



RESEARCH ARTICLE

STUDY OF MATERNAL AND FETAL OUTCOME IN PLACENTA PREVIA IN A TERTIARY CARE CENTRE

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Abstract

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Introduction:-

When the placenta is implanted partially or completely over the lower uterine segment (over and adjacent to the internal os) is called placenta previa.. The incidence of placenta previa has risen during the past 30 years. Reported incidences average about 0.4 percent or 1 case per 250 to 400 deliveries, It complicates 0.3-0.5% of all pregnancies at term. Classified in four types on the basis degree of extension of placenta to lower segment.

Several demographic factors may contribute to this higher rate of placenta previa, are ,old maternal age, high parity, multifetal gestation, uterine surgery (curettage), smoking and cocaine use, and abortion.. Regardless of etiology, maternal and fetal risks are increased by several folds in patient of placenta previa; in mother, the risks are mainly due to life threatening APH and postpartum haemorrhage (PPH). Placenta previa is a major cause of antepartum haemorrhage (APH) accounting for 35% of all the causes. With regard to baby, incidences of low birth weight (LBW), intra uterine growth restriction (IUGR), preterm deliveries and congenital malformations are increased.³

Classified in four types on the basis degree of extension of placenta to lower segment.

Type I: Minor Previa: lower placental edge inside the lower uterine segment, not up to internal os.

Type II: Marginal Previa: lower placental edge just reaching the internal os.

Type III: Partial Previa: partially covering the internal os

Type IV: Complete Previa: Placenta completely covering the internal os.

For clinical purpose, the types were graded into mild degree (Type I and Type II A anterior) and major degree (Type II B posterior, Type III and Type IV).

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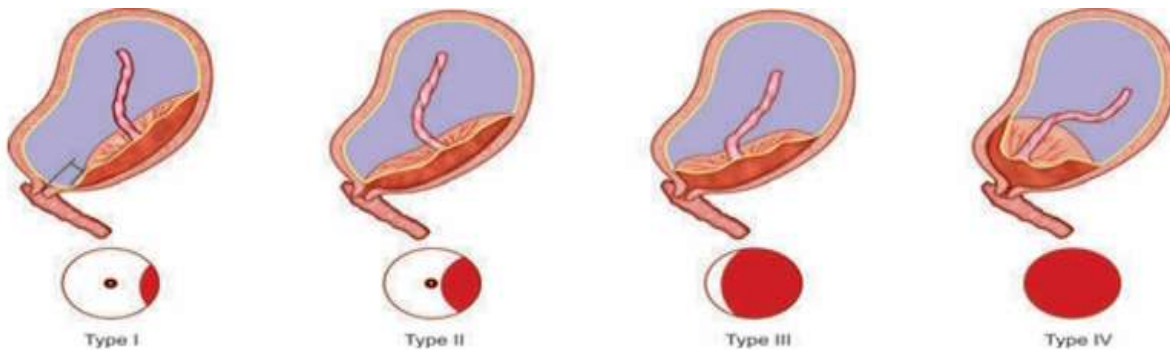


Fig. 1:- Degrees of placenta previa with findings on ultrasound examination.

New classification based on ultrasound finding;

1. Placenta Previa; the internal os is covered partially or completely by placenta.
2. Low lying placenta; implantation in the lower uterine segment is such that the placental edge does not cover the internal os but lies within a 2-cm wide perimeter around the os.

Once diagnosed, placenta previa and morbidly adherent placenta should be managed at tertiary care centre with multidisciplinary approach so as to lessen the maternal and fetal morbidity and mortality.

Aims and Objectives:-

- To study of feto-maternal outcome in placenta previa in tertiary care hospital.
- To evaluate perinatal mortality and morbidity in placenta previa.
- To evaluate Intervention and management protocols in cases of placenta previa with the objective of improvement in maternal and fetal outcome.

Materials And Methods:-

Its retrospective study of 30 cases of placenta previa, out of total 1753 deliveries conducted during April 2022-sept 2023 (18 months) at Mahadevappa rampure medical college Kalaburagi.

Data was collected from the hospital record section as per proforma, that included, demographic profile of patients, detailed history, clinical examination findings, investigations, gestational age at the time of delivery, mode of delivery, feto-maternal outcome and complications. Analysis of data was done by appropriate statistical methods.

Inclusion Criteria:

All the women with antepartum hemorrhage confirmed by USG as placenta previa after 28 weeks of gestation.

Exclusion Criteria:

- Other causes of antepartum hemorrhage.
- Normally situated placenta.

Further management of the cases were based on the following factors:

- Mother's condition - degree of obstetric hemorrhages - minor and major haemorrhage
- Fetal condition - gestational age, live/dead
- Ability of the neonatal unit to handle an infant of that gestational age.

The obstetric haemorrhage management system of four pillars:

- Communication between all members of the multidisciplinary team
- Resuscitation (as per NRP 2017)⁷
- Monitoring and investigation
- Arrest bleeding by arranging delivery of the fetus.

Maternal outcome was measured by

- Number of transfusions required
- APH severity
- PPH severity

Operative interventions.

- 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

Statistical analysis:

For statistical analysis, Microsoft excel spreadsheet was used for data collection and analyzed by BM SPSS 25.0 software and Graph Pad Prism version 5. Data were tabulated and summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables A chi-squared test (χ^2 test), various t-tests were compared, as appropriate.

Results:-

In present study, 30 placenta previa patients were found, out of 1753 deliveries over 18 months, conducted at the institute of mahadevappa Rampure medical college.

Table 1:- Shows distribution of patients according to age.

AGE in years	NO.OF PATIENTS	PERCENTAGE
20-30	27	90.0
31-35	2	6.7
>35	1	3.3
Total	30	100.0
Mean $\pm$ SD	26.2 $\pm$ 4.17	---

As shown in Table -1 out of 30 patients, majority 27 (90.0%) of patients were from the peak reproductive age group of 20 to 30 years, least after 35 years age patients were 3.3%. The mean age was 26.7 years.

Chart 1:- Shows distribution of patients according to age.

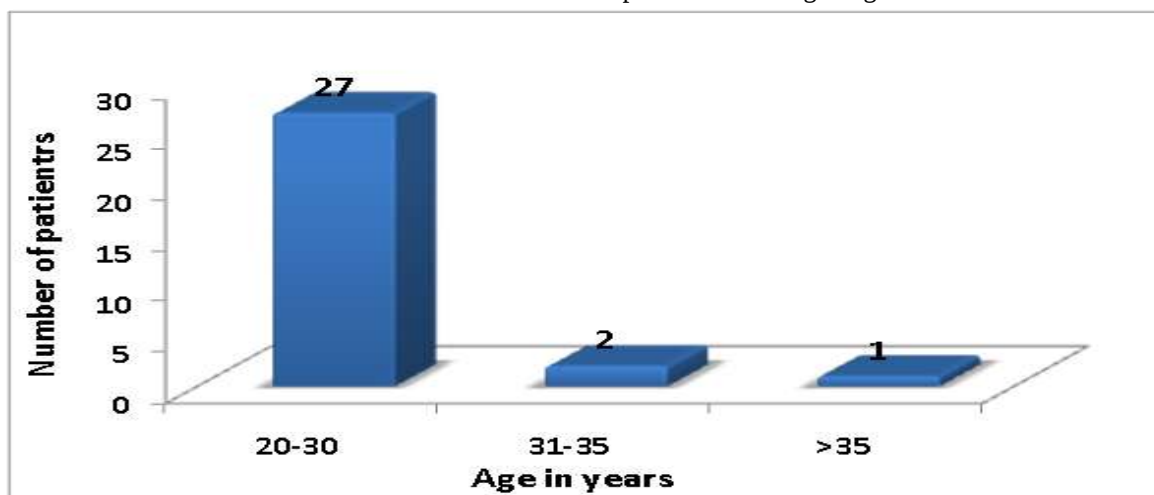
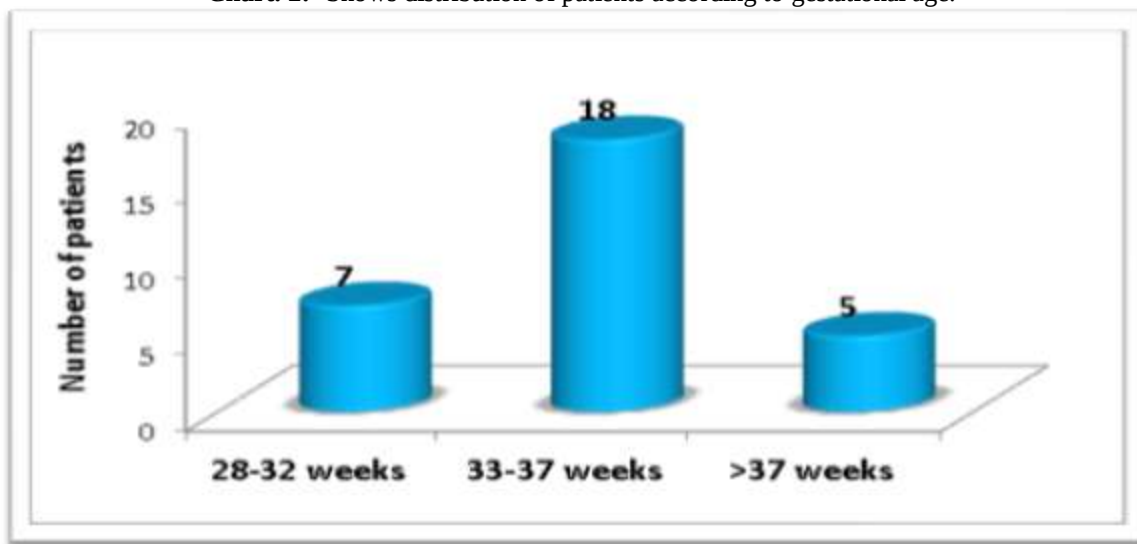


Table 2:- Shows distribution of patients according to gestational age.

Gestational age	No. of patients	Percentage
28-32 weeks	7	23.3
33-37 weeks	18	60.0
>37 weeks	5	16.6
Total	30	100.0

As per the gestational age, 18 patients were 33-37weeks of gestational age (60%), 5 patients were >37weeks of gestational age

Chart. 2:- Shows distribution of patients according to gestational age.**Table. 3:-** Shows distribution of patients according to parity.

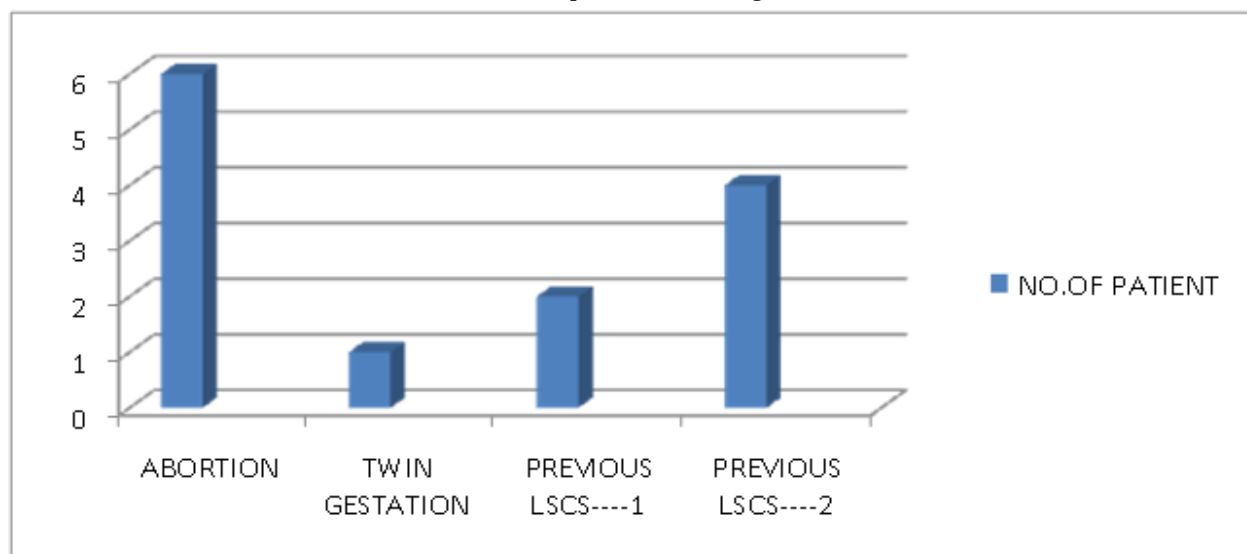
PARITY	NO.OF PATIENTS	PERCENTAGE
primigravida	8	26.7
Multigravida	22	73.3

According to parity primigravida were 8(26.7%), and rest were multigravida 22 (73.3%).

Table 4:- Shows distribution of patients according to maternal risk factor.

Risk factors	NO.OF PATIENT	PERCENTAGE
H/O ABORTION	6	20
TWIN GESTATION	1	3.3
PREVIOUS LSCS----	2	6.6
2	4	13.3

As per patient profile, maternal risk factors, out of total 30 patients, found are, h/o abortion 6 (20.0%), twin gestation 1 (3.3%), previous {1 lscs 2 (6.6%), 2lscs 4 (13.3%).

Chart 3:- Shows distribution of patients according to maternal risk factors.**Table 5:-** Shows distribution of patients according to types of placenta previa.

	NO.OF PATIENTS	PERCENTAGE
Type 1	9	30.0
Type 2a	7	23.3
Type 3	0	0 .0
Type 4	14	46.7

Out of 30 cases of placenta previa, 16 had minor degree (Type I, Type IIa) and 14 had major degree of placenta previa Type IV.

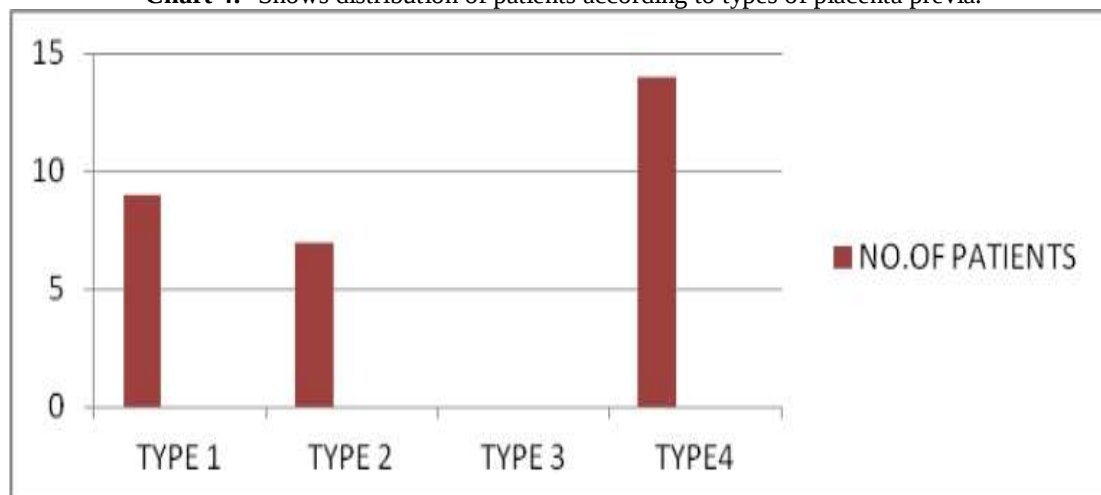
Chart 4:- Shows distribution of patients according to types of placenta previa.

Table 6:- Distribution according to maternal intra op complication and mode of delivery and interventional measures.

MATERNAL OUTCOME	NO.OF PATIENTS	PERCENTAGE
NO.OF CS	30	100%
◆ Elective	2	6.6%
◆ Emergency	28	93.3%
◆ ClassicCS	2	6
◆ Lower segment CS	28	93.3%
Preterm delivery	25	83.3%
PPH	7	23.3%
◆ B/L uterine artery ligation	3	10%
	2	6.6%
◆ B-lynch suture+internal artery ligation	2	6.6%
◆ Hysterectomy		
Hypovolemic shock	3	10%
Placent accreta spectrum	2	6.6%
PPCM	1	3.3%
DIC	1	3.3%

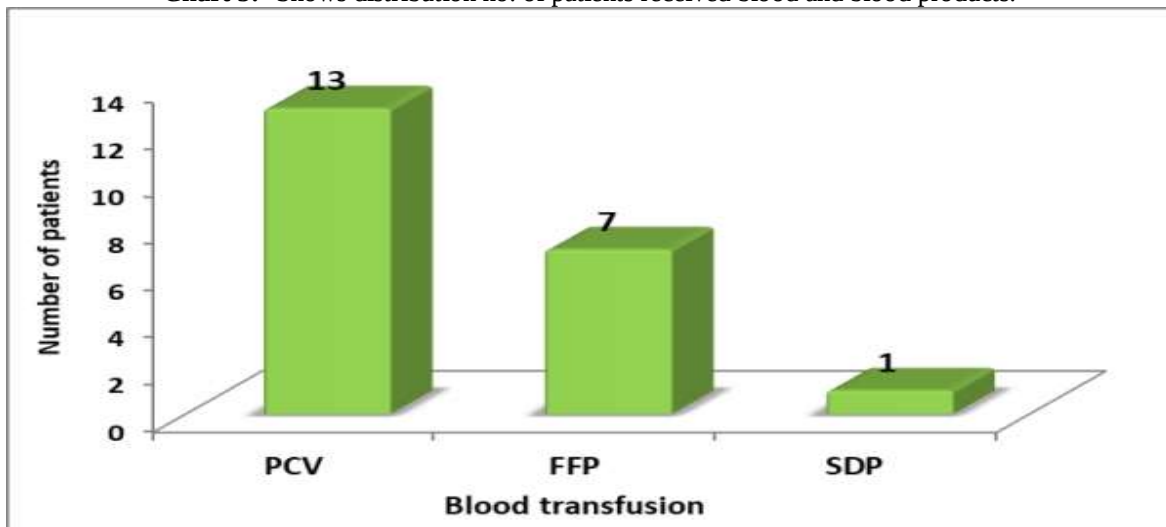
According to mode of delivery, all patients underwent caesarian delivery, among them, 2 (6.6 %) patients underwent elective and 28 (93.3%) had emergency LSCS. Out of 30 patients,10% of them had hypovolemic shock,6.6% of them had placenta accreta spectrum, PPCM 3.3%,DIC 1(3.3%), 7 (23.3 %) patients had intraoperative PPH.

Patients with placenta accreta spectrum, classical ceasarian section done,and for rest of the patients,lower segment ceasarian section done. Patients who had PPH, interventional maesures taken intraop were, for 10 % of them, B/L uterine artery ligation done,for 6.6% of them, B-lynch suture+internal artery ligation done and for 6.6% of them, peripartum hysterectomy was done in intractable intraop bleeding patients.(Table 6)

Table 7:- Shows distribution no. of patients received blood and blood products.

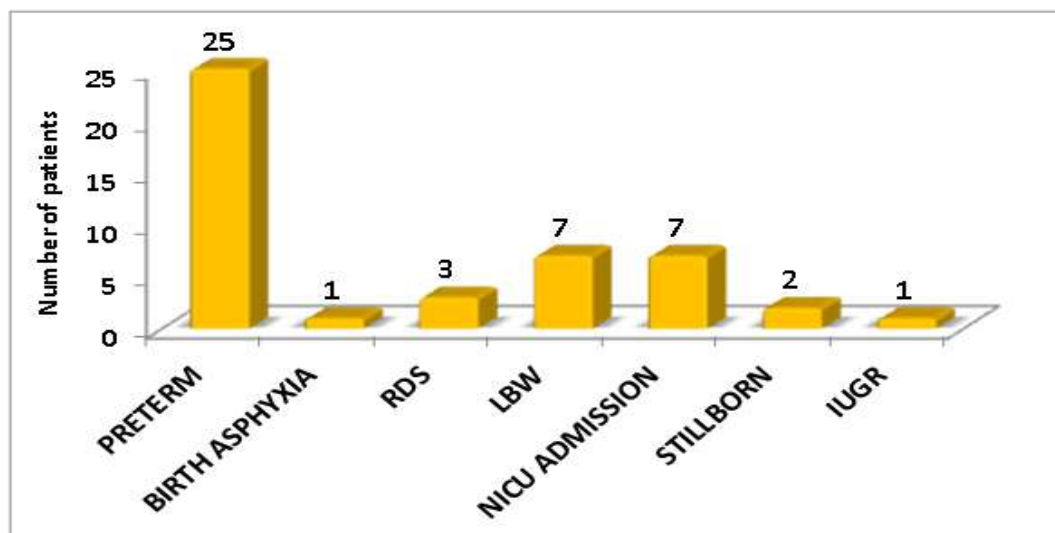
Blood transfusion	No. of patients	Percentage
PCV	13	43.3
FFP	7	23.0
SDP	1	3.3

Among 30 placenta previa patients' blood products used were,13(43.3%) patients received packed cell volume,7 (23%) patients received fresh frozen plasma, and 1 (3.3%) received SDP.

Chart 5:- Shows distribution no. of patients received blood and blood products.**Table 8:-** Neonatal outcome.

Neonatal outcome	NO.OF NEONATE	PERCENTAGE
PRETERM	25	83.3
BIRTH ASPHYXIA	1	3.3
RDS	3	10.0
LBW	7	23.3
NICU ADMISSION	7	23.3
STILLBORN	2	6.6
IUGR	1	3.3

Among 28 babies, 83.3% of them were preterm, 23.3% had nicu admission & Low birth weight. 10 % of babies had respiratory distress syndrome, 6.6% stillborn, least was 1(3.3%) IUGR and 1 (3.3%) birth asphyxia.

Chart 6:- Shows neonatal outcome.

Discussion:-

In the present study, the incidence of placenta previa is 1.7%. In our study, placenta previa was common in the age group of 20 to 30 years, least was found in the age group >35 years. Placenta previa was more common with multiparity 73%, rest were nulliparity. These findings are comparable to the study by Biro M et al. Although Babinszki and colleagues reported 2.2% incidence in women with parity of 5 or greater and incidence was increased significantly compared with that of women with lower parity.^{6,7}

As per the gestational age, 18 patients were in the group of late preterm (33-37 weeks of gestational age 60%), 5 patients were term GA (>37 weeks). The main maternal risk factor found in this study were h/o abortion in 6 patients (20%), twin gestation in 1 patient (3.3%), previous lscs {1 lscs 2 (6.6%), 2 lscs 4 (13.3%).

Majority of patients had type 4 placenta previa accounting for 43%. Blood loss depends on the type of placenta previa. Out of 30 cases, 43.3% of patients received PCV, 23% of patients received FFP, and sdp for 3.3%. Similar findings were recorded by Boyle et al, Sabourin et al, where more than half the cases had operative haemorrhage and 1/4th required blood transfusion. Antepartum and postpartum haemorrhage, caesarean hysterectomy and preterm birth were main maternal morbidities.

According to the mode of delivery, 2 (6.6 %) patients underwent elective LSCS and 28 (93.3%) had emergency LSCS. Out of 30 patients, 3 (10%) had hypovolemic shock, 2 (6.6%) had placenta accrete spectrum, PPCM in 1 (3.3%), DIC in 1 (3.3%) and 7 (23.3 %) patients had intraoperative PPH.

According to intra operative intervention, 3 (10 %) patients underwent bilateral uterine artery ligation, 2 (6.6%) patients underwent B-lynch suture and internal artery ligation, and 2 (6.6%) patients underwent peripartum hysterectomy (Table 6). In the study by Frederiksen et al, 6% of women who had a primary cesarean delivery for previa required a hysterectomy. Kayem et al, and Penotti et al, reported that only 2 of 33 women with a placenta previa and non-accreta cases, where compression sutures failed required a hysterectomy^{8,9}.

23.3% of patients had PPH. When all the conservative measures failed, in 6.6% patients underwent hysterectomy. There were no cases of maternal mortality. In our study, out of 30 births, 83.3% were preterm out of which 23.3% were admitted to NICU. 10% newborn had respiratory distress and 23.3% had low birth weight. 6.6% accounted for stillbirth. No neonatal mortality found. Association of POG at delivery versus NICU admission was statistically significant (p 0.0028).

The early and accurate diagnosis of placenta previa by ultrasound and Doppler and increased availability of medical care by senior obstetrician, blood transfusion and ICU facilities reduced maternal morbidity.

Conclusion:-

Antepartum haemorrhage in 3rd trimester is a grave obstetric emergency. Managing a case of placenta previa is challenging for an obstetrician as, there is increased risk of maternal and perinatal mortality and morbidity.

Various intra/peri-operative procedures like UA ligation, internal iliac artery ligation were done to control haemorrhage, when medical methods failed. Blood and blood products transfusion were done in 70 % of cases, 2 (6.6%) cases required caesarean hysterectomy as a life-saving procedure.

Thus all cases of placenta previa should be treated in an institution with high-risk obstetrical care, with frequent antenatal visits and early diagnosis with ultrasonography. Blood transfusion facilities and ICU care should be available. This will decrease the perinatal and maternal morbidity and mortality.

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