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Gynecology

MATERNAL AND PERINATAL OUTCOME IN OBSTRUCTED LABOUR

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ABSTRACT

Background- Obstructed labour is a life threatening obstetric complication associated with significant maternal and fetal morbidity and mortality Maternal mortality is largely due to PPH, puerperal infection or rupture uterus and perinatal mortality is mainly due to asphyxia.

Methods- Prospective study of two years duration with sample comprised of 250 cases of obstructed labour randomly selected from all patients admitted to labour room with obstructed labour were included in this study.

Results – The incidence of obstructed labour was 3.67% .72% were referral cases. Majority were primigravida(60.8%) and between21-30 years(72.4%). Common causes were Cephalopelvic disproportion(54.4%), malpresentation and malposition(42%) and fetal malformation (1.6%).Delivery was by Caesarean section (80.4 %), forceps application (6.8 %)and destructive operations (1.6%).Out of 28 cases of ruptured uterus,17 (6.8%) and11(4.4%) were managed by subtotal hysterectomy and uterine repair respectively.Maternal morbidity was 86.4% , causes being Puerperal pyrexia (37.6%), post partum haemorrhage (20.8%) and wound infection (14.4%). Maternal deaths (1.6%) due to endotoxic shock and primary PPH.Perinatal mortality was21.14%. Commonest causes of neonatal morbidity were birth asphyxia (38.33%) of live births, jaundice (29.96%) ,septicaemia (18.94%) and Meconium aspiration syndrome (13.66%). Most of neonatal deaths were due to severe birth asphyxia (54.17%) followed by septicaemia (20.83%)

Conclusion – Obstructed labour is a frequently encountered obstetric complication associated with very high maternal and perinatal morbidity and mortality. It can be prevented by providing good nutrition and optimal obstetric care. Effective antenatal care and early detection of risk factors and timely referral will prevent the complication due to obstructed labour.

KEYWORDS : obstructed labour, ruptured uterus, perinatal

Introduction –
Obstructed labour is one where in spite of good uterine contractions the progressive descent of the presenting part is arrested due to mechanical obstruction. This may result either due to factors in the fetus or in the birth canal or both, so that further progress is almost impossible without assistance.

Obstructed labour comprises one of the major causes of maternal mortality and morbidity in developing countries. It accounts for 8% of all maternal deaths in India. Risk factors are contracted pelvis, short stature, cephalopelvic disproportion, fetal malposition and malpresentation. Obstructed labour results from neglected antenatal and intranatal care. It is a major cause of maternal and perinatal mortalities and morbidities and responsible for most cases of rupture uterus . Obstetric fistualas are long term complications.Modern obstetric management, particularly intranatal care with maternal monitoring has led to virtual disappearance of obstructed labour in the developed countries. However, in the underdeveloped and developing countries where vast population is at risk, the elimination of this most dangerous complication is still a challenge.

Objectives of the study -
To study the cases of obstructed labour admitted to the labour room;
1. To evaluate the maternal mortality and morbidity
2. To evaluate the perinatal mortality and morbidity

Materials and Methods –
All patients admitted to labour room with obstructed labour during two years of study period in our institute were enrolled in the study. 250 cases of obstructed labour randomly selected. Patients were asked to sign the informed consent and were free to withdraw from the study at any period.

A detailed history, including detailed personal profile regarding socioeconomic status, literacy, rural/ urban, booked/unbooked, referred/direct were recorded. Detail obstetrical history of past pregnancy, type, duration and place of delivery were enquired & Intrapartum events including Partograph were recorded. In cases with history of abdominal delivery, its indications were enquired and the maternal & perinatal outcomes were recorded.

History of current pregnancy, whether she had regular antenatal check up, about immunisation, duration of labour and the type of treatment she had received before admission to this institution at the periphery hospital were noted.

A thorough clinical examination of each case was carried out with simultaneous resuscitative measures for dehydration, keto-acidosis and shock as in the cases of rupture uterus. A broad spectrum antibiotic was started in every case. Grouping and typing was done in all cases and blood sample for cross matching was collected.

Then, a thorough obstetric examination was carried out per abdomen and internal examination per vaginum. State of labour, cause of obstruction and foetal conditions were determined. Abdominal examination revealed the integrity of the lower segment of uterus, whether intact or ruptured or on the verge of rupture; whether the baby is alive or not, its presentation, position and station of the presenting part. Specific signs of obstruction like stretching of lower segment, edematous bladder, distension of the bowel, presence of Bandl's ring, prominence of round ligament, uterine tenderness, edematous and ballooning of vulva, dry hot vagina, jammed presenting part with caput succedaneum formation and excessive moulding were searched for.

Each patient is managed depending on her own merit according to the stage of labour, foetal condition, status of lower segment of uterus and presence or absence of rupture of uterus. Modalities of management were Caesarean section, forceps delivery and destructive operation if the foetus is dead and lower segment is not stretched. Cases of rupture uterus were managed by exploratory Laparotomy with repair or subtotal hysterectomy, if the rupture uterus was irreparable.

In all cases, both the mother and neonate were followed up critically with respect to the morbidities and mortality till their discharge from hospital.

The outcome in each case was recorded systematically as per the Case Record Form for subsequent review.

Results –

TABLE – 1: INCIDENCE OF OBSTRUCTED LABOUR IN RELATION TO DIFFERENT EVENTS IN OUR HOSPITAL

Events	Total	Obstructed labour	
		No	% Of Total
Deliveries	10512	386	03.67
Caesarean Section	5443	310	5.69
Instrumental Deliveries	859	27	3.14
Rupture Uterus	54	39	72.22
Obstetric Hysterectomy	33	17	51.51
Destructive Operation	14	7	50
Maternal Mortality	126	7	5.55
Babies Born	10522+	387*	3.67
Live Births	10039	347	3.45
Still Births	483	40	8.28
Neonatal Deaths	618	45	7.28

+ Includes 10 twin deliveries, *Includes one locked twin

During the period of study 10512 deliveries were conducted in our hospital, which included 386 cases of obstructed labour giving an incidence of 3.67% .5443 caesarean sections were conducted during this period, out of which 310 cases (5.69%) were due to obstructed labour. Ruptured uterus due to obstructed labour accounted for 72.22% of total 54 ruptures. 50% of all destructive operations were performed in cases of obstructed labour.

Table –2: AGE DISTRIBUTION

Age in years	No. Of Cases	Percentage
≤ 20	47	18.8
21 – 25	123	49.2
26 – 30	58	23.2
31 – 35	14	5.6
>35	08	3.2
TOTAL	250	100

Majority (49.2%) cases were in the age group of 21-25 years. 18.8% were below 21 years of age. 8 cases(3.2%) were above 35 years.

Table – 3: PARITY DISTRIBUTION

Parity	No. Of Cases	Percentage
0	152	60.8
1	52	20.8
2	11	4.4
3	16	6.4
≥4	19	7.6
Total	250	100

152 out of 250 cases (60.8%) were primigravidae, 20.8% were primipara and 7.6 % were grandmultipara.

TABLE – 4: PATIENTS PROFILE

Characteristics	No. of Cases	Percentage
Residence		
Rural	181	72.4
Urban	69	27.6
Education status		
Illiterate	132	52.8
Literate	118	47.2
Socio-Economic Status		
Low	216	86.4
Middle	34	13.6
Upper	00	00

Majority (72.4%) of patients were from rural areas, illiterate (52.8%), and belonged to low socioeconomic status (86.4%).

TABLE – 5: ANTENATAL CARE DURING PREGNANCY

ANC Checkup	ANM/ Sub centre	Place		Total	
		FRU	SRU	No.	%
Booked	101(40.4%)	51(20.4%)	27(10.8%)	179	71.6
Unbooked	--	--	--	71	28.4
Total	101	51	28	250	100

71.6% of cases had regular antenatal check-up. Maximum (40.4%) numbers of cases were registered at the sub-centre level.

TABLE – 6: PLACE OF INTRANANTAL CARE BEFORE ADMISSION

Received from	No Of Cases	Percentage
Home	9	3.6
ANM/SBA	43	17.2
FRU	160	64.0
S RU	38	15.2
Total	250	100

Majority of cases were referred from peripheral institutions[FRU(1st referral unit) 64.0%&SRU (2nd referral unit) 15.2%].Skilled birth attendants (ANM/SBA) referred 17.2% cases after the labour was obstructed. 3.6% cases were received directly from their home without any prior treatment.

TABLE-7: DURATION OF LABOUR AT ADMISSION

Duration in Hours	No. Of Cases	Percentage
≤ 12	39	15.6
13-18	99	39.6
19-24	78	31.2
≥25	34	13.6
Total	250	100

In 44.4% cases, labour had been prolonged for more than 18 hours by the time of admission.

TABLE 8: MATERNAL CONDITION AT THE TIME OF ADMISSION

Clinical Feature	No. Of Cases	Percentage
Tachycardia	219	87.6
Dehydration	186	74.4
Bandl's ring	67	26.8
Hematuria	56	22.4
Pyrexia	37	14.8
Uterine inertia	35	14.0
Vulval edema/bruise/laceration	27	10.8
Absent FHS	24	9.6
Sepsis(chorioamnionitis)	17	6.8
Shock	13	5.2

Majority of patients had tachycardia (87.6%) and dehydration (74.4%) with features of obstruction. They were exhausted, with features of sepsis. Hematuria was found in 22.4% cases. Shock was found in 5.2% cases.

TABLE-9: CAUSES OF OBSTRUCTION

Causes	No. Of Cases	Percentage
Cephalopelvic disproportion	136	54.4
Deep Transverse Arrest	57	22.8
Persistent Occipito-posterior position	13	5.2
Breech	13	5.2
Transverse Lie	12	4.8
Face Mento posterior	6	2.4
Non dilation of Cervix	5	2
Hydrocephalous	03	1.2
Brow	02	0.8
Compound Presentation	01	0.4
Foetal Ascites	01	0.4
Locked twin	01	0.4
Total	250	100

Cephalopelvic disproportion was the most frequent cause of obstruction (54.4%) followed by Deep transverse arrest (22.8%), malpresentation and malposition (42%), fetal congenital anomalies (1.6%) and Cervical dystocia(2%) of cases.

TABLE-10: MODE OF MANAGEMENT

	No. of Cases	Percentage
Abdominal Caesarean Section	201	80.4
Vaginal Forceps Destructive Craniotomy Evisceration	17 03 01	6.8 1.2 0.4
Symphysiotomy	--	--
Total	222	88.8

In majority, caesarean section was the method of delivery (80.4%). Forceps delivery was conducted in 17(6.8%) cases. Destructive operation was done in 1.6% of cases.

TABLE 11: MODE OF MANAGEMENT OF RUPTURE UTERUS

	No of cases	Percentage
Sub Total Hysterectomy	17*	6.8
Repair of Uterus	11	4.4
Total	28	11.2

Out of 28 ruptured uterus cases, subtotal hysterectomy was done in 17 cases and repair in 11 cases. In 4 Cases* where subtotal hysterectomy was done, rupture bladder was also found and repaired.

TABLE-12: MATERNAL MORBIDITIES

Complications	No. Of Cases	Percentage
Pyrexia	94	37.6
Post partum hemorrhage	52	20.8
Abdominal Distention	44	17.6
Blood Transfusion	43	17.2
Wound infection	36	14.4
Urinary Tract Infection	24	9.6
Wound Dehiscence	15	6.0
Thrombophlebitis	8	3.2
Peritonitis	6	2.4
Shock	4	1.6
Burst Abdomen	3	1.2
Septicaemia	3	1.2
VVF	2	0.8
Total no. of patients with morbidity	216	86.4

Out of 250 cases of obstructed labour studied, 216 cases (86.4%) had one or more morbidities. Puerperal pyrexia was the commonest maternal morbidity (37.62%) followed by post partum hemorrhage (20.8%). Blood transfusion was given in17.2% cases. While wound sepsis was encountered in 14.4% cases, need secondary suturing in 6% for wound dehiscence and three cases, had burst abdomen. V.V.F was reported in 2 cases.

TABLE-13:CAUSES OF MATERNAL MORTALITY

Causes	No. Of Cases	Percentage
Endotoxic Shock	3	1.2
Primary PPH	1	0.4
Total	4	1.6

There were four maternal deaths, of which 3 cases were due to endotoxic shock and one case was due to Primary PPH. Maternal mortality rate was 1.6%.

TABLE-14:FETAL CONDITION AT ADMISSION

Condition	No. Of Cases	Percentage
No distress	49	19.52
Foetal distress	178	71.31
IUD	24	9.17
Total	251*	100

* Includes one locked twin where first baby was dead and the other baby survived.

In 9.17% cases IUD had already occurred, while 71.31% babies were with fetal distress.

TABLE-15: NEONATAL MORBIDITY (N= 227)

Morbidity	No Of Cases	Percentage
Birth Asphyxia	87	38.33
Meconium Aspiration Syndrome	31	13.66
Septicaemia	43	18.94
Jaundice	68	29.96
Umbilical Sepsis	15	6.61
Convulsion	17	7.49
Facial Injuries	03	1.32
Cephalohematoma	03	1.32
Total No. of Neonates with morbidity	186	81.94

81.94% of all live born had some morbidity. Birth asphyxia (38.33%) was the commonest morbidity followed by jaundice (29.96%) and septicaemia (18.94%).

TABLE-16:NEONATAL MORTALITY

Causes	No of cases	Percentage
Birth Asphyxia	13	54.17
Septicaemia	05	20.83
Meconium aspiration syndrome	04	16.67
Convulsion	02	08.33
Total	24	100

Majority neonatal deaths were due to severe birth asphyxia followed by septicaemia. There were 24 neonatal deaths out of 227 live births; so neonatal death rate was 10.57%.

DISCUSSION:

The present prospective study evaluated the course of obstructed labour and its complication, identify the preventable factors to reduce the prevalence of it.

The incidence of obstructed labour was 3.67%.Comparable with incidence rates of 4.53 % (Anjum Ara, Pakistan, 2004). and 4.7% (Islam et al, Bangladesh, 2012) This incidence is reflective of overall health system, socio- economic status, availability obstetric care and delayed referral of patients.

The majority 72.4% were between the age 21 - 30 years comparable with 72.8% in Gupta et al (1991) and 71.4% in Islam et al (2012) study. High incidence in the present study may be due to early marriage in the locality.

In the present study majority 60.8% were primigravidae .Ozumba and Uchegbu (1991) study reported 59% cases of primigravidae comparable to the present study. In Ritu Gupta (2012)series, 81.4% cases were primigravidae. The incidence of grandmulties (7.6%) in the present study is comparable to 5.3% reported by Neena Chuni (2008). This decreasing tendency of parity may be due to the progressing family planning programme.

In the present study majority of cases of obstructed labour came from rural areas i.e.181 (72.4%) cases compared to only 69 (27.6%),ratio of 3:1. Dutta & Partha Bose (1992) had reported a rural to urban ratio of 3:1.52.8% cases were illiterate. Most of them belonged to low socio-economic status (86.4%). Not a single case from affluent class had been come across. This is quite comparable to 76.1% by Aboyeji and Fawole (1999), 66.7% by Islam et al (2012) and 92% by Neena Chuni (2008**).**

71.6% cases were booked and 28.4% were unbooked. Unbooked cases in the present study are less compared to 46.7% in (Islam et al 2012) study and 96% in (Neena Chuni, 2008) study may be a reflection of the ongoing Janani Suraksha Yojana (JSY) and presence of Accredited Social Health Activists (ASHA) in rural areas of the State.

Majority of cases were referred from peripheral institutions(FRU 64%, SRU 15.2%). In 17.2% cases labour was attended by birth attendants at sub -centre level. In the present study 39.6% patients were admitted with 13-18 hours of labour pain whereas 13.2% cases received after 24 hours of labour pain.In the study by Islam et al (2012), 25.7% of cases were received after 24 hours of labour pain, where as in Neena Chuni

(2008) series 58.9% cases were admitted after 36 hours of labour pain.The duration of labour at the time of admission depends on early diagnosis and timely referral by the peripheral centre to the apex institution.

Clinical picture of obstructed labour depends on the duration of labour and integrity of uterus. Patient looks exhausted and dehydrated corrected by I.V. fluids, mostly Ringers lactate and normal saline. . Very often the temperature is raised and there is tachycardia.In the present study all the cases of obstructed labour were exhausted with tachycardia (87.6%) and dehydration (76.4%). 37(14.8%) patients had raised temperature and 17(6.8%) patients had features of chorioamnionitis like foul smelling vaginal discharge. 13(5.2%) had features of shock. Hematuria was found in 22.4% cases. Associated with Bandl's ring in 67 cases (26.8%) , Uterine inertia in 35(14.0%) cases and Vulval oedema and bruise in 27(10.8%) cases. Absence of FHS had found in 24(9.6%) cases . Broad-spectrum antibiotics were started to prevent spread of infection. Compatible blood was made available.

In the present study cephalopelvic disproportion was the single most leading cause of obstruction comprising 54.4% of cases which is comparable to the incidence67%, 44.8%, 65.3% and 67.6% in Ozumba and Uchegbu (1991), Gessessew et al (2003) and Shimelis et al (2010) series respectively. Malpresentation and malposition taken together constituted 42% of cases forming the second most common cause which is similar to the incidence of 45.5 %, 32.5%, 30%, 45.4% and 50.5% as reported by Gessessew et al (2003), Anjum Ara (2004), Ritu Gupta (2012), Neena Chuni (2008) and Islam et al(2012). respectively.Fetal congenital anomalies were encountered in 4 cases (three hydrocephalus, one fetal ascites) constituting 1.6% of all cases comparable to 1.5% in Aboyeji et al (1999) series.

The obstetric management in obstructed labour depends on the various factors like general condition of the mother, vital parameters of the fetus and the presence or absence of uterine rupture. In the present study caesarean section was done in 201 cases accounting for 80.4% followed by forceps delivery in 17(6.8%) cases ,destructive operations in 4 cases (1.6%) of which craniotomy in 3 (1.2%) and evisceration in 1 (0.4%)case .Fndings are comparable with the Neena Chuni (2008) series where caesarean section was done in 82.1%, Instrumental delivery in 6.5%, obstetric hysterectomy in 5.8% and destructive operations in 1.8% of cases. The less incidence of destructive operation is a reflection of the standard of obstetric care in a community. Lawson (1967) opined that caesarean section can be avoided in the infected cases of obstructed labour by doing symphysiotomy. not in the present series. In the modern era, caesarean section under good antibiotic coverage has a very low mortality and morbidity rate and seems to be the best option.

In present study, 28(11.2%) cases of ruptured uterus were found. This is comparable with the study by Aboyeji & Fawole (1999) who reported 11.9% cases with ruptured uterus. Out of total 28(11.2%) ruptured uterus cases, repair of uterus was done in 11 cases. Subtotal hysterectomy was done in 17 cases as it is quicker and safer in patients with low general condition. In 4 cases, bladder rupture was also detected and repaired.

216 cases had one or more morbidities Pyrexia was the most frequent morbidity (37.6%) followed by postpartum hemorrhage (20.8%) and abdominal distension in 44(17.6%) cases. 43 patients (17.2%) required blood transfusion, mostly for atonic PPH. Wound infection was reported in 36(14.4%) cases requiring Secondary suture in 15(6%) cases .Urinary tract infection was confirmed after culture and sensitivity in 24(9.6%) cases of postoperative pyrexia, which was subsequently treated. This may be due to indwelling catheter itself. Peritonitis was seen in 6(2.4%) cases. Neena Chuni (2008) reported febrile morbidity in 45.98%, wound dehiscence in 22.5% and blood transfusion in 15.9%. Abdominal distension was the most common feature in study by Anjum Ara (40.8%) followed by urinary tract infection in 17.5% and puerperal sepsis in10.4% of cases.

Majority of cases of obstructed labour after delivery were kept with an indwelling catheter for 10 - 14 days in order to prevent V. V. F. In the present study, V.V.F. was detected in two cases. One patient complained incontinence of urine on 8th post operative day while still on indwelling catheter and another patient attended outpatient department after 2 months of delivery by caesarean section with complain of leaking urine from 20th post operative day.The incidence of VVF in the present study is 0.8% as against 1.5%, 1.9%, 1.4%, 1% and 2.22% of obstetric fistulae incidence in Dafallah et al (2003), Islam et al (2012), Ritu Gupta(2012), Anjum Ara(2004) and Adhikari et al (2004) studies respectively.VVF was mainly attributed to prolonged hours of labour pain before delivery.

There were 4 maternal deaths in the present study out of 250 cases of obstructed labour constituting 1.6%. Three patients died of endotoxic shock. Another patient due to primary PPH.According to Rao (1992), maternal death depends on how soon the uterus was emptied. Maternal death rate was 2.04% in Adhikari et al (2005) series and 2.98% in Aboyeji & Fawole (1999) series, while in Gessessew et al (2003) series it was 3.7%. So, comparatively in the present series the maternal death was low.

At the time of admission, features of fetal distress like heart rate less than 100/min and thick meconium stained liquor was found in 71.31% of cases. In 19.52% cases, there were no signs of fetal distress. IUD was seen in 9.17% of cases.All the liveborns were resuscitated immediately. 186 neonates had some form of morbidities. Birth asphyxia (38.33%) was most common followed by icterus (29.96%) , septicaemia (18.94%) and Meconium aspiration syndrome was seen in 13.66% babies. Convulsion was seen in 17(7.49%) neonates.Birth asphyxia was seen in 35% of babies born in obstructed labour cases reported by Randhawa and Kanwal (1991).Birth asphyxia of 38.33% in the present study is comparable with figures of 34% by Gessessew et al (2003) and 33.3% by Islam et al (2012) Birth Asphyxia is the frequent and foremost cause of 1st week neonatal mortality in India as described by Chaturvedi and Shah (1989).In the present study, 13(54.17%) newborn died due to severe birth asphyxia. The other causes of neonatal mortality were septicaemia (20.83%), Meconium aspiration syndrome (16.67%) and Convulsion (8.33%). In the present study perinatal death was 21.14% accounting for 48 losses of which 24(9.86%) were stillbirths and 24(10.57%) were early neonatal deaths. 80.88% of the neonates were discharged with the mother after varied hospital stay for maternal and neonatal causes.

The perinatal death of 21.14% in the present study is comparable with 27.1% in Dafallah et al(2003) series and 22.8% in Islam et al (2012) series. Duration of labour had significant effect on perinatal mortality and morbidity.

DECLARATIONS

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