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Original Research Article

Placenta Praevia: A Study on Fetal Outcomes

Dr. K.K. Das[1], Prof. G.C.Das[2], Divya Dwivedi[3]
[1]Associate Professor ,[2] Professor,[3]Post Graduate Student, Department of Obstetrics and Gynaecology, GMCH, Srimanta Sankaradeva University of Health Sciences, Guwahati, Assam, INDIA

***Corresponding author**
Dr. Divya Dwivedi
Email: dwivedi.divya115@gmail.com

Abstract: Present study was conducted with the objective to find out overall incidence of fetal mortality and morbidity in cases of placenta praevia. Among Sixteen thousand eight hundred forty four deliveries occurred during June 2015 to May 2016, 100 cases of placenta praevia were randomly selected for this study. Patients were examined as per our protocol and observations were recorded for perinatal morbidity and mortality and statistically analyzed. The overall incidence of placenta praevia was found 1.62. The perinatal mortality was 15.22% in the booked cases and 35.19% in the unbooked cases. The perinatal morbidity was higher (42.59%) in emergency cases than in booked (13.04%). Perinatal mortality was higher in the actively managed (44.44%) group than the expectantly managed (5.71%) cases. Perinatal mortality was lower (24.73%) in the caesarean deliveries than in the vaginal deliveries (42.86%). In the present study, a significant proportion of the babies were premature as a significant fraction of cases came as emergencies. The incidence of prematurity was 43%. Adequate antenatal services, early diagnosis and referral to higher centre where blood transfusion facilities and specialist services are available is needed to reduce the perinatal mortality and morbidity.
Keywords: Perinatal mortality, perinatal morbidity, prematurity

INTRODUCTION

The perinatal mortality in placenta praevia has not shown significant fall as compared to maternal mortality. A Danish national cohort study was associated with an increased risk of neonatal mortality, prematurity, low Apgar scores, low birth weight, and transfer to a neonatal intensive care unit in cases of placenta praevia and abruption placentae [1]. Placenta praevia refers to a placenta that is situated wholly or partially in the lower uterine segment at or after 28 weeks of gestation [2]. The incidence is approximately 4-5 per 1000 pregnancies [3, 4]. It occurs in 2.8/1000 in singleton and 3.9/1000 in twin pregnancies [5]. Risk factors include high parity [6], advancing maternal age [7], multiple gestations [8], closely spaced pregnancies, IVF [9], smoking and cocaine use [10], past history of placenta praevia, previous caesarean section [11], uterine surgery [12] and women having mullerian anomalies [13]. Perinatal mortality forms a yardstick not only for maternal health and maternity services, but also of child health and pediatrics services. The Gauhati Medical College & Hospital is a well-equipped and well-staffed institution with necessary facilities to deal with any newborn infant. The hospital serves a big section of different classes of people of Assam and adjacent part of North Eastern region. The present study was intended to analyze how far within the existing facilities the present management of placenta praevia has influenced the fetal outcome.

AIMS AND OBJECTIVES

The aim of this study was to find out overall incidence of perinatal mortality and morbidity in cases of placenta praevia.

METHODS AND MATERIALS

This was cross sectional, hospital based study carried out in the department of Obstetrics and Gynaecology of Gauhati Medical College and Hospital, Guwahati, a tertiary care hospital for a period of one year from 1st June, 2015 to 31st May 2016. 100 cases of antenatal pregnant women who had bleeding per vagina due to placenta praevia and without bleeding per vagina with ultrasound diagnosis of placenta praevia after 28 weeks of pregnancy admitted in Obstetrics ward and labor room of this hospital were selected for the study.

Women with bleeding per vaginum before 28 weeks of pregnancy and women with bleeding per vagina after 28 weeks of pregnancy, from causes other than placenta praevia (eg. abrutio placentae, vasa praevia, systemic disorders like VonWillebrands

disease, local causes like cervical polyp, cervical erosion, cervical cancer, and varicosities) were excluded from this study.

The patients were examined as per our protocol and in all cases with recent history of bleeding per vagina immediate hospitalization was done, patient's general condition was assessed, and resuscitative measures started by intravenous fluid including blood transfusion where necessary. Patients were put to absolute bed rest and carefully observed for further bleeding by putting sterile vulval pads. Strict instruction was given regarding avoidance of vaginal examination. Ultrasound examination along with routine investigations was done in all cases. More conservative attitude was adopted with available gadgets to prolong the pregnancy beyond 37 weeks if the bleeding was mild by bed rest, iron, calcium and antibiotics, blood transfusion, tocolytics where necessary. Active management was instituted if the bleeding was excessive or continuous or if the pregnancy reached beyond 37 completed weeks or if there is fetal distress or in cases of intrauterine fetal demise.

The details of all babies were recorded at the time of delivery with respect to whether live born/ fresh stillborn/ macerated stillborn, sex, time of birth, birth weight, date of birth, Apgar score at 5 minutes, presence of any gross congenital anomaly, need of immediate endotracheal intubation and NICU admission. All the babies were jointly looked after by the obstetric wing and the neonatologists. The babies were then followed up till discharge specially during the early neonatal period. Our institution has a level 2 B neonatal care unit under the Department of Pediatrics with trained personnel attached to the obstetrics wing to deal with the newborn infants.

RESULTS

The present study is the analysis of 100 cases of placenta praevia admitted and treated in the Department of Obstetrics and Gynaecology, Gauhati Medical College and Hospital, Guwahati, Assam. The fetal outcome of 100 cases of placenta praevia was observed and analyzed up to the first week of neonatal life. The study covered tenure of one year from 1st June 2015 to 31st May 2016.

Incidence of Placenta Praevia

During the study period the total number of deliveries in the Gauhati Medical College and Hospital was 16844. It was noted that the incidence of Antepartum haemorrhage was 3.26% (550) out of 16844 deliveries. The incidence of placenta praevia was 1.62% (273) which constituted 49.64% of all antepartum haemorrhage. A sample of 100 such cases were chosen randomly for the present study.

Table-1: Incidence of Perinatal mortality and morbidity in relation to booked and unbooked cases of placenta praevia

Booking	Total Cases	Perinatal Mortality							Perinatal Morbidity		Chi-square test
		Stillbirth		First Week Death		Total		Chi-square test			
		No.	%	No.	%	No.	%		No.	%	
Booked	46	3	6.52	4	8.70	7	15.22	χ^2=3.382 p>0.05	6	13.04	χ^2=3.320 p>0.05
Unbooked	54	11	20.37	8	14.81	19	35.19		23	42.59	

Out of total 100 cases of placenta praevia, 54 cases were unbooked and 46 cases were booked. The overall perinatal mortality amongst the booked cases were15.22% and among the unbooked cases was 35.19%. Thus it was higher in unbooked cases. The perinatal morbidity was higher in booked cases which is 58.70% in comparison to 42.59% in unbooked cases. On statistical analysis incidence of perinatal mortality in relation to booked and unbooked cases shows no statistically significant difference by chi- square test. Similarly, in perinatal morbidity there is no statistically significant difference.

Relation of expectant treatment on prematurity

Out of 100 cases, 35 cases of placenta praevia (35%) were managed by expectant line of treatment of which 4 cases were prematurely delivered. Incidence of prematurity is 11.43% among the expectant treatment group. But rest 65% cases were delivered immediately (actively managed) and number of premature delivery was 39 (60%). In intergroup comparison when tested by chi-square test, statistically highly significant difference was found with respect to premature delivery between expectantly managed and immediate delivery groups.

Table-2: Showing effect of expectant treatment on prematurity

Management	Total Cases	Number of premature delivery	Percentage	Chi-square test
Expectantly Managed	35	4	11.43	χ^2=21.89 p<0.001
Actively Managed	65	39	60.00	

Effect of expectant treatment on perinatal mortality and morbidity

35 cases of placenta praevia (35%) were managed by expectant line of treatment with a perinatal mortality of 2 cases (5.71%). Other 65 cases delivered immediately within 24 hours of admission and number of perinatal death was 24 (44.44%). The perinatal morbidity was higher in the active management group, 24 out of 65 (36.92%) compared to expectant group where it is 5 out of 35 (14.92%). On statistical analysis significant difference was found with regards to incidence of perinatal mortality between expectant management and immediate delivery group. But there was no statistically significant difference in incidence of perinatal morbidity in expectant management and immediate delivery group.

Table-3: Showing the effects of the expectant management on perinatal mortality and morbidity

Management	Total Cases	Perinatal Mortality						Chi-square test	Perinatal Morbidity		Chi-square test
		Stillbirth		First Week Death		Total					
		No.	%	No.	%	No.	%		No.	%	
Expectant Management	35	0	0.00	2	5.71	2	5.71	χ^2=4.239 p<0.05	5	14.92	χ^2=0.233 p>0.05
Active Management	65	14	25.93	10	15.38	24	44.44		24	36.92	

Role of Caesarean Sections in placenta praevia for fetal outcome

Caesarean section was performed in 93 cases of placenta praevia (93%) of which 11 were stillborn and 12 had first week neonatal death but in 7 cases of vaginal deliveries, 3 were fresh stillborn and none of these had first week neonatal death. The perinatal mortality was found to be less, 24.73% in babies delivered by caesarean section in comparison to 42.88% in vaginal delivery group. Perinatal morbidity was found to be higher (42.86%) in babies delivered vaginally in comparison to (27.96%) in babies delivered by caesarean section .Further, there was statistically significant difference found in incidence of perinatal morbidity among caesarean and vaginal group by chi-square test.

Table-4: Showing role of Caesarean section in placenta praevia for fetal outcome

Mode of delivery	Total Cases	Perinatal Mortality						Chi-square test	Perinatal Morbidity		Chi-square test
		Stillbirth		First Week Death		Total					
		No.	%	No.	%	No.	%		No.	%	
Caesarean	93	11	11.83	12	12.90	23	24.73	χ^2=0.016 p>0.05	26	27.96	χ^2=4.06 p<0.05
Vaginal	7	3	42.86	0	0.00	3	42.86		3	42.86	

Fetal outcome in relation to the type of placenta praevia

The perinatal mortality was highest in Type I placenta praevia 33.33%. Type I was found in 21 cases of which 7 babies died. It was lowest in Type II placenta praevia in which 16.67% babies died (5 out of 30). Perinatal morbidity percentage was lowest (8 out of 21 cases i.e. 38.10%) in Type I placenta praevia and highest (13 out of 23 cases i.e. 56.52%) in Type III placenta praevia. There is no statistical significant difference with regards to incidence of perinatal mortality and morbidity among all four types of placenta praevia.

Table-5: Showing perinatal mortality and morbidity in relation to placenta praevia

Type of placenta praevia	Total Cases	Perinatal Mortality						Chi-square test	Perinatal Morbidity		Chi-square test
		Stillbirth		First Week Death		Total					
		No.	%	No.	%	No.	%		No.	%	
I	21	5	23.81	2	9.52	7	33.33	χ^2=0.407 p>0.05	3	14.29	χ^2=1.05 p>0.05
II	30	1	3.33	4	13.33	5	16.67		12	40.00	
III	23	4	17.39	2	8.70	6	26.09		7	30.43	
IV	26	4	15.38	4	15.38	8	30.77		7	26.92	

Analysis of perinatal mortality in first week deaths

There were 14 stillbirths (10 macerated, 4 fresh) in our series.10 babies were diagnosed as IUFD on admission. Out of 4 stillborns, perinatal asphyxia was the probable cause of death in 3 cases. In one case lethal congenital anomaly was observed.

Table-6: Showing causes and percentage of early neonatal deaths

Causes	Number	Percentage***	Z test
Prematurity*	7	58.33	1.50; p>0.05
Respiratory Distress Syndrome*	5	41.67	2.50; p<0.05
Asphyxia (HIE III**)	2	16.67	2.50; p<0.05
Sepsis*	2	16.67	3.00; p<0.05
LBW**	2	16.67	3.00; p<0.05
Pneumonia	1	8.33	3.00; p<0.05

*Two cases had both Prematurity and Sepsis conditions, one case each had prematurity and respiratory distress syndrome/ LBW/HIE III/ PNEUMONIA.

** One case had both LBW and HIE III conditions

*** 14 cases of stillbirth & 12 cases of early neonatal death, thus total 26 cases had perinatal mortality

In our series there were 12 early neonatal deaths. Prematurity was the major cause of death in early neonatal period and accounted for 7 deaths. Severe haemorrhage or onset of premature labour indicated termination of pregnancy in all these cases. Sepsis, HIE III and LBW accounted for 2 deaths (in addition to prematurity) each.

Analysis of neonatal morbidity

Jaundice, diarrhoea, sepsis, conjunctivitis, anaemia, thrush, respiratory tract Infection, birth asphyxia and pyoderma were the common morbid conditions encountered in our study; most of which were because of prematurity and birth asphyxia. On statistical analysis it was found that incidence of neonatal morbidity in above cases have statistically significant difference.

Analysis of Perinatal Deaths:

In the present study there were 103 babies born under placenta praevia cases. 10 babies were macerated stillborn, 4 were fresh stillborn and hence the number of live births was 89. Further, 40 babies were admitted to NICU out of which 12 babies died in their first week after birth. Thus the perinatal death count was 26 (10 macerated stillbirths, 4 stillbirths and 12 neonatal deaths) and perinatal mortality rate was 25.24% (26/103).

Analysis of Weight of newborn:

In the present study majority of babies (46 out of 93 = 44.66%) weighed between 2.5 to 3 kg,15 babies weighed more than 3 kg and 37 babies weighed between 1.5 to 2.49 kg. Very small number of babies belonged to V.L.B.W (2.91%) and E.L.B.W (1.94%) categories.

Relationship of the perinatal outcome to the weight of the newborn:

In the present study all the babies weighing more than 3 kg (15 babies) were alive and healthy. 82.61% (38 out of 46) babies in the 2.5 to 3 kg weight category survived beyond first week of birth. 3 babies (6.52%) in this category were macerated stillborn, 2 babies (4.35%) were fresh stillborn and 3 (6.52%) met with neonatal death.

In the 1.5 to 2.49 kg category, 64.86% (24 out of 37) babies were alive after first week of birth. 3 babies (8.11%) were macerated stillborn, 1 baby (2.7%) was fresh stillborn and 9 (24.32%) babies had early neonatal death.

All the babies in 1 to 1.49 kg category were macerated stillborn. In the 0.5 to 0.99 kg category, 1 baby (50%) was macerated stillborn and 1 baby (50%) was fresh stillborn. None of the babies in these two categories were delivered alive.

DISCUSSION

The higher incidence of placenta praevia in our study may be attributed to increasing incidence of post caesarean pregnancy. Women in developing countries have higher chances of third or fourth caesarean sections due to high birth orders and there is a positive correlation between the number of caesarean sections and the incidence of abnormal placentation. About 30% women in our study had a history of prior caesarean sections. As per the study [14] conducted by Crane et al, the incidences of prematurity in placenta praevia in expectantly managed cases were found to be 46.56%.

Higher incidence of perinatal mortality among the unbooked cases of placenta praevia was observed because many patients were admitted as emergency with absent fetal heart sounds and poor maternal conditions. In present study the overall incidences of prematurity were found to be 43%. This is comparable to findings of most of the recent studies. The intergroup comparison when tested by chi-square test, statistically highly significant difference was found with respect to premature delivery between expectantly managed and immediate delivery group. The expectant management succeeded by caesarean delivery has been found to be the most effective line of treatment for placenta praevia cases resulting in near nil maternal mortality rates and the fetal mortality rates being reduced to less than 10%.

Among recent studies, in 2014, Lavanyakumari [15] reported the perinatal mortality rate as 6.6 which is very much comparable to the findings of the present study. In 2015, Sahadeo Sahu *et al*. [16] found the perinatal mortality rate in expectant management cases to be 3.45% while Sevan et al reported in his study that the perinatal mortality rate is 3.01. Thus the present study is in accord with the findings of the recent studies. The higher incidence of the perinatal mortality in caesarean delivery in the present study may be due to the fact that many patients came with intrauterine death and in compromised state due to severe bleeding: as most of the patients were illiterate and socio-economically poor with lack of antenatal check-up and who don't understand the gravity of the situation.

High values in perinatal morbidity can be attributed to the fact that most of the cases came from remote areas, having low socio-economic status and were admitted as unbooked and emergency cases.

CONCLUSION

- Perinatal Mortality and Morbidity in Placenta Praevia is still high in developing countries including our institution in comparison with the developed countries.
- Adequate antenatal services, early diagnosis and referral to higher centre where blood transfusion facilities and specialist services are available is mandatory to reduce the perinatal mortality and morbidity.
- A competent team with an intensive Neonatal Care Unit is mandatory to supervise the new born babies in order to ensure a better perinatal outcome.
- Fetal outcome will definitely improve if we can improve the literacy, create favourable socio-economic conditions and transportation facilities particularly in rural areas of the developing countries.

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