

# Perinatal outcome in antepartum hemorrhage in teaching hospital of northern India- A prospective study

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**Abstract-** Antepartum hemorrhage (APH) is a grave obstetrical emergency. It is leading cause of perinatal death. Aims of the present study were to study perinatal outcome in patients with antepartum hemorrhage. It is a prospective study carried out over a period of one year (2011-12) on 100 women admitted with the diagnosis of APH at Pt. B.D Sharma medical college, Rohtak, Haryana, India, a tertiary care center. Perinatal outcome recorded according to gestational age, Apgar score, mode of delivery, weight of baby, neonatal mortality and morbidity. Perinatal mortality was higher in vaginally delivered patients (71.4%) in comparison to patients who had caesarean section (53.8%) in abruptio placentae cases. Perinatal mortality decreases with increasing baby weight in placenta previa cases, while perinatal mortality is even high in babies more than 2500 gm in abruptio placentae cases. 79% babies had low apgar score and perinatal mortality in this group was 50.6% while 21% babies with higher Apgar  $\geq 7$  had mortality of 4.7% only.

**Index Terms-** Antepartum hemorrhage, perinatal, placenta previa, abruptio placentae

## I. INTRODUCTION

Vaginal bleeding at any stage of pregnancy constitutes a significant concern to the patients and her doctor. Antepartum hemorrhage is still a grave obstetric emergency contributing to a significant amount of perinatal morbidity and mortality in India.<sup>1</sup>

Perinatal mortality is less than 10 per 1000 total births in developed countries, while it is much higher in developing countries (31/1000 total births in India in 2011).<sup>2</sup>

Depending on the definition used, antepartum hemorrhage complicated 2-5% of all pregnancies.<sup>3-5</sup> Placenta previa complicate 0.33 percent<sup>6</sup> to 0.55 percent<sup>7</sup> of all pregnancies and

incidence of placental abruption incidence is approximately 0.5 to 1 percent.<sup>8</sup>

Though Perinatal mortality due to antepartum hemorrhage has significantly dropped in developed countries with the introduction of improved medical facilities, in developing countries, it is one of the most important cause of perinatal mortality and morbidity. Knowing the outcome of fetus with Antepartum hemorrhage is important set out policies to reduce perinatal mortality of most vulnerable group.

**Abbreviation used-** IUFD- Intrauterine fetal death, PND- Perinatal death, PM, Perinatal mortality

## II. MATERIAL AND METHODS

A prospective study was carried out in 2011-12 on 100 pregnant women presenting with bleeding per vaginum after 28 weeks of gestation or in which on routine ultrasonography major degree placenta previa was diagnosed in the Department of Radiology, Pt. B.D. Sharma PGIMS, Rohtak, a tertiary care hospital in Haryana, India

During our study period of one year there were 4100 deliveries. Number of cases with antepartum hemorrhage were noted and perinatal outcome of patient with antepartum hemorrhage recorded including status of fetus, relation of perinatal death to Gestational age & baby weight, Apgar score, mode of treatment, cause of perinatal mortality and morbidity.

### Statistical analysis

At the end of the study, pairwise comparisons for morbidity and mortality were performed with Fisher's exact test and Chi-square tests were applied for discrete variables. p value of less than 0.05 was considered to indicate statistical significant.

## III. RESULTS

**Table 1**  
**Perinatal outcome**

Causes	Number of cases		Still birth + IUFD		Neonatal death		Total perinatal mortality*	
	No.	%age	No.	%age	No.	%age	No.	%age
Placenta previa	54	54	6	11.1	10	18.5	16	29.6
Abruptio	34	34	14	41.1	8	23.5	22	64.7
Toxemia	10	29.4	7	70	2	10	8	80

Non toxemia	24	70.5	7	29.1	6	29.1	14	58.3
Unclassified	12	12	2	16.6	1	8.3	3	25

\*p<0.001, Fisher's Exact Test

Perinatal mortality in our present study in placenta previa cases was 29.6%, while in cases of abruptio placentae perinatal mortality was 64.7% and on comparing it was statistically significant (p<0.001). In patients having abruptio placentae with toxemia perinatal mortality was 80%.

**Table 2**  
**Analysis of mode of treatment given to the patients and the perinatal outcome in antepartum hemorrhage**

Mode of treatment	Placenta previa				Abruptio placentae				Unclassified hemorrhage			
	No.	%age	PM	%age	No.	%age	PM	%age	No.	%age	PM	%age
Conservative followed by LSCS	22	44.4	4	18.2	-	-	-	-	-	-	-	-
Conservative followed by vaginal delivery	6	11.1	1	16.6	-	-	-	-	-	-	-	-
Immediate LSCS	22	40.7	9	40.9	13	24	7	53.8	4	33.3	1	25
Immediate vaginal delivery	4	7.4	2	50	21	61.7	15	71.4	8	66.6	2	25
Total	54		16		34		22		12		3	

40.7% patients of placenta previa had immediate LSCS. 44.4% patients of placenta previa were kept on conservative management and later LSCS was done after expectant management. 61.76% of patients of abruptio placentae had immediate vaginal delivery. Perinatal mortality in abruptio placentae cases delivered vaginally was 71.4%, while patients delivered by immediate LSCS had perinatal mortality of 53.8%.

**Table 3**  
**Status of fetus**

Status of fetus	Placenta previa		Abruptio placentae		Unclassified hemorrhage		Total	
	No.	%age	No.	%age	No.	%age	No.	%age
Normal fetal heart sound	39	72.2	13	38.2	8	66.6	60	60
Evidence of fetal distress	9	16.6	7	20.5	2	16.6	18	18
Absent fetal heart sound	6	11.1	14	41.1	2	16.6	22	22

72% patients of placenta previa had normal fetal heart sound at time of admission while 41.1% patients of abruptio placentae had absent fetal heart sound at time of admission.

**Table 4**  
**Incidence of perinatal mortality in relation to gestational age**

Type of antepartum hemorrhage	Term			Preterm			Total		
	No.	PND	%age	No.	PND	%age	No.	PND	%age
Placenta previa	12	2	16.6	42	14	33.3	54	16	29.6
Abruptio placentae	9	4	44.4	25	18	72	34	22	64.7
Unclassified hemorrhage	3	1	33.3	9	2	22.2	12	3	25
Total	24	7	29	76	34	44.7	100	41	41

Perinatal mortality in preterm babies was 72% in cases of abruptio placentae and 33.3% in cases of placenta previa .

**Table 5**  
**Incidence of perinatal mortality according to baby weight in antepartum hemorrhage**

Birth weight	Placenta previa			Abruptio placentae			Unclassified hemorrhage			Total		
	No.	PND	%age	No.	PND	%age	No.	PND	%age	No.	PND	%age
Below 1500gm	4	4	100	3	3	100	1	1	100	8	8	100
1500 to 2000gm	17	7	41.1	15	10	66.6	4	1	25	36	18	50
2000 to 2500gm	20	3	15	8	5	62.5	5	1	25	33	9	27.2
Above 2500gm	13	2	15	8	4	50	2	-	-	23	6	26
Total	54	21		34	26		12	3		100	50	50

Perinatal death was 100% in babies weighing <1500 gm, 50% in babies weighing 1500 to 2000 gm, 27.2% in 2000 to 2500 gm, 26% for more than 2500 gm. Perinatal mortality was even high in babies more than 2500 gm in abruptio placentae.

**Table 6**  
**Incidence of congenital malformation in antepartum hemorrhage**

Type of congenital malformations	Placenta previa	Abruptio placenta	Unclassified hemorrhage
Hydrops foetalis Indeterminate sex	1	-	-
Anencephaly with meningocoele	1	-	-
Spina bifida	-	1	-
Total	2	1	1

Out of 100 cases of antepartum hemorrhage 4 had congenital malformations (4%).

**Table 7**  
**Distribution of cases according to neonatal mortality in baby in cases of antepartum hemorrhage**

Cause of neonatal mortality	Placenta previa (n=10)		Abruptio placenta (n=8)		Unclassified hemorrhage (n=1)		Total (n=19)	
	No.	%age	No.	%age	No.	%age	No.	%age
Prematurity	5	50	4	50	1	100	10	52.6
Neonatal septicemia	3	30	3	37.5	-	-	6	31.5
Respiratory distress syndrome (RDS)	3	30	2	25	-	-	5	26.3
Birth asphyxia	3	30	3	37.5	-	-	6	31.5
Congenital malformation	1	10	1	12.5	-	-	2	10.52
Hyaline membrane disease	3	30	2	25	1	100	6	31.5
Neonatal seizures	2	20	2	25	-	-	4	21
Apnoea	2	20	2	25	-	-	4	21

The causes of mortality outnumber the number of neonatal deaths showing that there was more than one cause of death in a neonate.

Placenta previa:

Total number of live birth = 46

Abruptio placenta:

Total number of live birth = 16

Unclassified hemorrhage:

Total number of live birth = 10

Prematurity was cause of neonatal mortality in 5 cases of placenta previa, 4 cases of abruptio placentae and 1 case of unclassified hemorrhage. Birth asphyxia caused neonatal death in 3 cases of placenta previa and 3 in abruptio placentae.

**Table 8**  
**Incidence of perinatal death in relation to apgar score (1 min) in cases of antepartum hemorrhage**

Apgar score (1 min)	Placenta previa				Abruptio placenta				Unclassified hemorrhage			
	No.	%age	PM	%age	No.	%age	PM	%age	No.	%age	PM	%age
0-4	20	37	10	50	24	70.5	18	75	6	50	3	50
5-6	18	33.3	5	27.7	8	23.6	4	50	3	25	-	-
7 or more	16	30	1	6.2	2	5.8	-	-	3	25	-	-
Total	54		16		34		22		12		3	

Perinatal mortality was higher in babies having Apgar score 0-7 than babies having Apgar score 7 or more. 37% babies of placenta previa had apgar score between 0-4, 33.3% between 5-6 and 30% more than 7. 70.5% of abruptio placentae cases had apgar score between 0-4.

**Table 9**  
**Incidence of neonatal morbidity in cases of antepartum hemorrhage**

Cause of neonatal mortality	Placenta previa n=46		Abruptio placentae n=16		Unclassified hemorrhage n=10	
	No.	%age	No.	%age	No.	%age
Prematurity	20	56.5	3	18.7	2	20
Respiratory distress syndrome (RDS)	3	6.5	1	6.25	-	-
Hyaline membrane disease (HMD)	4	8.6	1	6.25	1	10
Birth asphyxia (BA)	11	24	3	18.7	1	10
Neonatal septicemia (NNS)	4	8.6	2	12.5	1	10
Neonatal jaundice (NNJ)	3	6.5	1	6.25	-	-
Meconium aspiration	1	2.1	2	12.5	-	-

Prematurity (43.4%) and birth asphyxia (24%) were most common cause of neonatal morbidity in placenta previa babies, while prematurity (18.7%) and birth asphyxia (18.7%) were also most common cause of morbidity in abruptio patient babies.

**Table 10**  
**Sex ratio in antepartum hemorrhage**

	Number	Boys*	%age	Girls	%age	Indeter-minated sex	%age
Placenta previa	54	34	63	20	37%		
Abruptio placenta	34	20	58.8	14	41.1		
Unclassified hemorrhage	12	4	33.3	7	58.3	1	8%

\*p>0.01, Chi-square test

Out of 54 cases of placenta previa, 34 women delivered male babies (63%) and 34 cases of abruptio placenta, 20 women had male babies (58.8%). However, both were not statistically significant (p>0.01).

#### IV. DISCUSSION

Antepartum hemorrhage is an important cause of perinatal morbidity and mortality[Table-1].

In present study patients of placenta previa who delivered vaginally (11.1%) after conservative management show comparable perinatal mortality (16.6%) to those patient delivered by caesarean section (18.2%)[Table-2]. All these cases are of low lying and marginal placenta previa. Similarly Chevenak et al suggested that routine caesarean section is not necessary for all cases of partial placenta previa.<sup>9</sup> MaCafee and Johnson also suggested similarly that vaginal delivery is appropriate in selected in cases of placenta previa.<sup>10</sup>

Perinatal mortality was higher in vaginally delivered patients (71.4%) in comparison to patients who had caesarean section (53.8%) in abruptio placentae cases [Table-2]. This is consistent with study of Okonofua and Olatunboson where perinatal mortality in vaginally delivered group (52.2%) was significantly greater than caesarean (16.7%).<sup>11</sup> This suggested that early delivery of fetus by caesarean in abruptio placentae save the infant from deleterious effect of ongoing anoxia.

Patients with placenta previa delivering at term gestation [Table-4] had perinatal mortality of 16.6% in comparison to 33.3% who delivered at gestation  $\leq 36$  weeks. Khosla et al in their study reported perinatal mortality in placenta previa as 61.5% and 75.3% in term and preterm gestation respectively.<sup>12</sup> The difference in result in our study are most likely due to better neonatal intensive care unit facilities optimal blood transfusion and more liberal use of caesarean section.

In our study perinatal mortality was 100% in patients of antepartum hemorrhage delivering baby less than 1500 gm. Perinatal mortality decreases with increasing baby weight in placenta previa cases, while perinatal mortality is even high in babies more than 2500 gm in abruptio placentae cases[Table-5]. This shows that abruptio placenta is a major contributor in perinatal mortality at every gestational age ( $p < 0.01$ ). Our result is consistent with result of Arora et al who showed higher perinatal mortality in abruptio group (53.5%) than placenta previa (25%).<sup>1</sup>

Our study shows 4% congenital malformation [Table-6] in antepartum hemorrhage cases that is consistent with Brenner et al who reported incidence of 3-4% in antepartum hemorrhage cases.<sup>13</sup>

Our study shows prematurity as the most common cause of neonatal death in cases of Antepartum hemorrhage (52.6%)[Table-7]. This is consistent with studies of Crane et al who reported prematurity as the most common cause of death in antepartum hemorrhage cases (46.5%).<sup>14</sup> Various other causes of neonatal mortality in our study are respiratory distress syndrome 26.3%, Hyaline membrane disease 31.5%, neonatal septicemia 31.5%, Birth asphyxia 31.5%. This is consistent with study of Arora et al who reported 38% incidence of birth asphyxia in antepartum hemorrhage cases.<sup>1</sup>

In present study 79% babies had low apgar score and perinatal mortality in this group was 50.6% while 21% babies with higher Apgar  $\geq 7$  had mortality of 4.7% only[Table-8]. Result of present study are comparable to other studies in literature.<sup>1,13</sup>

Our study showed 63% and 58.8% male fetus i.e. male dominance in cases of placenta previa and abruptio placenta [Table-10]. Similar findings are reported in literature.<sup>15, 16</sup> But

in our study it was not statistically significant ( $p > 0.01$ ). This may be due to small sample size of our study. Jakobovits et al conducted study on 144 infants of placenta previa cases and 26,858 case of normal pregnancy. Placenta previa cases had 90 male child and 54 female, while comparison group have 13,833 male and 13,025 female which showed that their association between placenta previa and male sex at birth.<sup>17</sup>

#### V. CONCLUSION

Analyzing the incidence of perinatal death in cases of antepartum hemorrhage, we observed that it is still a significant problem in our setup. Though maternal mortality has reduced with modern management of antepartum hemorrhage, perinatal mortality still remains high.

The single most important factor in reducing maternal and perinatal mortality has been the increase use of caesarean delivery in cases of abruptio placentae. Vaginal delivery is appropriate in selected cases of placenta previa.

The use of present day aids like, ultrasonography to decide about the time of interventions and the more liberal use of caesarean section in well equipped hospitals with availability of blood transfusion services, will help to lower the perinatal morbidity and mortality.

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