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Obstructed Labour: Incidence, causes and outcome

Ritu Gupta^{a*}, Sanjay Kumar Porwal

^aAssistant Professor, Department of Obstetrics and Gynecology, Jhalawar Medical College, Jhalawar, Rajasthan (India)

^bAssistant Professor, Department of Surgery, Jhalawar Medical College, Jhalawar, Rajasthan, (India)

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ABSTRACT

Background- Obstructed labour is still a major cause of maternal morbidity and mortality and adverse outcome of newborn in low income countries. Objective- To review incidence, causes and outcome in the Gyne & Obst Dept, Govt Medical College, Jhalawar, Rajasthan, India. Methods- A retrospective one year (From Jan 2011 to Dec 2011) review of delivery registration records, operation theatre records and patients indoor records who underwent caesarean section for obstructed labour. Results- Over a period of one year, 70 cases of obstructed labour were managed among 6296 total deliveries. Only 34.28% of all cases had received antenatal care and majority 85.7% came from rural areas. 81.4% of the cases were primigravida. The most common cause of obstructions was cephalopelvic disproportion (63%) followed by malposition/malpresentation (29.9%). All patients were taken for LSCS. 5 patients were taken for subtotal hysterectomy for ruptured uterus. The most common post operative complication was sepsis (27.1%). 55.7% of newborns were admitted in the NICU after LSCS because all had low first minute APGAR score. Conclusion- Individual social-demographic and health system factors are strongly associated with obstructed labour and its adverse outcome. To improve the situation, better access to optional antenatal and intrapartum care, together with early referral of high risk patients must be facilitated.

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1.Introduction:

Labour is considered obstructed labour when the presenting part of the foetus cannot progress into the birth canal, despite strong uterine contractions which leads to various maternal and/or foetal complications[1]. It is still a major cause of maternal morbidity and adverse neonatal outcome in the developing countries[2].

Among the common causes are cephalo-pelvic disproportion, malpresentation and malposition[3]. True CPD can only be diagnosed antepartum. If there is a grossly abnormal pelvis or obvious gross hydrocephalus[4] The development of obstruction in the mid pelvis will in most cases become apparent in the second stage of labour. At the beginning of labour, the head may be fixed in the pelvis, if not actually through it, the first stage proceeds normally and often rapidly, but delays occur in the second stage[5]. So in all the other situations, like mild or borderline CPD, a trial of labour is mandatory to diagnose.

Obstructed labour also causes significant maternal morbidity in the short term (notably infection) and long term (notably obstetric fistulas). Fetal death from asphyxia is also common.

There are differences in the behavior of the uterus during obstructed labour, depending upon whether the woman has delivered previously[6]. The pattern in primigravida women (typically diminishing contractility with risk of infection and fistula) may result from tissue necrosis whereas in the parous women, contractility may be maintained with the risk of uterine rupture.

To overcome obstructed labour, the alternatives of caesarean section and destructive operations are often debated[5]. There is a natural tendency to avoid CS if the fetus is already dead but perforation and embryotomy carry a grave risk of shock, hemorrhage and trauma. Modern antibiotics have made CS late in labour a procedure which is relatively safe for the mother and the child. By its use, we can often escape from the consequences of poor judgement and carelessness[5]. Better the antenatal care, fewer will be the examples of obstructed labour. In booked patients obstructed labour is prevented by elective caesarean section where dystocia is anticipated, and the use of partogram in labour management with early recourse to emergency caesarean section[7].

* Corresponding Author : Dr. Ritu Gupta
Assistant Professor, Department of Obstetrics and Gynaecology
Jhalawar Medical College, Jhalawar, Rajasthan (India).
Address: B25 Anand Vihar, Jhalawar, Rajasthan India, 326001.
Mobile number : 08769787771
E mail : r70.gupta@gmail.com

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2. Material & Methods

This hospital based retrospective study of obstructed labour was conducted from 1st January 2011 to 31st December 2011 in the obstetrics & gynaecology department, govt medical college Jhalawar. All mothers who were admitted to the labour room during the 12 month period and underwent caesarean section for obstructed labour were included in the study. Patient records, operation theatre notes were reviewed retrospectively to gather information about patients admitted for obstructed labour. All the relevant information such as age, parity, antenatal care, causes, complications, treatment and maternal and neonatal outcome was collected.

Classification was according to the standard definition. Obstructed labour is defined as failure of descent of the fetal presenting part for mechanical reasons inspite of adequate uterine contractions and not managed timely.

Mothers were said to be booked when they visited a health institution atleast once during the pregnancy. A patient with atleast one previous delivery past 28 completed weeks of pregnancy is classified as multigravida and grandmultipara when the number of previous similar deliveries were 4 or more. Perinatal mortality refers to a still birth or neonatal death within one week of life.

3. Result

During the one year study period, there was a total of 6296 deliveries of which 70 cases were diagnosed to have obstructed labour, the percentage of incident being 1.11%.

Maximum cases of age group 19-24 years (77%) (Table 1). Majority (Table 2) of patients (81.0%) were primigravida. The majority of patients (85.7%) came from rural areas (Table 3). Only 34.0% had attended antenatal clinics (Table 4).

Causes of obstructed labour are shown in (Table 5). Most common Cephalo-pelvic disproportion was identified as a cause in 44 (63%) patients and malpresentation and malposition in 21 (30%).

Four cases of previous caesarean scar came in advanced stage of obstructed labour and resulted into rupture of uterus. One of the primigravida had spontaneous fundal rupture of uterus. These 5 patients underwent subtotal hysterectomy.

During the year (2011), 939 (15%) mothers had caesarean section for various indications. Among these, 7.45% cesareans were performed solely for obstructed labour. Table 6 shows the maternal intraoperative complications. 20 (28.57%) patients suffered from PPH.

Postoperative complications (Table 8) occurred in 26 cases. Most common complication was sepsis (27.1%).

Long term complication like vesicovaginal fistula was seen in one case. Blood transfusion was reported in 68 cases during intra or post operative period.

No maternal mortality occurred in any of these cases. Three patients referred to higher centre for various complications while others were discharged from hospital after a variable period of stay ranging from 9 to 19 days.

Perinatal outcome following LSCS was satisfactory. At birth, 35.7% babies had good APGAR score and 55.7% babies were shifted to NICU due to poor APGAR score and some of them were discharged after a variable period. Perinatal mortality was 22.8% (includes SB and newborns expired in NICU).

Table 1. Age

Age in years	Number of Cases	Percentage of Cases
19-24	54	77
25-29	8	11.5
>30	8	11.5

Table 2. Obstetric history

Parity	Number of Cases	Percentage of Cases
Primigravida	57	81
Multigravida (less than three)	10	14
Grand multiparous	3	5

Table 3. Population of residence

Residence	Number of cases	Percentage of cases
Rural	60	85.7
Urban	10	14.28

Table 4. Cases

Booked/unbooked	Number of cases	Percentage of cases
Booked	24	34
Unbooked	46	66

Table 5. Causes of obstruction

Cephalopelvic disproportion	Number of Cases	Percentage
Malpositions (DTA, POP, DEFLEXED HEAD)	14+4+1	27
Malpresentations	2	3
Previous Caesarean Section	4	5.5
Cervical Fibroid Etc.	1	1.5

Table 6. Intraoperative complications

Complications	Number of Cases	Percentage
PPH (atonic)+ (rupture uterus)	15+5 = 20	28.57
Bladder Trauma	4	5.7

Table 7. Patient reported to hospital

Stage	Number of Cases	Percentage
First Stage	41	58.57
Second Stage	29	41.43

Table 8. Postoperative complications

Complications	Number of Cases	Percentage
Infection		
1.Wound	6	27.1
2.Respiratory	+4	
3.Sepsis	+9= 19	
Prolonged Catheterization	3	4.2
Abdominal Distention	3	4.2
Vesico Vaginal Fistula	1	1.4

Table 9. Blood transfusion given

Number of B.t	Number of Patients	Percentage
Nil	2	2.8
One Unit	48	68.5
Two Unit	15	21.4
Three Unit	3	4.2
More Than Three	2	2.8

Table 10. Fetal outcome

Condition at Birth	Number of newborns	Percentage of newborns
NICU	39	55.7
GOOD	25	35.7
SB+EXPIRED IN NICU	6+10=16	22.8

4. Discussion

The incidence of obstructed labour varies amongst different countries and various centres. Several studies of other developing countries shows incidence of obstructed labour ranging from 2-8%.

In our hospital, incidence of obstructed labour was 1.1% which was comparable to 1.27% in Daffall et al at Sweden in 2003. It was higher than the studies done by S.Adhikari et al [10] which was 0.56% and lower than studies conducted by Amanuel Gessesew et al [11] which was 3.3% and Jimma Hospital Ethiopia which was 7%. Such low percentage of this incidence in our hospital is probably a reflection of improved intranatal care. Majority of patients (77%) were of age group 19-29 years as this is the main reproductive age group which is comparable to studies done by S.Chhabra et al where this group constitute 64.7%.

In our hospital, majority number of patients (57 which constitutes 81%) who had undergone obstructed labour were primigravida (comparable to studies conducted by Ozumba BC et al where primigravida were 59%) belonging to age group 19-29 years (88.5%). This observation clearly indicates the growing awareness amongst the rural people and also how our government has succeeded in its cause by introducing strict laws against child marriages.

The incidence of obstructed labour was much higher among the unbooked patients (66%) than the booked patients (34%). These results are comparable to study done by Shimelis Fantu et al where 62% cases did not have any ANC followup and studies done by Gaym A where 44% of the cases had no antenatal care.

Although ANC is a poor measure to prevent pregnancy and delivery complications, but simultaneously it could be a proper time to counsel the patient and her attendant about preparation and place for delivery.

Cephalopelvic disproportion (CPD) was responsible for 63% of the cases. Malpositions were responsible for 27% of the cases. These observations are comparable to study done by Shimelis Fantu et al where CPD was responsible for 67.6% and studies done by Kabakyenga JK et al where main cause was CPD (63.3%). In our study, most of the cases of CPD and malpositions were diagnosed after a trial of labour when patient reached the second stage of labour with no further progress. Malpresentation was responsible for obstructed labour only in 2 (3%) cases because most of the cases of malpresentation operate earlier (shoulder, breech, brow, face) before reaching the stage of obstruction, so these cases were not included in the study.

Caesarean section was the only method of delivery. Destructive operations were not done as most of the patients were taken for LSCS in the early phase of obstruction with comparatively good fetal condition. In rest of the cases, malrotated head was jammed in the mid pelvis posing death threat to both mother and fetus. In the modern era, LSCS under good antibiotic coverage has a very low mortality and morbidity rate and seems to be the best option.

Infections are the most common postoperative complication in our study. Infections are due to wound, respiratory tract and sepsis. Most common intraoperative complications were PPH (21.4%) and ruptured uterus (7%). Atonic PPH was most common due to prolonged labour.

Various authors have reported obstructed labour to be one of the major causes of maternal and perinatal mortality. But in our study, maternal mortality was not reported. Following LSCS, there was only one case of morbidity (vesicovaginal fistula) reported, though the complications (wound sepsis and intraoperative bladder injuries) prolonged the patient's hospital stay for more than 10 days and thereafter discharged satisfactorily.

In our study, perinatal mortality was 22.8% and 25 (35.7%) newborns were in good condition and 29 (41.4%) newborns were discharged from NICU after a variable period of time.

5. Conclusion

Obstructed labour is a major cause of maternal and perinatal morbidity and mortality in low income countries and accounts for approximately 8% of maternal deaths globally. Studies in low income countries have reported the prevalence of obstructed labour to be between 2-8% of all institutional deliveries. This is

most likely an underestimate as the majority of maternal deaths due to obstructed labour as primary cause are rarely documented, instead, the terminal cause of death is documented and hence are classified as sepsis, ruptured uterus or hemorrhage rather than the underlying cause.

The current WHO initiative is to reduce maternal mortality to 75% of the 1990 level by 2015(6). If this is to be successful, the problem of obstructed labour is to be understood and dealt with effectively.

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