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Original Research Article

FETOMATERNAL OUTCOME IN PATIENTS WITH PLACENTA PREVIA IN A TERTIARY CARE HOSPITAL OF EASTERN INDIA

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Abstract

Background: Placenta previa contributes substantial maternal and neonatal morbidity including management challenges for obstetrician. This study was to evaluate the potential risks factors and feto-maternal, outcome in placenta previa. This study was conducted to assess maternal and fetal outcome associated with placenta previa **Methods :** The present prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Burdwan Medical College and Hospital, Burdwan, West Bengal, India between March 2021 to February 2023. Total 240 cases of placenta previa confirmed after 28 weeks POG were included in the study. Statistical data were analysed by using Microsoft Excel and SPSS V.20 software. **Results :** We found that out of total 240 cases, 172 (71.67%) were multigravida,68 (28.33%) were primigravida, and 118 (49.17%) were >31 years of age. In the present study 52 (21.67%)

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patients were anaemic, 36 (15%) patients had hypothyroidism. In the present study 44 (18.33%) patients were <34 POG, 68 (28.33%) patients 34-37 POG. In the obstetric morbidity 108 (45%) patients required blood transfusions,24 (10%) required hysterectomy later and 36 (15%) required ICU admission. In the study 12 (5%) neonates required ARDS, NICU admission, 12 (5%) required Birth asphyxia, NICU admission, 6 (2%) suffered from Congenital anomaly, Early neonatal death was 12 (5%), Good APGAR score was among 96 (40%), Low APGAR score, NICU admission was required to 78 (33%) neonates and still birth was 24 (10%) **Conclusion :** All cases of placenta previa need to be managed in a higher centre with facility of blood component therapy and neonatal intensive care unit. Prematurity and low birth weight remain a significant cause for neonatal morbidity

Keywords : Caeserean, Feto-Maternal outcome, Placenta previa

Introduction :

Placenta previa is a condition where placenta implants in lower uterine segment either very near or covering the internal cervical os.[1] Placenta previa contributes to one third of all cases of antepartum haemorrhage. Obstetrical haemorrhage remains a leading cause of maternal morbidity and mortality worldwide. An excessive bleeding occurring before or immediately after the birth of a child is dangerous and associated with fatal complication.[2] The incidence of placenta previa varies from approximately 0.4-0.5% of all labour.[3] In developing countries, the contribution of haemorrhage to maternal mortality rates is even more striking and obstetrical haemorrhage accounts for almost half of all postpartum deaths.[4-6] Placenta previa can be a very fearful diagnosis for all caregivers. The period from the diagnosis to the delivery is often clouded with great worry and fear. Due to the rapidity and extent of haemorrhage, it can lead to life threatening situation for the mother and the fetus.

Placenta previa is an obstetric complication that characteristically occurs in the late second and third trimesters of pregnancy with characteristic painless bleeding per vaginum.

It is also one of the leading causes of antepartum haemorrhage. The condition is associated with significant maternal morbidity and perinatal morbidity and mortality. Availability of blood component, safe anaesthesia, safe caeserean delivery and NICU facility are key.

The rising trend of caesarean section has led to dramatic increase in incidence of placenta Previa and MAP in last few decades.[7,8] Ultrasound has good diagnostic accuracy in diagnosis of placenta previa but in some patients, MAP is diagnosed intraoperatively and hence has catastrophic outcomes.[9] Morbidity with placenta previa and MAP can significantly be reduced if diagnosed antenatally. This will ensure arrangement in properly equipped hospital with multidisciplinary approach and availability of blood transfusion, anesthesia, ICU and neonatal facilities. This is extremely challenging in low resource countries where blood transfusion and operative services are not available at periphery where most of the population is residing. Repeated multiple studies which emphasize the underlying cause of ante and postpartum hemorrhage will go a long way in sensitizing people at government level to improve facility at primary, secondary and tertiary level.

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The study was conducted to assess maternal and fetal outcome associated with placenta previa in Burdwan medical College and Hospital, a tertiary care hospital.

The present prospective observational study was conducted in the Department of Obstetrics and Gynaecology, Burdwan Medical College and Hospital, Burdwan, West Bengal, India between March 2021 to February 2023. Total 240 cases of placenta previa confirmed after 28 weeks POG were included in the study. Statistical data were analysed by using Microsoft Excel and SPSS V.20 software

Materials and Methods

Present hospital based prospective observational study study was conducted in the Department of Obstetrics and Gynaecology, Burdwan Medical College and Hospital, Burdwan, West Bengal, India between March 2021 to February 2023.

Total 240 cases of placenta previa confirmed after 28 weeks POG were included in the study after applying all the exclusion criteria.

Inclusion Criteria:

1) All antepartum haemorrhage confirmed by USG as placenta previa after 28 weeks of gestation
2) Undiagnosed placenta previa confirmed intra- operatively during caesarean section undertaken for other obstetrical indication
3) Patients with clinical and radiological diagnosis of placenta previa at OPD who were otherwise asymptomatic.

Exclusion Criteria: Patients with

1) Second trimester abortions with diagnosis of low- lying placenta before 28 weeks of POG by USG
2) Other causes of antepartum haemorrhage

Diagnostic criteria

Placenta occupying the lower uterine segment whether partial or completely covering the internal os or having the margin within the 2 cm from the internal os after 28 weeks of POG.

Gestational age was calculated by the following criteriaof which at least 2 have to be fulfilled **.**

- Date of LMP
- USG dating
- Ultrasonography consistent with dates within before or 28 weeks.

Method of data collection :

Data collection was done in Pre-designed format after taking written consent. On admission, the patient with antepartum haemorrhage with placenta previa was admitted, a detailed history, clinical, obstetrical and sonological examination was done and maternal and fetal condition were

Maternal outcome was measured by

- Number of transfusions required
- APH severity
- PPH severity

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- Operative interventions
  - Packing/under running suturing on placental bed
  - Uterine artery/internal iliac embolization (UAE)
  - Uterine artery ligation
  - Internal iliac artery ligation
  - Caesarean hysterectomy
  - ICU admission

Fetal outcome was measured by

- Birth weight
- Apgar score
- NICU admission
- POG at birth

Follow-up of live, viable births was noted till either the mother and/or baby was discharged from the hospital. The fetal and maternal outcome and complications were recorded in each case and the patients and babies assessed at the time of discharge. The duration of hospital stay was recorded in each case.

Method of Data Analysis Plan :

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS 20.0. p-value ≤ 0.05 was considered for statistically significant

Ethical considerations- Study was initiated after obtaining the informed consents from the participants and ethical clearance from the institutional ethical committee.

Results

Table 1: Maternal demography

Parameter		Frequency	Percent (%)
Age	≤25	48	20.00
	26-30	74	30.83
	>31	118	49.17
Parity	Multigravida	172	71.67
	Primigarvida	68	28.33
H/O caesarean	No	148	61.67
	Yes	92	38.33
H/O S and E	No	182	75.83
	Yes	58	24.17
H/O any other surgery	No	212	88.33
	Yes	28	11.67

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Out of total 240 cases, 172 (71.67%) were multigravida,68 (28.33%) were primigravida, and 48 (20%) were ≤25 years, 74 (30.83%) between 26-30 years and 118 (49.17%) were >31 years of age. In the study 92 (38.33%) were post LSCS, 58 (24.17%) patients had uterine surgery H/O of S and E and 28 (11.67%) patients had H/O other surgery. (Table 1)

Table 2: Distribution of maternal co-morbidity

Co-morbidity	Frequency	Percent (%)
Anemia	52	21.67
Hypothyroidism	36	15.00
Pre-eclampsia	18	7.50
RH incompatibility	16	6.67

In the present study 52 (21.67%) patients were anaemic, 36 (15%) patients had hypothyroidism, 18 (7.50%) patients had pre- eclampsia and 16 (6.67%) patients had RH incompatibility. (Table 2)

Table 3: Distribution of location of placenta and presentation

		Frequency	Percentage (%)
Location of placenta	Anterior	134	55.83
	Posterior	106	44.17
Presentation	Breech	22	9.17
	Cephalic	218	90.83

In the present study, in regard to location of placenta 134 (55.83%) patients had anterior and 106 (44.17%) posterior. According to presentation, 22 (9.17%) patients had breech and 218 (90.83%) patients had cephalic presentation. (Table 3

Table 4: Distribution of POG

POG	Frequency	Percentage
<34	44	18.33
34-37	68	28.33
>37	128	53.33
Total	240	100.00

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In the above table gestational age at presentation/delivery has been depicted, 44 (18.33%) patients were <34 POG, 68 (28.33%) patients 34-37 POG and 128 (55.33%) patients were >37 weeks of gestation. (Table 4)

Table 5: Distribution according to obstetric morbidity

Obstetric morbidity	Frequency	Percentage
Blood transfusions	108	45.00
Hysterectomy done later	24	10.00
ICU admission	36	15.00

In the above table obstetric morbidity has been depicted, 108 (45%) patients required blood transfusions,24 (10%) required hysterectomy later and 36 (15%) required ICU admission. (Table 5)

Table 6: Distribution according to birth weight

Birth weight	Frequency	Percentage
<2000 gm	64	26.67
2001-2500 gm	32	13.33
>2500 gm	144	60.00

In the above table 64 (26.67%) babies were <2000 gm, 32 (13.33%) were 2001-2500 gm and 144 (60%) were > 2500 gm. (Table 6)

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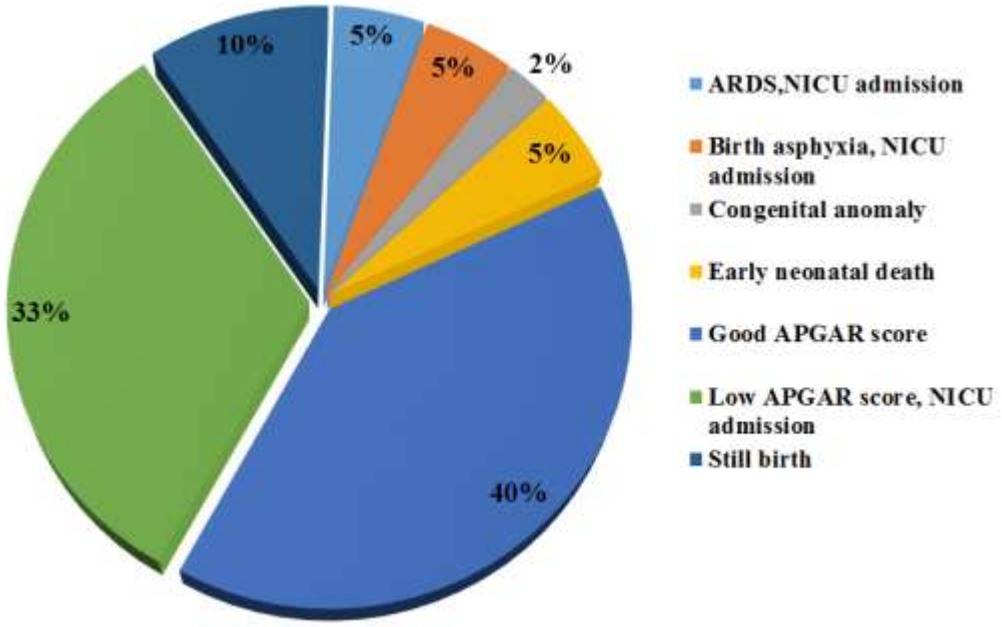
Figure 1: Distribution according to neonatal outcome



In the above figure neonatal outcome has been depicted, 12 (5%) neonates required ARDS, NICU admission, 12 (5%) required Birth asphyxia, NICU admission, 6 (2%) suffered from Congenital anomaly, Early neonatal death was 12 (5%), Good APGAR score was among 96 (40%), Low APGAR score, NICU admission was required to 78 (33%) neonates and still birth was 24 (10%). (Figure 1)

Discussion :

The present study Out of total 240 cases, 172 (71.67%) were multigravida,68 (28.33%) were primigravida, and 48 (20%) were ≤25 years, 74 (30.83%) between 26-30 years and 118 (49.17%) were >31 years of age. In the study 92 (38.33%) were post LSCS, 58 (24.17%) patients had uterine surgery H/O of S and E and 28 (11.67%) patients had H/O other surgery.

These findings are comparable to the study by Biro M et al, though Babinszki and colleagues reported 2.2 per cent incidence in women with parity of 5 or greater and incidence was increased significantly compared with that of women with lower parity.[10,11] Cesarean delivery for the first pregnancy had a significant 1.6-fold increased risk for previa in the second pregnancy.[12]

In the present study 52 (21.67%) patients were anaemic, 36 (15%) patients had hypothyroidism, 18 (7.50%) patients had pre- eclampsia and 16 (6.67%) patients had RH incompatibility.

In the present study, in regard to location of placenta 134 (55.83%) patients had anterior and 106 (44.17%) posterior. According to presentation, 22 (9.17%) patients had breech and 218 (90.83%) patients had cephalic presentation.

These are consistent to findings by Dashe et al, Laughon et al and Robinson et al.[13-15] They also concluded that Placentas those lie close to but not over the internal till early third trimester are

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unlikely to persist as a previa by term. It is therefore essential for review USG cases of low-lying placenta at 35-37 weeks to reestablish diagnosis. At the time of delivery, there was an equal number of anterior and posterior placentas which is similar to findings of Young et al.[16]

In the above table gestational age at presentation/delivery has been depicted, 44 (18.33%) patients were <34 POG, 68 (28.33%) patients 34-37 POG and 128 (55.33%) patients were >37 weeks of gestation.

In the above table obstetric morbidity has been depicted, 108 (45%) patients required blood transfusions,24 (10%) required hysterectomy later and 36 (15%) required ICU admission.

Similar findings were recorded by Boyle et al, Sabourin et al, where more than half cases had operative haemorrhage and a fourth required blood transfusion (Table 6).[17,18]

In the above table 64 (26.67%) babies were <2000 gm, 32 (13.33%) were 2001-2500 gm and 144 (60%) were > 2500 gm.

In our study 12 (5%) neonates required ARDS, NICU admission, 12 (5%) required Birth asphyxia, NICU admission, 6 (2%) suffered from Congenital anomaly, Early neonatal death was 12 (5%), Good APGAR score was among 96 (40%), Low APGAR score, NICU admission was required to 78 (33%) neonates and still birth was 24 (10%).

Kayem et al, and Penotti et al, reported that only 2 of 33 women with a previa and non-accreta cases where compression sutures failed required a hysterectomy. [19,20]

Preterm delivery continues to be a major cause of perinatal death as per study by NØrgaard et al and Salihu et al, reported a threefold increased neonatal mortality rate with placenta previa that was caused primarily from preterm delivery (Table 9).[21,22]

Conclusions

In our study major contributing risk factors for placenta previa were multiparity (71.67%), age- >30 years (49.17%) and previous LSCS (38.33%)%. Therefore, the authors propose that high-risk obstetric care, including frequent prenatal visits and serial obstetric ultrasounds, be provided for all patients of placenta previa. Given the amount of placental migrations observed in the study, cases where the placenta was reported to be low lying in the second trimester should be verified in the third trimester. Every case of placenta previa should be treated at a facility with a neonatal intensive care unit and blood component therapy.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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References :

1. Elsayes KM, Trout AT, Friedkin AM, Liu PS, Bude RO, Platt JF, et al Imaging of placenta: a multimodality pictorial review. Radiograph. 2009;29(5):1371-91.
2. Williams text book of obstetrics. 24th Edition, Obstetrical haemorrhage; 2014:780.
3. Crane JM, Van den Hof MC, Dodds L, Armson BA, Liston R. Maternal complication with placenta previa. Am J Perinatol. 2000;17(2):101-5.
4. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong C. Williams Obstetrics. McGraw-Hill. New York; 2018: 755.
5. Lalonde A, Daviss BA, Acosta A, Herschderfer K. Postpartum haemorrhage today: ICM/FIGO initiative 2004-2006. Int J Obstet Gynaecol. 2006;94:243.
6. McCormick ML, Sanghvi HC and McIntosh N: Preventing postpartum haemorrhage in low-resource settings. Int J Gynaecol Obstet. 2002;77:267.
7. Zhou M, Chen M, Zhang L, He GL, He L, Wei Q, et al. Severe adverse pregnancy outcomes in placenta previa and prior cesarean delivery. Sichuan Da Xue Xue Bao Yi Xue Ban.2017;48(5):783-787.
8. Cheng KKN, Lee MMH. Rising incidence of morbidly adherent placenta and its association with previous caesarean section: A 15-year analysis in a tertiary hospital in Hong Kong. Hong Kong Med J. 2015;21(6):511–517.
9. Pagani G, Cali G, Acharya G, Trisch IT, Palacios- Jaraquemada J, Familiari A, et al. Diagnostic accuracy of ultrasound in detecting the severity of abnormally invasive placentation: a systematic review and meta-analysis. Acta Obstetricia et Gynecologica Scandinavica.2018;97:25-37.
10. Biro MA, Davey MA, Carolan M, Kealy M. Advanced maternal age and obstetric morbidity for women giving birth in Victoria, Australia: a population-based study. Aust N Z J Obstet Gynaecol. 2012;52(3):229.
11. Babinski A, Kerenyi T, Torok O, Grazi V, Lapinski RH, Berkowitz RL. Perinatal outcome in grand and great grand multiparity: effects of parity on obstetric risk factors. Am J Obstet Gynecol, 1999; 81:669.
12. Gurol-Urganci I, Cromwell DA, Edozien LC, Smith GC, Onwere C, Mahmood TA. Risk of placenta previa in second birth after first birth cesarean section. BMC Preg Childbirth. 2011;11:95.
13. Dashe JS, McIntire DD, Ramus RM, Santos-Ramos R, Twickler DM. Persistence of placenta previa according to gestational age at ultrasound detection. Obstet Gynecol. 2002;99:692.
14. Laughon SK, Wolfe HM, Visco AG. Prior cesarean and the risk for placenta previa on second-trimester ultrasonography. Obstet Gynecol. 2005;105:962.
15. Robinson AJ, Muller PR, Allan R, Ross R, Baghurst PA, Keirse MJ. Precise mid-trimester placenta localisation: does it predict adverse outcomes? Aust N Z J Obstet Gynaecol. 2012;52(2):156.
16. Young B, Nadel A, Panda B, Kaimal A. Does placenta previa location matter? Surgical

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morbidity associated with previa location. Am J Obstet Gynecol. 2013;208(1):S57.
17. Boyle RK, Waters BA, O'Rourke PK: Blood transfusion for caesarean delivery complicated by placenta praevia. Aust N Z J Obstet Gynaecol. 2009;49(6):627.
18. Sabourin JN, Lee T, Magee LA, von Dadelszen P, Demianczuk N. Indications for, the timing of, and modes of delivery in a national cohort of women admitted with antepartum haemorrhage at 22+0 to 28+6 weeks' gestation. J Obstet Gynaecol Can. 2012;34(11):1043.
19. Kayem G, Kurinczuk JJ, Alfirevic Z, Spark P, Brocklehurst P, Knight M. Uterine compression sutures for the management of severe postpartum haemorrhage. Obstet Gynecol. 2011;117(1):14.
20. Penotti M, Vercellini P, Bolis G. Compressive suture of the lower uterine segment for the treatment of postpartum haemorrhage due to complete placenta previa: a preliminary study. Gynecol Obstet Invest. 2012;73(4):314.
21. NØrgaard LN, Pinborg A, Lidegaard Ø, Bergholt T. A Danish national cohort study on neonatal outcome in singleton pregnancies with placenta previa. Acta Obstet Gynecol Scand. 2012;91(5):546.
22. Salihu HM, Li Q, Rouse DJ, Alexander GR. Placenta previa: neonatal death after live births in the United States. Am J Obstet Gynecol. 2003;188:1305.