Original Article

Fetomaternal Outcomes In Women Presenting With Obstructed Labour At Hayatabad Medical Complex

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Abstract

Objective: To determine the fetomaternal outcomes in women presenting with obstructed labour at tertiary care hospital, Hayatabad Medical Complex.

Methodology: This study included 130 women aged 18 to 40 years with singleton pregnancy at term, who were diagnosed with obstructed labour. Patients having bleeding disorders, medical disorders (e.g. gestational hypertension and diabetes), and those having period of gestation less than 37 weeks were excluded. Fetomaternal outcomes such as postpartum hemorrhage (PPH), , pyrexia, uterine rupture, maternal mortality, low APGAR score and NICU admission were recorded. Data was analyzed with SPSS version 27.

Results: The mean age of women was 27.57 ± 6.24 years, with mean gestational age 40.26 ± 1.37 weeks. The majority of the women were from rural areas (62.3%), were illiterate (56.2%), unemployed (70.0%), and from lower socioeconomic class (47.7%). Regarding fetomaternal outcomes, neonatal intensive care unit admission was observed in 27.7% neonates, low Apgar score was observed in 31.5% neonates. Postpartum hemorrhage was noted in 10.0% cases, pyrexia in 12.3%, and uterine rupture in 5.4% cases.No maternal death was reported.

Conclusion: Obstructed labour is associated with a significant burden of fetomaternal complications, the present study found that most frequent complications were low APGAR score, NICU admission and PPH, followed by pyrexia and uterine rupture.

Keywords: Obstructed labour, APGAR score, Postpartum haemorrhage, Uterine rupture, Pyrexia.

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Introduction

Obstructed labour is a condition in which the progress of childbirth fails to advance regardless of effective uterine contractions. This usually results from a disparity in size of fetus and maternal birth canal.[1] Obstructed labour can be recognized clinically by slow or arrested cervical dilatation as well as the formation of retraction rings in lower uterine segment. The most common factors leading to obstructed labour include cephalopelvic disproportion, abnormal fetal presentations and malposition.[1-4]

Obstructed labour can result in severe maternal and fetal consequences including maternal mortality(14.4%), rupture uterus (41.1%) and maternal near miss (30.5%). The other complications included infections, damage to surrounding tissues and life threatening hemorrhage. Adverse fetal outcomes are equally concerning and included perinatal deaths (26.4%), meconium aspiration syndrome and hypoxic injuries.[5,6] World wide, obstructed labour accounted for 70% perinatal deaths and 22% of maternal morbidities.[6] Although due to the improvement in the antenatal care the incidence of obstructed labour has decreased, but it still a substantial public health issue especially in low resource settings where access to skilled maternity facilities are limited. In such regions obstetric trauma contributes to a considerable proportion of pregnancy related complications. Importantly; obstructed labour is largely avoidable. Effective prevention plans include improving women's awareness of danger signs throughout the pregnancy promoting birth readiness and supporting adequate nutrition during childhood and adulthood.[7-9]

Different risk factors are associated with obstructed labour including, contracted pelvis [AOR 3.98], lack of utilization of partograph during labour monitoring [AOR 5.19], prolonged labour [AOR 7.61] and long distance from the hospital [AOR 3.89], abnormal presentation, injudicious use of oxytocin.[6,10] It is important to recognize these determinants of obstructed labour especially efficient utilization of partograph during labour is very important for timely diagnosis and management of these complications. Evidence shows that women undergoing obstructed labour face substantial fetomaternal complications including high rates of NICU admission, low Apgar scores and uterine rupture.[11-12]

Obstructed labor poses substantial risks and sometime leads to maternal mortality if not managed in time. The findings of this study will helps to contribute valuable insights in the clinical management of obstructed labor, guiding healthcare providers in optimizing the resource allocation, policy development and preventive strategies such as early identification of high risk pregnancies and timely referral. Although studies have been done in the past on this health issue, but as obstetrics is an ongoing field and lots of work is being done to improve the fetomaternal outcome. We have selected this topic to see the recent trends regarding the fetomaternal outcome in obstructed labour.

Methodology

This cross sectional study was conducted in the Department of Obstetrics and Gynaecology, of a tertiary care hospital, Hayatabad Medical Complex, Peshawar. The study commenced after taking ethical approval from hospital's ethical board (Approval no. 2051 HMC/QAD-F-00). A total of 130 patients were included in the study through non probability convenience sampling technique. The sample size was calculated using the World Health Organization (WHO) sample size calculator, based on the anticipated frequency of uterine rupture 14.2%,12 6% margin of error, and a 95% confidence level. Women aged 18 to 40 years, having period of gestation more than 37 weeks with obstructed labour, were included in this study. Obstructed labour was defined as a condition during childbirth where the presenting part of the fetus cannot progress through the birth canal despite strong uterine contraction, leading to prolonged or difficult labor. Diagnosis was made through clinical signs such as failure of cervical dilation despite adequate uterine contractions, and inability of the fetus to descend despite maternal effort, along with other signs of obstruction like caput, moulding. Patients with bleeding disorders, medical disorders, patients not in obstructed labour and those having preterm labour were excluded.

Following the informed written consent, data was collected which included demographics like maternal age, body mass index, residence, socioeconomic status education status, and occupation status. All the enrolled pregnant women identified with obstructed labour were evaluated for fetomaternal outcomes.Fetal outcome included admission of a new born to NICU, low APGAR score (defined as APGAR score < 7 at five minutes after birth using a scoring system which involves score 1 to 10 for appearance, respiration, pulse, activity and grimace). Maternal outcome included, postpartum haemorrhage (diagnosed as an estimated blood loss > 500 ml after vaginal delivery and 1000ml after cesarean section. Blood loss was measured through visual estimation and blood collected in the kidney tray), pyrexia (defined as the maternal body temperature > 37.5 degrees Celsius along with other symptoms such as chills, sweating and malaise), uterine rupture (determined on clinically evaluation, showing features such as sudden onset of severe abdominal pain, loss of uterine contour and ultrasound showing hemoperitoneum, maternal hypotension, fetal distress/intrauterine fetal death) and maternal mortality. All the evaluations were conducted under the supervision of a consultant having more than five years of experience.

IBM SPSS 27 software was used to analyze the data. Mean and SD were calculated for age, gestational age, and BMI. Frequencies and percentages were present-

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ed for fetomaternal outcomes (NICU admission, low Apgar score. post-partum hemorrhage, pyrexia, uterine rupture and maternal mortality), socio economic status, residence area, education level, and occupation status. Age, gestational age, BMI, socioeconomic status, residence area, education status, and occupation status were stratified with fetomaternal outcomes using chi square test by keeping the p-value ≤ 0.05 as significant. Results were presented in the form of tables.

Results

This study included 130 women diagnosed with obstructed labour. The mean age of participants was 27.57±6.24 years. The mean gestational age at delivery was 40.26±1.37 weeks. The mean body mass index (BMI) was 25.72±2.07 Kg/m2.

Majority of women 81 (62.3%) were from rural areas. In terms of educational status 73 (56.2%) women were illiterate, while 57 (43.8%) were literate. Regarding employment 91 (70.0%) women were unemployed, and 39 (30.0%) were employed. Socioeconomic status distribution showed that 62 (47.7%) women belonged to the lower class, 49 (37.7%) to the middle class (Table 1).

Regarding the fetomaternal outcomes, neonatal intensive care unit admission was required for 36 (27.7%) neonates. A low APGAR score was recorded for 41 (31.5%) infants. Postpartum haemorrhage was observed in 13 (10.0%) cases. Pyrexia was observed in 16 (12.3%) cases. Uterine rupture was present in 7 (5.4%) of the women (Table 2). No maternal death was observed in our study. Table 3 presents the stratification of fetomaternal outcomes with demographics.

Discussion

In our study fetomaternal outcome was assessed in patients presenting with obstructed labour. Maternal pyrexia, NICU admission and low APGAR score were the most common adverse fetomaternal due to obstructed labour.

In a study conducted in Ethopia by Ayenew AA et al, they have reported that the most common complications observed due to obstructed labour were sepsis 38.59%, stillbirth 38.08%, postpartum hemorrhage 33.54%, uterine rupture 29.84%, and maternal death 17.27% respectively.5 The incidence of complications in their study were more as compared to our study and the difference may be because it was a systematic review ,having a large sample size. Studies have shown that incidence of obstructed labour is more common in patients managed by non-specialists, such as lady health visitors or traditional birth attendants. Unnecessary and injudicious use of oxytocin leads to mismanagement of labour ending in obstructed labour and its complications.13 Furthermore, the studies have highlighted several modifiable risk factors contributing to poor prognosis. Prolonged labour duration more than 24 hours was repeatedly associated with increased risks of uterine rupture, sepsis, and adverse fetal outcomes including birth asphyxia and stillbirth.14,15 The non-usage of partograph monitoring is another critical factor identified by a study, its neglect is associated with an increase in both maternal and fetal complications, as it delays the recognition of abnormal labour progress.14 These findings collectively point to gaps in the quality of intrapartum care at primary and secondary healthcare levels.

Table 1. Demographics (n=130)

Demographics		N	%
Age(years)	18-30	76	58.46%
	>30-40	54	41.53%
Education status	Literate	57	43.8%
	Illiterate	73	56.2%
Occupation status	Employed	39	30.0%
	Unemployed	91	70.0%
Residence area	Urban	49	37.7%
	Rural	81	62.3%
Socioeconomic status	Lower class	62	47.7%
	Middle class	49	37.7%
	Upper class	19	14.6%

Table 2. Fetomaternal outcomes (n=130)

Fetomaternal outcomes		N	%
NICU admission	Yes	36	27.7%
	No	94	72.3%
Low APGAR score	Yes	41	31.5%
	No	89	68.5%
PPH	Yes	13	10.0%
	No	117	90.0%
Pyrexia	Yes	16	12.3%
	No	114	87.7%
Uterine rupture	Yes	7	5.4%
	No	123	94.6%

Bansal A et al have reported fever in 32% cases post operatively, wound infection was observed in 12.5% patients, out of which 6% of cases required re-suturing of the wound. Still birth was observed in almost 6% of babies. . PPH (41.2%), extension of uterine incision (17.4%), followed by sepsis, pyrexia and uterine rupture were common complications.12,14In our study the maternal outcomes included 10.0% rate of PPH, 12.3% rate of pyrexia, and 5.4% incidence of uterine rupture. Our PPH rate was lower than the 41.2% reported by KC et al, but higher than the 6.2% found by Bibi et al.12,16 The uterine rupture rate of 5.4% is a noteworthy finding, as it is a life-threatening complication often resulting from neglected labour, it is lower than the 15.5% reported by Bibi et al. but confirms that this fatal outcome remains a critical concern in contemporary practice.16 The pyrexia rate indicates an important burden of infection, most probably linked to prolonged rupture of membranes and multiple vaginal examinations prior to referral. Tara KC et al has also reported 15.8% incidence of pyrexia in their study.12

Demographics also play an important role in obstructed labour. The results of the present study showed that the mean age of the patients was 27.57 ± 6.241 years and the majority of the patients were rural residents (62.3%), illiterate (56.2%), and unemployed (70.0%). Patients with obstructed labour are mostly young primigravidas from rural backgrounds with limited access to antenatal care.12,16 Similarly the socioeconomic factors, like unemployment and education level, increases these risks by delaying the decision to seek skilled antenatal care. The high prevalence of unbooked or referred cases in the aforementioned studies reflect delays in seeking care, reaching an appropriate facility, and receiving adequate intervention upon arrival. This strengthens the concept that obstructed labour is not merely a clinical emergency but a reflection of broader health system and social inequities. Different studies have shown that most of cases of obstructed labour were unbooked and referred from primary health centers (80.4%). The high proportion of patients from the lower socioeconomic background (47.7%) further underscores the intersection of poverty with poor obstetric outcomes, limiting access to timely and quality antenatal and services.12

The fetomaternal outcomes observed in the present study provide a critical intermediate perspective. The rate of NICU admission (27.7%) and low APGAR score (31.5%) were substantial. Similar findings were reported by Bansal A et al, Almost 16% of babies born to obstructed labor mother had low APGAR at 5 minutes of delivery, while intrauterine fetal death was observed in 6% cases.11 In the study conducted by Tara KC et al, 33.9% babies were admitted in NICU due to perinatal morbidity associated with obstructed labour, similarly perinatal mortality was reported in 21.7% cases mostly due to septicemia, meconium aspiration, respiratory distress.12 The findings from the present study contribute valuable local epidemiological data. It further confirms that even when maternal mortality is avoided, a heavy burden of maternal morbidity (like PPH and sepsis) and neonatal morbidity (requiring NICU care and low APGAR score) persists, leading to long-term costs on families and the health system.

Conclusion

The present study found a significant burden of fetomaternal outcomes due to obstructed labour in term pregnancies, the most frequent complications were low APGAR score, NICU admission and PPH, followed by pyrexia and uterine rupture.

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Table 3. Stratification of fetomaternal outcomes with demographics (n=130)

Demographics		NICU admission		Low APGAR score		PPH		Pyrexia		Uterine rupture	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Age distribution (Years)	18 to 30	61.1%	64.9%	63.4%	64.0%	46.2%	65.8%	62.5%	64.0%	71.4%	63.4%
	> 30-40	38.9%	35.1%	36.6%	36.0%	53.8%	34.2%	37.5%	36.0%	28.6%	36.6%
		.688		.945		.162		.905		.668	
BMI (Kg/m2)	18 to 25	25.0%	44.7%	36.6%	40.4%	30.8%	40.2%	37.5%	39.5%	71.4%	37.4%
	> 25	75.0%	55.3%	63.4%	59.6%	69.2%	59.8%	62.5%	60.5%	28.6%	62.6%
		.040		.675		.510		.880		.073	
Gestational age (Weeks)	37 to 40	47.2%	59.6%	63.4%	52.8%	30.8%	59.0%	50.0%	57.0%	71.4%	55.3%
	> 40	52.8%	40.4%	36.6%	47.2%	69.2%	41.0%	50.0%	43.0%	28.6%	44.7%
		.204		.257		.052		.596		.402	
Education status	Literate	38.9%	45.7%	43.9%	43.8%	53.8%	42.7%	43.8%	43.9%	42.9%	43.9%
	Illiterate	61.1%	54.3%	56.1%	56.2%	46.2%	57.3%	56.2%	56.1%	57.1%	56.1%
		.481		.993		.444		.993		.957	
Occupation status	Employed	19.4%	34.0%	24.4%	32.6%	23.1%	30.8%	37.5%	28.9%	42.9%	29.3%
	Unemployed	80.6%	66.0%	75.6%	67.4%	76.9%	69.2%	62.5%	71.1%	57.1%	70.7%
		.104		.343		.566		.484		.445	
Residence area	Urban	44.4%	35.1%	41.5%	36.0%	38.5%	37.6%	31.2%	38.6%	57.1%	36.6%
	Rural	55.6%	64.9%	58.5%	64.0%	61.5%	62.4%	68.8%	61.4%	42.9%	63.4%
		.326		.547		.952		.570		.275	
Socioeconomic status	Lower class	47.2%	47.9%	46.3%	48.3%	30.8%	49.6%	56.2%	46.5%	57.1%	47.2%
	Middle class	44.4%	35.1%	41.5%	36.0%	61.5%	35.0%	37.5%	37.7%	28.6%	38.2%
	Upper class	8.3%	17.0%	12.2%	15.7%	7.7%	15.4%	6.2%	15.8%	14.3%	14.6%
		.377		.783		.172		.562		.860	

Our study has certain limitations. Being a single centered, hospital based study, our results can not be generalizable to the wider population especially those managed at primary and secondary care hospitals. Similarly the observational design of our study limits our ability to establish a casual relationship. Also long term follow up is required to know the long term effects on fetomaternal outcome.

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Authors' Contribution Statement

RK contributed to the conception, design, acquisition, analysis, interpretation of data, drafting of the manuscript, critical review of the manuscript, and final approval of the version to be published. LBF contributed to the acquisition, analysis, interpretation of data, and drafting of the manuscript. All authors are accountable for their work and ensure the accuracy and integrity of the study.

Conflict of Interest

Authors declared no conflict of interest

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None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.