who were admitted to the labor room during the period with obstructed labor were included in the study. Women with medical disorders, previous CD, and multiple pregnancies were excluded. All the women were analyzed in detail by history, examination, and investigations. Demographics and confounder were analyzed by SPSS software version 17.0 and results were presented in the form of frequency and percentages of categorical variables. Mean and standard deviation is calculated for quantitative variables. Chi-square test was applied to determine the difference on outcome between different variables. A  $p$ -value  $\leq 0.05$  was taken as significant difference.

## Results

During the study period there were a total of 1650 deliveries of which 107 cases were diagnosed to have obstructed labour. The prevalence was 6.4%. Maximum cases of age group 20-29 years (47.7%). (Table-1) Majority were primigravida 40.2%. (Table-2) Majority were referred cases after failed trial by traditional birth attendant from rural Sindh 91.7%. The commonest cause of obstruction was cephalopelvic disproportion 77.5%, male position 13.0% and male presentation 9.3%. (Table-3)

The duration of labour was variable in each case. For obstructed labour commonest group was in labour 13 to 24hrs and the longest labour recorded was more than 48hrs. (Table-4) Majority of the cases about 68.2% were terminated by cesarean delivery while 9.3% by forceps successfully and craniotomy was performed in 2 (1.8%). (Table-5) Postpartum haemorrhage with atony of uterus occurred in 19(17.8%). The most common maternal morbidity was urinary tract infection 39(36.4%) followed by

**Table 1.** Age.

Age in years	Number of cases	Percentage of cases
<20 years	9	8.4
20–29 years	51	47.7
≥30 years	47	43.9

**Table 2.** Obstetric history.

Parity	Number of cases	Percentage of cases
Primigravida	43	40.2
Para 1–6	29	27.1
7 and above	35	32.7

extension of uterine incision 27(25.2%), 17(15.9%) with ruptured uterus. Maternal death occurred in 3 (2.8%) cases. (Table-6,9) Regarding perinatal outcome 25(23.3%) were born in satisfactory condition, 67 (62.6%) were shifted to neonatal intensive care unit. due to poor Apgar score. Perinatal mortality was found in 22 (20.5%) babies. (Table-8)

## Discussion

Obstructed labor is regarded as a sign of poor level of obstetric care. The incidence of obstructed labor and its complications have been minimized in the developed countries because of improvement in obstetric care [1]. Its incidence varies amongst different countries and accounts for approximately 8% of maternal deaths globally [1]. In our study, incidence of obstructed labor was 6.4% showing the highest incidence locally in Pakistan. This incidence was high in contrast to other studies in which it was 2.7% [10,11].

At 6.4%, the obstructed labor incidence in our study was similar to the high incidence found in the study in Ethiopia in which it was 7% [9,11].

The majority of patients were of age group between 20 and 29 years (47.7%) which is less than other studies in which it was 77% and 64.7%, respectively [9,12]. In our study, most of patients were primigravidas 40.2%, this incidence was low in contrast to the study conducted by Ri tu Gupta in which it was 81% [9].

Most of the patients were unbooked who had not received any prenatal care, and were referred from rural Sindh after failed trial of labor 91.7%, revealing the fact that still there is a need to counsel the women and her caretakers regarding the

**Table 3.** Causes of obstruction.

Causes	Number of cases	Percentage of cases
Cephalopelvic disproportion	83	77.5
Malposition	14	13
Malpresentation	10	9.3

**Table 4.** Duration of labor.

Duration of labor in hours	Number of cases	Percentage of cases
8–12 hours	16	15.0
13–24 hours	72	67.3
25–48 hours	18	16.8
More than 48 hours	1	0.9

**Table 5.** Operative procedures in obstructed labor.

Mode of delivery	Number of cases	Percentage of cases
Forcep	10	9.3
CD	73	68.2
Laparotomy and repair of uterus	11	10.3
Laparotomy and hysterectomy	7	6.5
Extraction under General Anesthesia of after coming head obstruction	4	3.7
Craniotomy	2	1.8

**Table 6.** Complications.

Complications	Number of cases	Percentage of cases
Rupture uterus	17	15.9
Rupture bladder	7	6.5
Extension of uterine incision	27	25.2
Postpartum hemorrhage (atony of uterus)	19	17.8
Puerperal sepsis	30	28.0
Wound sepsis	10	9.3
Urinary Tract Infection	39	36.4
Vesicovaginal fistula	2	1.9
Hemoperesis	1	0.9
Death	3	2.8

importance of proper antenatal care and delivery. Comparable high incidence of obstructed labor in unbooked patients in other studies [9,13–15].

Commonest cause of obstruction was cephalopelvic disproportion 77.5% while malposition and malpresentation were responsible in 14 (13%) and 10 (9.3%) cases, respectively. This similar observation was made in other studies, 67.6% [17]. The majority of cases 73 (68.2%) were terminated by CD. The rate of CD in our study was similar to other studies 54.7% [17].

Amanuel et al. has shown a significant association between the duration of labor and maternal and perinatal mortality while our study does not show any statistically significant association [17].

The current literature is replete with research on population based studies on obstructed labor to know its actual prevalence because hospital-based studies only represent those who access health service [18].

Future research on the factors determining the early detection of the problem, development of audit based standards, and national guidelines in low resource setting according to our population

**Table 7.** Duration of hospital stay.

Duration of hospital stay in days	Number of cases	Percentage of cases
7 days	79	73.8
8–14 days	26	24.3
>14 days	2	1.9

**Table 8.** Fetal outcome in 1 hour to 7 days.

Condition at birth	Number of newborn	Percentage of newborn
Neonatal Intensive Care Unit	67	62.6
Good	25	23.3
Still birth + early neonatal death	22	20.5

**Table 9.** Chi-square test applied between duration of labor versus postoperative complications.

Versus	Duration of labor	P value
Postoperative complications	Chi-square ( <i>P</i> value)	<i>P</i> value*
	Postpartum hemorrhage = 0.194	Not significant
	Wound sepsis = 0.555	Not significant
	Puerperal sepsis = 0.143	Not significant
	Urinary tract infections = 0.149	Not significant

*P* = 0.05.

demographic values to curtail the morbidity associated with obstructed labor was proposed.

### Conclusion

Obstructed labor remains a major cause of maternal and prenatal morbidity and mortality in our part of world. Sepsis and infection associated with obstructed labor is the commonest morbidity observed in local and international studies. The implementation of a comprehensive care system can almost eradicate this preventable entity.

### Conflicts of interest

None to declare.

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