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Research Article

PERINATAL OUTCOME IN PLACENTA PREVIA AT A TERTIARY CARE HOSPITAL: THREE YEAR PROSPECTIVE STUDY

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A B S T R A C T

Background: Placenta previa is a potential risk factor for obstetric haemorrhage causing fetomaternal morbidity and mortality. The objective of the present study was to determine the prevalence, risk factors and perinatal outcome of placenta previa (PP). **Material and methods:** It was a prospective study conducted over a period of 3 years including 262 antenatal women with PP at > 28 weeks of gestation. **Results:** In the present study 0.8% of the pregnant women were complicated with placenta previa, most of them were between 20-30 years (51.1%) and multigravida (90.0%). Majority presented with bleeding between 30-34 weeks (46.9%). Most of them (80.2%) had one or the other risk factors. Low lying placenta constituted major proportion (54.6%) in USG. Only 14.5% of had normal delivery, rest 85.5% underwent caesarean section. Among neonatal outcome, Apgar score < 7 at 5 minute was present in 12.2% neonates, mostly (43.9%) weighed between 2.4-2.8 kg, 27.3% of babies required NICU admission, preterm birth rate was 62.2%, perinatal mortality rate was 11.5%. Majority (38.9%) delivered between 34-36 weeks gestation. **Conclusions**: Managing a case of PP poses a great challenge to every obstetrician due to associated fetomaternal complications. Careful evaluation and timely intervention will improves outcome.

INTRODUCTION

When the placenta is implanted partially or completely over the lower uterine segment it is called placenta previa. About one third of the antepartum haemorrhage belongs to placenta previa.The most characteristic event in placenta previa is painless haemorrhage, which usually does not appear until near the end of the second trimester or after (Cunningham *et al*).[1] The estimated global prevalence of placenta previa is 5.2 per 1000 pregnant women, although there is significant international variation,whereby the prevalence was highest among Asian studies and lower in sub-Saharan Africa studies (Cresswell *et al*;2013).[2]

While the precise etiology of placenta previa is not known, previous studies have elucidated predictive factors such as high maternal age, twin pregnancies, previous caesarean section, previous uterine scar, grand multiparity , malpresentation, and diabetes mellitus (Bener *et al*;2012,Ojha *et al*;2013, Kodla *et al*;2015, Raees *et al*;2015, Almaksoud *et al*;2014, Mgaya *et al*;2013).[3-8] The simplest, most precise and safest method of placental localization is provided by transabdominal sonography (Cunningham *et al*).[1] Management of placenta previa depends on presentation, gestational age and degree of previa.

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Preterm delivery is a major cause of perinatal death even with expectant management of placenta previa (Salihu *et al*;2003).[9] Although some investigators suggested that congenital malformations are increased with previa, crane and co-workers were the first to confirm this.For reasons that are unclear, in cases of placenta previa fetal malformations were increased 2.5 fold (Crane *et al*;1999).[10] However, there is debate about the effect of PP in fetal growth, some studies have suggested that pregnancies with PP are at risk of low birth weight and a low Apgar score (Ananth *et al*; 2003).[11] Early prenatal diagnosis allows for timely management thus reducing the perinatal morbidity and mortality by keeping an eye on need of blood transfusion, and arranging for a team of experienced surgeon, anaesthesiologist and paediatrician (Elsayes *et al*; 2009).[12] The objective of this study was to determine the prevalence, demographic & risk factors, and perinatal outcome of placenta previa so that they can be managed in the best possible way with reduction in morbidity and mortality.

MATERIAL AND METHODS

This was a prospective descriptive study conducted in the Department of Obstetrics & Gynaecology, GSVM Medical College, Kanpur over a period of three years, from January 2014 to December 2016 after institutional ethical approval.

After taking written informed consent, a cohort of 262 pregnant women who presented with painless bleeding per vaginum, those diagnosed as having PP on routine ultrasound examination or during caesarean section presenting after 28 weeks of pregnancy were included in the study. Pregnant women with bleeding at <28 weeks gestation and other causes of antepartum hemorrhage were excluded from study. Calculation of gestational age was determined by last menstrual period and first trimester ultrasound. Data were collected on patient's age, gravity, gestational age at the time of bleeding, risk factors for PP, degree of PP by ultrasound, mode of delivery. Neonatal evaluation included gestational age at delivery, birth weight, preterm birth, Apgar score at 1 & 5 minute, admission to NICU, stillbirth rate, perinatal mortality rate, congenital malformation were noted down. Both mother and baby were followed up throughout the period of hospitalization till discharge. All patients with placenta previa were admitted while awaiting fetal maturity or possible earlier intervention. At admission, each patient had two or more units of cross matched blood ready for use. Elective caesarean section was planned at 38 weeks gestation or possible intervention before the presumed date is justified in cases with excessive bleeding and signs of labour. Data were analyzed using simple tabulations.

RESULTS

Total number of Obstetric admissions were 31656, among which 262 presented as placenta previa accounting for prevalence of 0.8 %. In our study, majority 134 (51.1%) were in the age group of 20-30 years and 105 (40.1%) were above 30 years. Only 26 (9.92%) of study cases were primigravida followed by multigravida with maximum number of cases 236 (90.0%). Out of 262 cases, 233(88.9%) presented with bleeding per vaginum, majority 123(46.9%) between 30-34 weeks. Most of the women (80.2%) presented with one or multiple risk factors for placenta previa. Various risk factors detected were previous history of D&C, PID/STD, previous one caesarean section, previous 2 LSCS, gestational hypertension, previous history of PP, twin pregnancy.No definitive cause was found in 52 (19.8%) cases (Table 1).

Table 1 Baseline & Obstetric characteristics of study population (n=262)

Characteristics	No. (%)
Age(in years)	
<20	23(8.78)
20-30	134(51.1)
>30	105(40.1)
Gravity	
Primigravida	26(9.92)
Multigravida	236(90.0)
GA at presentation (in wks)	
With bleeding	233(88.9)
28-30	25(9.54)
30-34	123(46.9)
34-36	49(18.7)
≥37 weeks	36(13.7)
Without bleeding	29(11.1)
*Etiological factors	
Previous H/O D&C	39(14.9)
PID/STD	16(6.11)
Previous 1 caesarean section	69(26.3)
Previous 2 caesarean section	18(6.87)
Gestational hypertension	53(20.2)
Previous H/O PP	15(5.72)
Multiple gestation	09(3.44)
No known cause	52(19.8)

(*Total % age exceeded 100 as single women had multiple risk factors)

Out of 262 cases, ultrasound could be done in only 133(50.8%) women. Low lying placenta constituted 75(56.4%) of all PP cases followed by marginal placenta previa in 34(25.6%) and 11 (8.27 %) had central placenta previa in USG. Among these, 11(8.27%) cases of placenta accrete were detected by USG. Rest 129 (49.2%) women presented in emergency with severe bleeding, were immediately operated. Intraoperatively also low lying placenta 62(48.1%) was most common finding followed by central placenta previa in 35(27.1%) cases. Placenta accrete was an intraoperative finding in 16 (12.4%) cases among which 11 were diagnosed preoperatively, in two cases ultrasound examination failed to detect placenta accrete, rest 3 were undiagnosed and presented in emergency (Table2).

Table 2 Type of placenta previa (n=262)

Type of Placenta	Ultrasound finding 133 (50.8%)	Intra-operative finding 129(49.2%)
	Number(%age)	Number(%age)
Low lying(Type I)	75(56.4)	62(48.1)
Marginal(Type II)	34(25.6)	19(14.7)
Partial(Type III)	13(9.78)	13(10.1)
Complete(Type IV)	11(8.27)	35(27.1)
Placenta accrete	11(8.27)	16(12.4)

Among 262 cases, 38(14.5%) had vaginal delivery, mostly women with type I and very few with type ll. Out of these, 11(28.9 %) had term and 27(71.1%) had preterm delivery.224 (85.5%) were delivered by LSCS, and majority 196 (87.5%) had emergency LSCS and 28 (12.5%) cases were done by elective LSCS (Table 3).

Table 3 Mode of delivery (n=262)

Mode of delivery	Number(%)
Vaginal	**38(14.5)**
Term	11(28.9)
Preterm	27(71.1)
Caesarean section	**224(85.5)**
Elective	28(12.5)
Emergency	196(87.5)

There were 262 pregnant women and 271 neonates as 9 of them presented with twin pregnancy. Out of those 264 live born babies, 24(8.86%) died in early neonatal period, thus making a total of 31 babies died in perinatal period. So, perinatal mortality rate was 11.5%. 33 (12.2%) of babies presented with Apgar score < 7 at 5 minute.

Table 4 Neonatal outcome(n=271)*

Neonatal outcome	Number(%age)
Apgar score(<7 at 5 minutes)	33(12.2)
Birth weight	
1.5-2.0	23(8.49)
2.1-2.4	75(27.7)
2.4-2.8	119(43.9)
>2.8	54(19.9)
Stillbirth	07(2.58)
Early neonatal death	24(8.86)
Preterm birth	163(62.2)
IUGR	21(7.75)
Congenital Malformation	06(2.21)
NICU Admissions	74(27.3)
Gestational age at delivery (in weeks)	
28-32	14(5.34)
32-34	47(17.9)
34-36	102(38.9)
>37	99(37.8)

(*Total % age exceeded 100 as single women had multiple risk factors)

Among 24(5.16%) babies who died within 7 days, (6 babies had undiagnosed congenital anomalies out of which four expired within 24 hours, 4 of them were premature developed RDS and died within 24 hour, another 5 developed severe jaundice, died within 48 hours, 9 neonatal death was due to severe birth asphyxia with Apgar score of 2 at 1 min and 4 at 5 min. 21(7.75%) of babies developed IUGR, 74(27.3%) of babies were admitted to NICU. Most of the babies119 (43.9%) had birth weight between 2.4-2.8 kg and were delivered at gestation between 34-36 weeks 102(38.9%). 163(62.2%) of babies had preterm delivery (Table 4).

DISCUSSION

The present study was undertaken to evaluate the various types of placenta previa, its clinical presentation and perinatal outcome. The prevalence of placenta previa in our study was 0.8% which is close to 0.7% reported in a study conducted in Pakistan by Bhutia *et al* (Bhutia *et al*;2011).[13] Majority of the pregnant women were in between 20-30 years of age (51.1%) and were multigravida (90.0 %). Increasing maternal age and high parity are considered as risk factors for placenta previa and maternal haemorrhage in many studies (Hasegawa *et al*;2009, Williams *et al*;1993).[14,15] Majority of pregnant women (46.9%) presented with significant bleeding per vaginum between 30-34 weeks.11.1% of women had no bleeding episode till term. Comparable results were found in the study of Sarella LK *et al* (Sarella *et al*;2014).[16] Various etiological factors included previous history of D&C, pelvic inflammatory disease, previous caesarean sections, hypertensive disorders of pregnancy, history of placenta previa .No definitive cause was found in 19.8% of cases. Malhotra *et al*, in their study on placenta accreta also reported few of these risk factors (Malhotra *et al*; 2014).[17] Past history of caesarean section and history of uterine scar, previous H/o of D&C were also found to associated with placenta previa, similar to previous studies done by kiondo *et al* and Anzaku and Musa (Anzaku *et al*; 2009).[18,19]

In the present study antenatal diagnosis using USG was possible only for 50.8 % women, among which low lying placenta was the most common USG finding. Rangaswamy M *et al*;2016) also reported low lying placenta as most common finding in their study .[20] In another 49.2% of cases ,placenta previa was diagnosed during caesarean section.

Out of the 262 cases, (14.5%) women had vaginal delivery, among which 28.9% had term and (71.1%) had preterm delivery mostly for type I and type II placenta previa. Majority (85.5%) were delivered by LSCS. Results are comparable to a study conducted by (Bhatt *et al*; 2014).[21] Similarly in a study done by (Elizabeth *et al*; 2017) in northern Tanzania showed caesarean section rate of 73.3% .[22]

Neonatal morbidity in our study was significant. Infants born to women with placenta previa had increased incidence of low Apgar score of <7 at 5 minute (12.2%), admission to NICU (27.3%), stillbirth (2.58%), fetal malformation (2.21%) andearly neonatal death (8.86%), IUGR (7.75%). This is consistent with previous studies (Ojha *et al*;2013,Raees *et al*;2015, Bhutia *et al*;2011, Ahmed *et al*;2015).[4,6,13,23] The possible explanation for these could be that the bleeding associated with placenta previa may lead to hypoxic, intra uterine growth restriction, and prematurity with under developed organ systems. The reported rate of fetal growth restriction in the literature ranges from 3% to 5% (Romo *et al*; 2009).[24]

Perinatal mortality rate (PMR) was 11.5 % while (Sarella *et al*;2014) reported PMR of 6.55% in their study.[16] Sheiner showed that congenital malformations and perinatal mortality was 2.6 times more common among cases with placenta previa as compare to those without it (Sheiner *et al*;2001).[25] Increased perinatal mortality as well as neonatal death has been noted in other studies.[10,11] In a cohort study consisted of 3,550,842 deliveries comparing neonatal outcomes born to mothers with PP beyond 37 weeks gestation to those delivered to other indications ,authors found that PP was an independent risk factors for adverse neonatal outcomes (Schneiderman *et al*; 2015).[26]

CONCLUSION

The prevalence of placenta previa in our study was consistent with past studies. Placenta previa during pregnancy poses a great challenge to every obstetrician due to its increased risk of maternal and perinatal complications. Therefore, waiting till 37 weeks if patient is not bleeding could decrease neonatal morbidity in our population. Prenatal identification either at the onset of first bout of bleeding or by ultrasound examination and early referral to centers with the capability to manage them will likely result in improved fetomaternal outcomes. However, the obstetrician must weigh the risks of neonatal prematurity against the benefits of a planned delivery.

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