

Maternal and Fetal Outcome in Obstructed Labour

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Abstract:

Background: Obstructed labour continues to be a major cause of maternal and perinatal morbidity in low income countries even in 21st century. If detected and managed early, which will give a healthy mother and baby.

Materials and Methods: 90 patients admitted with feature of obstructed labour were studied. Detailed history included age, antenatal check-up, sociodemographic factors, referral history, obstetric history, features of obstruction, intrapartum events were recorded. Condition of patients, mode of delivery, preoperative and postoperative complications, maternal and fetal outcomes was recorded.

Results: Out of 90 cases of Obstructed labour, majority of the patients were from low (82.2%) socio-economic group, 80% of the patients were from rural areas and 76.7% of patients were unbooked and 62.2% patients were primigravida. The commonest cause of obstructed labour was cephalopelvic disproportion (67.8%) followed by Malpresentation & Malposition (17.8%). The commonest mode of delivery was cesarean section (86%). Instrumental deliveries were conducted in 2% of cases. Destructive procedures were done in 2%. Rupture uterus was seen in 4 cases (5.7%) out of which repair was done in all 4 cases. The common maternal complications were PPH (50.0%), pyrexia (28.5%), genital tract sepsis (8.6%), shock (4.3%) and vesico-vaginal fistula (2.9%). Perinatal mortality was 4/90 (4.4%) and livebirth rate was 86/90 (95.6%). Perinatal morbidity was most commonly due to birth asphyxia (61.6%), meconium aspiration syndrome (19.2%), jaundice (15.4%) and septicemia (3.8%).

Conclusion: Poor referral system, low socioeconomic status and inadequate antenatal care services lead to increased number of obstructed labour even today. Early recognition of obstructed labour and immediate safe abdominal or vaginal delivery can decrease the incidence of maternal and perinatal morbidity and mortality

Keyword: Obstructed labour, maternal morbidity, perinatal mortality

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I. Introduction

Inability of fetus passing through the birth canal despite of efficient uterine contractions which leads to maternal and fetal complications is considered as obstructed labour.¹ It accounts for about 8% of all maternal deaths in developing countries.² It is the leading cause of hospitalization, comprising upto 39% of all obstetric patients in developing countries.³ Maternal mortality ranges between 1% and 13% , perinatal mortality around 74% and 92%.⁴

The most frequent cause is CPD (Cephalo-pelvic disproportion), a mismatch between size of maternal pelvis and fetal head.

Neglected obstructed labour (OL) is one of the major cause of both maternal and newborn morbidity and mortality. The obstruction can managed by either caesarean section or instrumental deliveries (forceps, vacuum extraction or symphysiotomy). Maternal complications include intrauterine infections following prolonged rupture of membranes, trauma to the bladder or rectum due to pressure from the fetal head or damage during delivery, ruptured uterus with consequent haemorrhage, shock or even death. Trauma to the bladder during vaginal or instrumental delivery may lead to stress incontinence. By far the most severe and distressing long-term condition following obstructed labour is obstetric fistula - a hole which forms in the vaginal wall

communicating into the bladder (vesico-vaginal fistula) or the rectum (recto-vaginal fistula) or both. In developing countries, fistulae are commonly the result of prolonged obstructed labour and follow pressure necrosis caused by impaction of the presenting part during difficult labour. In the infant, neglected obstructed labour may cause asphyxia leading to stillbirth, brain damage with long term neurological sequelae or even neonatal death. It is considered as a serious emergency situation as has been endorsed by WHO too.⁵

II. Materials And Methods

This cross-sectional study was carried out on patients of Department of Obstetrics & Gynecology at Regional Institute of Medical Sciences, Imphal, Manipur from September 2018 to August 2020. A total of 90 subjects were enrolled in the study according to the inclusion and exclusion criteria after getting informed consent from the participants.

Study Design: Cross Sectional study

Study Location: The study conducted in the Department of Obstetrics and Gynaecology, RIMS, Imphal, Manipur

Study duration: The data collected for a period of two years from September 2018 to August 2020.

Sample size: 90 patients

Sample Size calculation:

$$n = \frac{4pq}{l^2} \text{ where, } P = \text{prevalence i.e., } 34$$

$$Q = 100 - P$$

$$L = 10\% \text{ (absolute allowable error)}$$

Prevalence of 34% (Postpartum Haemorrhage) taken from previous study which was conducted by Mondal S et al.⁶. Absolute allowable error is taken as 10%. Hence the estimated sample size is 90.

Subjects & selection method:

The pregnant women presented with obstructed labour admitted in the Department of Obstetrics and Gynaecology, RIMS, Imphal, Manipur

Inclusion Criteria:

1. Singleton pregnancy
2. Patients with features of Obstructed labour

Exclusion Criteria:

1. APH (Placenta previa / Abruption)
2. IUGR
3. Twin pregnancy
3. Patient who do not give consent

Procedure:

Patients referred to Department of Obstetrics and Gynaecology, Imphal, RIMS according to inclusion and exclusion criteria were enrolled in the study after informed consent. A complete history like age, parity, antenatal check-up, socio-economic status, previous antenatal check-up, duration of labour, referral history was taken followed by examination and basic investigations were done for the patients. On the basis of the history and examination, the patients were categorised into cases of obstructed labour. The maternal and perinatal outcome were determined, analysed and compared in all the categories.

Statistical Analysis:

Data was entered and analysed using SPSS version 21.0 IBM for Windows (IBM Corp. 1995,2012). Descriptive statistics like Mean, percentage, SD was used. Fischer's test was used to find out the association between two proportion. P-value of <0.05 was taken as significant.

III. Results And Observation

A total of 90 patients were enrolled in the study according to the inclusion and exclusion criteria after getting informed consent from the participants. The findings and observation made during the entire study were tabulated, graphically depicted wherever possible.

Table 1. Age wise incidence of obstructed labour

RECORDED AGE	N(%)
19- 25 yrs	59 (65.5)
26- 30 yrs	16 (17.8)
≥ 31 yrs	15 (16.7)
TOTAL	90 (100)

Table 1 shows that higher proportion of patients were in the age group of 19- 25 years and the incidence also highest in this group of patients.

Table 2. Distribution of patients by residence and fetal outcome

RESIDENCE	ALIVE	STILLBIRTH	TOTAL- N(%)
RURAL	68	4	72 (80)
URBAN	18	0	18 (20)
TOTAL	86	4	90 (100)

As seen in table 2, most patients (80%) with obstructed labour in our study were from rural area and 20% from urban area and as explained above poor fetal outcome was seen among patients from rural area.

Table 3. Distribution of patients by literacy and fetal outcome

EDUCATIONAL STATUS	ALIVE	STILLBIRTH	TOTAL -N(%)
ILLITERATE	71	4	75 (83.3)
LITERATE	15	-	15 (16.7)
TOTAL	86	4	90 (100)

Table 3 shows that maximum patients (83.3%) were illiterate and only 15% were literate.

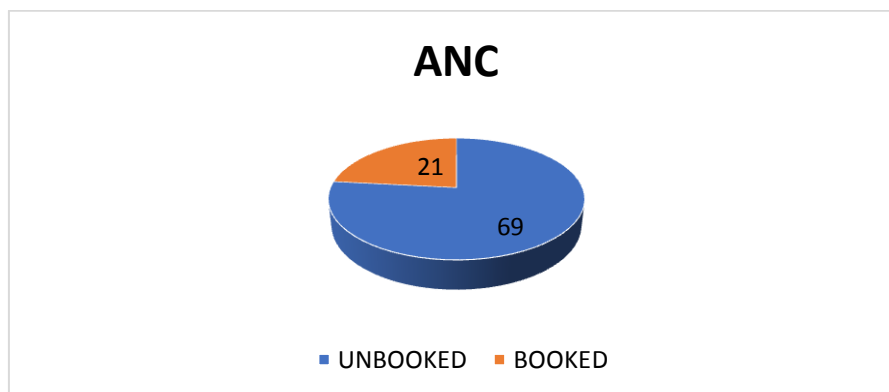


Figure 1. Distribution of patients by antenatal checkup

Figure 1 shows that maximum (76.7%) number of patients admitted were unbooked and those who were booked had better perinatal outcome.

Table 4. Distribution of patients by Socio-economic status and fetal outcome

SOCIO-ECONOMIC STATUS	ALIVE	STILLBIRTH	TOTAL-N(%)
LOWER	70	4	74(82.2)
MIDDLE	15	-	15(16.7)
UPPER	1	-	1 (1.1)
TOTAL	86	4	90

Table 4 shows socio-economic status of patients based on Modified Kuppaswamy classification. Majority of patients belonged to lower (82.2%) Socio- economic status (includes upper lower and lower), 16.7 % from middle class (includes upper and lower middle class) and 1.1% from upper class. Patients from lower socio- economic status had poor fetal outcome, as shown above.

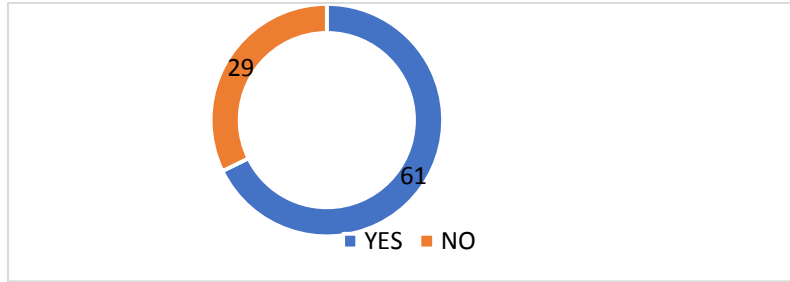


Figure 2. Distribution of patients by referral history

As seen in figure 2, majority (67.8%) of patients with obstructed labour were referred from primary health centres.

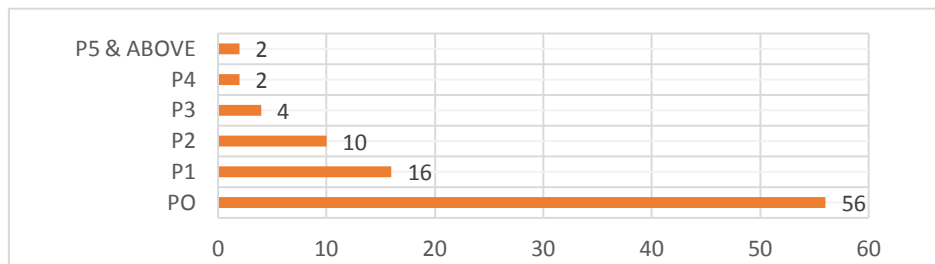


Figure 3. Parity wise incidence of Obstructed labour

Figure 3 shows that highest proportion of Obstructed labour was seen in nullipara. With increase in parity of patient, incidence rate also decreased.

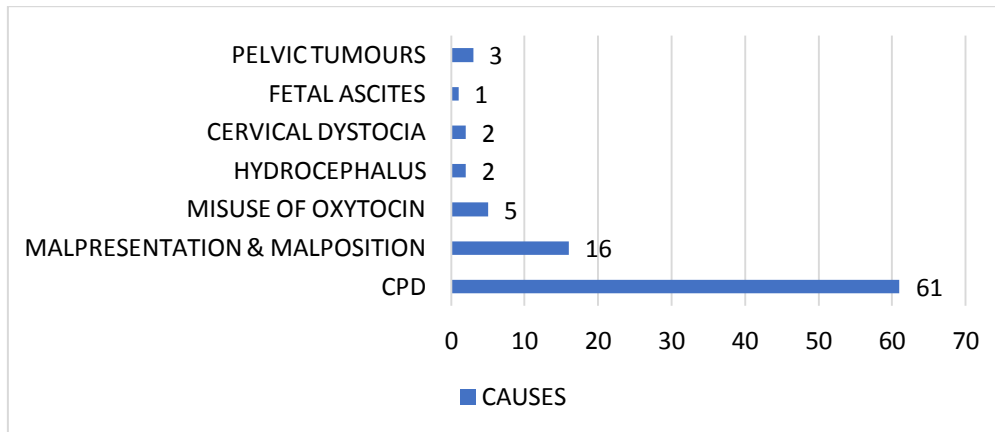


Figure 4. Distribution of patients by causes of obstructed labour

As shown in figure 4, most (61%) common cause of obstructed labour is cephalon-pelvic disproportion and second (16%) most common was malpresentation and malposition. Other causes were misuse of oxytocin, hydrocephalus, cervical dystocia, fetal ascites and pelvic tumours. Among the malpresentation and malposition, most common cause was shoulder presentation followed by deep transverse arrest. Others causes include Brow presentation, face presentation and Impacted breech

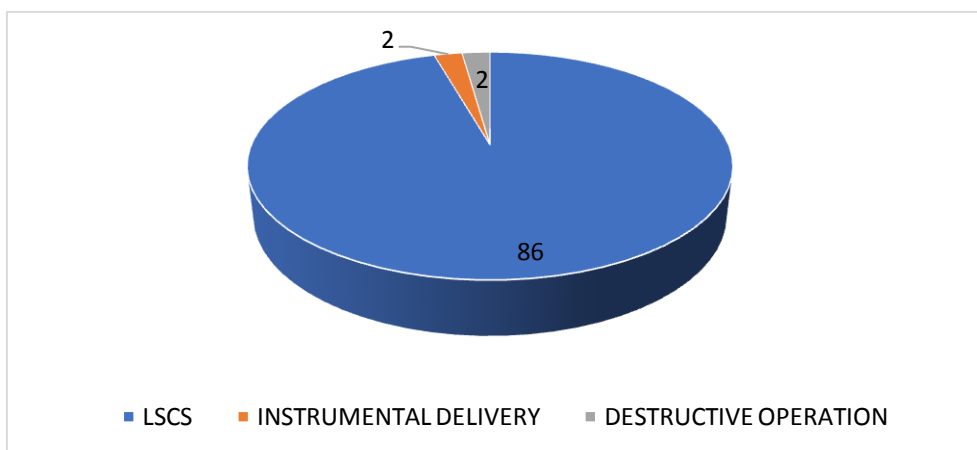


Figure 5. Distribution of patients by Mode of delivery

As shown in figure 5, maximum (95.6%) number of patients delivered by Lower segment caesarean section, 2.2% by Instrumental delivery and 2.2% by destructive operation. Destructive operation is performed, if the baby is dead with no signs of impending rupture and no scar in uterus.

Most common complication encountered in our study is Postpartum Haemorrhage (50.0%). Other complications experienced were pyrexia (28.5%), genital tract sepsis (8.6%), uterine rupture (5.7%), shock (4.3%) and Vesico-vaginal Fistula (2.9%).

Table 5. Distribution of patients by perinatal outcome

PERINATAL OUTCOME	N (%)
ALIVE	86 (95.6)
STILL BIRTH	3 (3.3)
IUFD	1 (1.1)
TOTAL	90 (100)

As shown in the table 5, most babies delivered by LSCS are alive and it was mainly due to timely intervention, 3.3% were still birth and 1.1% IUFD (Intra uterine fetal death) encountered in the study. Perinatal morbidity was most commonly due to birth asphyxia (61.6%), 19.2% had meconium aspiration syndrome, 15.4% had jaundice and 3.8% had septicaemia.

Most patient (62.2%) delivered had birth weight of 2.6- 3.5 kg and 36.7% were > 3.5 kg. Comparatively only 1.1% was <= 2.5 kg.

Distribution of patients by Apgar score in 1 min and maximum number of patients in our study comes under Apgar score 4-8 (61.1%) and distribution of patient by Apgar score in 5 min and maximum number patient comes under Apgar score ≥ 9 (64.4%).

Table 6. Comparison of ANC and outcome

ANC	ALIVE	STILLBIRTH	TOTAL	P VALUE- 0.569
UNBOOKED	65	4	69	
BOOKED	21	0	21	
TOTAL	86	4	90	

Table 6 shows comparison of ANC and outcome in which Fischer’s test is not significant (P- Value- 0.569). Table 6 shows the fetal outcome associated with ANC and there was no significant change in fetal outcome statistically with antenatal checkup.

IV. Discussion

Obstructed labour is still a major health crisis in developing and underdeveloped countries. Despite large expansion of medical services in recent times in India, the decline in obstructed labour has not been yet materialized so far. The management in such cases is a challenge for obstetricians due to wide range of complications both on mother and baby.

In the present study, majority of cases (65.5 %) belonged to 19-25 years of age, but the incidence decreases beyond 25 years of age. This is due to tradition of early marriage observed among illiterate women living in rural area in many highly population States in India and high fertility among this young age group. This definition explains the high incidence of obstructed labour in this age group of pregnant women.

Author (s)	Age group
Bhaskar Rao K et al ⁷	21- 23 years
Sarkar et al ⁸	18-21 years
Gupta et al ⁹	20 -23 years

Of all subjects included in the study, 80% hailed from rural areas. This may be due to poor Primary Health Care services in rural areas where deliveries were conducted by unskilled traditional birth attendants (dais). In such circumstances, misuse of Oxytocin occasionally leads to obstructed labour. Even today, majority of rural women prefer to be delivered at home in the hands of traditional birth attendants.

Author (s)	Rural area (%)
Mondal S et al ⁶	88.82%
Gupta et al ⁹	83%
Sarkar et al ⁸	80%
Khooharo et al ¹⁰	87.5%

Chowdry ME et al¹¹ reported maternal literacy as a predictor of reproductive health outcomes. Majority of patients in the study were illiterate (83.3%). Most maternal deaths occur in poor countries because poor woman do not have easy access to Health Care delivery system where services of skilled birth attendants becomes alternative due to various reasons.

A large proportion of patients (82.2%) in the study belong to low socio- economic class. This is similar to that of Mondal S et al⁶ where it was concluded that majority of patients were from low socio-economic class.

Belonging to rural areas, being illiterate and low socio – economic class actually work synergistically to act as strong determinants of obstructed labour as these make pregnant women more reluctant to seek ANC services from Primary Health Care delivery centre.

Incidence of CPD was greater in primigravida where as in women of high parity there was more of malpresentation. Gupta et al¹² reported that primigravida constituted 67.15% cases of obstructed labour. Khooharo et al¹⁰ also observed higher rate of occurrence of obstructed labour among primigravida and Sarkar et al⁸ reported with 45.99% cases of primigravida.

Short stature and minor variant of contracted pelvis are still prevalent amongst ill nourished rural women in our country. A greater number of involvement of multipara are due to larger size of babies in higher order parity, secondary contracted pelvis is frequently found due to malnutrition coupled with prolonged lactation and laxity of abdominal muscles causing abnormal foetal pelvic axis resulting malpresentation.

In the present study, major aetiological factors were cephalo-pelvic disproportion (67.8%) followed by malpresentation (17.8%) and misuse of Oxytocin (5.6%). The other causes were hydrocephalus, cervical dystocia, fetal ascites and pelvic tumours. Malpresentation was the second most common cause of obstructed labour and was principally confined to multigravida. Laxity of abdominal muscles, obesity and lordosis may lead to pendulous abdomen that may contribute to malpresentation, malposition and ineffective bearing down effort during second stage of labour leading to obstructed labour. Deep transverse arrest and Shoulder presentation were the main offenders causing obstruction, the less common malpresentation were face ,brow and impacted breech in present study.

Author (s)	CPD (%)	Malpresentation (%)
Gupta et al ¹²	50%	38.5%
Fantu et al ¹⁴	67.6%	27.9%
Sarkar et al ⁸	69.7%	22.8%

Obstructed labour being a grave condition, there is no place for wait and watch policy. Hence, In the present study, lower segment caesarean section was the most common mode of delivery done in 86 (95.6%) cases out of 90.

Author (s)	LSCS (%)
Rohtag et al ¹³	74%
Mondal S et al ⁶	85.94%
Adhikari et al ¹⁵	63.27%

Present study shows very low incidence of destructive operation (2.2%) which is similar to the study of Rohtag et al¹³ (1.5%). It is a fact that obstructed labour results from mismanaged labour which are allowed to proceed to prolonged labour thus resulting in obstruction and necessitating operative management.

There was no maternal mortality reported in our study. In contrast, maternal mortality rates in other studies were higher reported by Adhikari et al¹⁵ (2.04%). Mondal S et al⁶ also reported maternal mortality of 1.60%. Most of these deaths occurred following rupture uterus in obstructed labour.

The most common complication encountered in the present study was PPH (34%) followed by pyrexia, genital sepsis, shock, rupture uterus and VVF. In the study conducted by Mondal S et al⁶, pyrexia (49.8%) and PPH (33.9%) were observed.

Perinatal mortality reported in various studies were as follows: Neena et al¹⁶ 71.3%, Dafallah et al¹⁷ (27.1%) . The present study observed less perinatal mortality rate (4.4%) and live birth rate was high.

Limitation of the study : In the present study, 67.8% referral cases of obstructed labour came from remote areas among people of low socio-economic class. Increased number of institutional cases of obstructed labour (32.2%) was due to lack of proper monitoring system where partogram may be of immense value. Most of the patients (80%) came from rural areas, 83.3% were illiterate, 82.2% were from low socio-economic status and 76.7% cases were unbooked.

V. Conclusion

Lack of well equipped secondary and tertiary care centers that are adequately staffed that runs round the clock is also an important factor for better obstetric care. However, it is still prevalent in our country due to illiteracy, ignorance, poverty and under utilization of the available health care facilities. Addressing these socio-demographic determinants will certainly contribute towards reducing incidence of obstructed labour in our country.

Early recognition of obstructed labour and immediate safe abdominal or vaginal delivery can decrease the incidence of maternal and perinatal morbidity and mortality. Management of pregnant women as per LAQSYA guidelines and Obstetric HDU/ ICU may improve the outcomes of both mother and baby.

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