



The Maternal and Fetal Outcome of Placenta Praevia in Term Pregnancy

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Received: 06 December 2022

Revised: 11 January 2023

Accepted: 25 January 2023

Published: 28 February 2023

Abstract

Background: Placenta praevia refers to a placenta that is inserted either completely or partially in the lower uterine segment. In placenta praevia, placenta is implanted in the lower uterine segment within the zone of effacement and dilatation of cervix, resulting in obstruction to descent of the presenting part. The aim of this study is to find out the maternal and fetal outcome of Placenta praevia in term pregnancy. **Material & Methods:** This is an observational study. The study used to be carried out in the admitted patient's Department of obstetrics and gynecology, Dhaka Medical College and Hospital, Dhaka, Bangladesh. In Bangladesh for the duration of the period from January 2013 to June 2013. The duration of the period from Data was entered in MS Excel and Statistical analysis was done using SPSS 24 version. **Results:** This study shows that Maternal age range was 18 to 45 years and the commonest age group of placentas praevia was 25-29 years (60.0%). Four percent were between 20-24 years age group. Twenty percent were more than 35 years of age. **Conclusion:** The study subjects were selected only who were found high maternal morbidity and perinatal mortality which was 8% due to placenta praevia. So, the observed result of this study might not reflect the expected real outcome. In population therefore further prospective studies with a large sample should be carried out for comprehensive evaluation of placenta Praevia on maternal and neonatal outcome.

Keywords:- Placenta praevia; Uterine; Cervix; Perinatal mortality; Neonatal.

INTRODUCTION

In placenta praevia, placenta is implanted in the lower uterine segment within the zone of effacement and dilatation of cervix, resulting in obstruction to descent of the presenting part.^[1] Placenta praevia occurs in up to 1% of pregnancies after 28 weeks, and is responsible for 15% to 20% of cases involving ante partum hemorrhage.^[2] It occurs in 2.8/1000 single tone pregnancies and 3.9/1000 twin pregnancies, representing a significant clinical problem, as

the patient may need to admit in hospital for observation, she may need blood transfusion, and at risk for preterm delivery.^[3,4] The incidence of hysterectomy after caesarean section for placenta praevia is 5.3%. Perinatal mortality are three to four times higher than in normal pregnancies.^[5,6]

Placenta praevia exists when the placenta is inserted wholly or in part into the lower segment of the uterus.



It is classified by ultrasound imaging according to what is relevant clinically: if the placenta lies over the internal cervical os, it is considered a major praevia; if the leading edge of the placenta is in the lower uterine segment but not covering the cervical os, minor or partial praevia exists.^[7] "Marginal" when the lower edge of the placenta just reaches the os and "Low lying" the placenta is in the lower segment but does not reach the internal os.^[8] Complete and partial PP are considered "major placenta praevia", while marginal PP and low-lying placenta are considered "minor placenta praevia".^[9,10]

No specific etiology has been found for placenta praevia. However, the condition is more common among who smoke, use cocaine and over 35 years of age. It occurs more frequently in women having their second and later babies than in first pregnancy. A history of prior uterine surgery, including caesarian section and that of uterine curettage unrelated to pregnancy or following a spontaneous abortion are events significantly more frequent in patient with placenta praevia than in normal control. Being pregnant with twins (or a higher number of multiples) is another risk factor for placenta praevia. There is four to eight percent chance of recurrence in women who have had a placenta praevia in previous pregnancy.^[11]

Clinical suspicion should, however, be raised in any woman with vaginal bleeding (classically painless bleeding, or bleeding provoked by sexual intercourse) and a high presenting part or an abnormal lie, irrespective of previous imaging results.^[7] Although spotting may occur during the first and second trimester of pregnancy. Clinical suspicion should be raised

in all women with vaginal bleeding after 20 weeks of gestation.^[7]

The potential maternal and neonatal morbidity and mortality associated with this condition have generated a lot of concern among practicing clinicians.^[12] Failure to recognize the condition and manage the associated complications, particularly the massive obstetric hemorrhage, have led to most cases of avoidable maternal deaths.^[13] In the confidential enquiries into maternal deaths in the United Kingdom (1994-1996), 50% of deaths due to hemorrhage were related to abruptio placenta and placenta praevia, of which the danger of bleeding from placenta praevia in a scarred uterus was very obvious.^[14] Previous CS scar is a risk factor in the development of placenta praevia accreta.^[15]

Those with placenta praevia in the third trimester should be routinely assessed by Sonography to locate the position of the placenta and assess fetal development. Expectant management may be used to prolong the pregnancy until the fetus is mature; however heavy bleeding may necessitate delivery much sooner.^[2] The mode of delivery should be based on clinical judgment supplemented by information.

A woman with a placental edge less than 2 cm from the internal os in the third trimester is likely to need delivery by caesarean section, especially if the placenta is thick.^[7] The need for CS at term is predicated upon the os to placental edge distance and clinical features (e.g., presence of unstable lie and/or bleeding). Five studies have examined the likelihood of CS for placenta praevia on the basis of distance to the placental edge on the last ultrasound prior to

delivery.^[16,17,18,19,20] The last scan was performed at a mean of 35 to 36 weeks gestational age, and a distance of >20 mm away from the os was associated with a high likelihood of vaginal delivery (range 63-100%). These cases can be managed in the high expectation of a vaginal delivery. Between 20 mm and 0 mm away from the os on the last scan, CS for placenta praevia varies from approximately 40% to 90% and may be driven by the exact distance from the os and physicians' prior knowledge of the ultrasound finding.^[19]

MATERIAL AND METHODS

The study was a cross-sectional descriptive study which was conducted in over a period from January 2013 to June 2013 with a semi structured questionnaire. The post-operative ward, maternity ward, and operating room at the department of obstetrics and gynecology, Dhaka Medical College and Hospital, Dhaka, Bangladesh were the study's settings. About 50 study population admitted in the Department of obstetrics and gynecology. Convenience sampling technique was used as a sampling method. The study included people who need total laparoscopic hysterectomy. However, patients with known sensitivity to the drugs administered, liver disease, patients who had significant infections were excluded from the study. After collection, the data were checked and cleaned, followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. The choice of treatment was made by

the patient after a full discussion with the multidisciplinary team consisting of gynecologists. Collected data were edited and analyzed according to the objectives and variables by IBM software- Statistical package for Social Science (SPSS 24) version. Ethical clearance was taken from the IRB of the institution.

RESULTS

Maternal age range was 18 to 45 years in this study. The commonest age group of placentas praevia was 25-29 years (60.0%). Four percent were between 20-24 years age group. Twenty percent were more than 35 years of age.

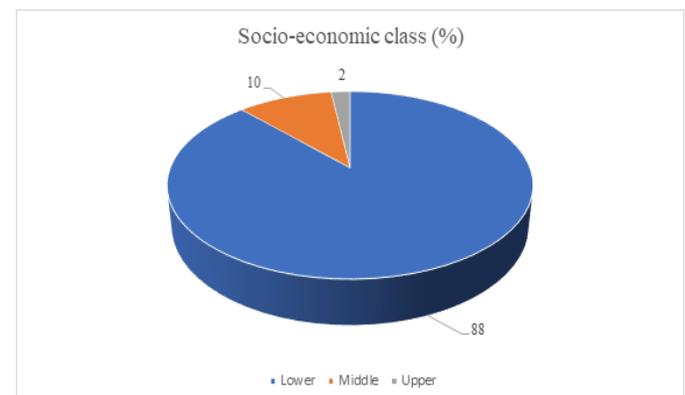


Figure 1: Socio-economic class of the study patients

This pie-chart is showing that patients with lower socio-economic condition (88.0%) usually suffer from placenta praevia more than the middle and upper class. Patients of low socio-economic condition of our country usually have more children than that of upper and middle class.

**Table 1:** Maternal age distribution of placenta praevia cases (n=50)

Age Group (Yr)	n=50	%
<20	5	10.0
20-24	2	4.0
25-29	30	60.0
30-34	3	6.0
>35	10	20.0

Table 2: Relationship between placenta praevia and gravidity of patients(n=50)

Gravidity	n=50	%
1	10	20.0
2-4	35	70.0
>5	5	10.0

In this study most of the patients were multi gravida (80.0%). Ten percent of the cases were grand multipara.

Table 3: Antenatal attendance of placenta praevia cases(n=50).

Antenatal care	n=50	%
Regular	15	30
Irregular	20	40
None	15	30

Thirty percent of patients did not attend any antenatal checkup. Thirty percent of the cases had received regular antenatal checkup.

Table 4: Gestational age at first bleeding episode and perinatal loss

Gestational age(weeks)	n=30	%	Perinatal loss (n=4)	%
<30	5	16.6	2	50
30-35	10	33.3	1	25
>36	15	50	1	25

Perinatal loss (50%) was more in cases where first episode of bleeding occurred before 30 weeks of gestation.

Table 5: Severity of anaemia on admission(n=50).

Severity of anaemia	n=50	%
Mild	15	30
Moderate	20	40
Severe	15	30

Most of the patients (70%) with placenta praevia came with moderate to severe degree of anaemia at the time of admission. Complications among the anaemic patients were more than the non anaemic or mildly anaemic patients.

**Table 6:** Clinical presentations of patients(n=50)

Clinical presentation	n=50	%
Haemorrhage with shock	10	20
Haemorrhage without shock	30	60
No haemorrhage	10	20

Table shows maximum (60%) had haemorrhage without shock.

Table 7: Presentation of fetus (n=50)

Presentation	n=50	%
Cephalic	35	70
Shoulder	10	20
Breech	5	10

Malpresentations were seen in thirty percent cases. In certain cases, fetal mal presentation was the only clue to diagnosis of placenta praevia.

Table 8: Confirmatory method of diagnosis (n=50)

Method	n=50	%
Ultrasonography	44	88
Caesarian section	3	6
Double set up examination	3	6

In this study 88% patients were diagnosed to have placenta praevia by USG and 6% patients were diagnosed incidentally during caesarian section. Six percent cases vaginal examination was done in OT for confirmatory diagnosis and typing of placenta praevia.

Table 9: Perinatal mortality and birth weight (n=50)

Weight (gm)	Number	Perinatal loss	
		Yes (%)	No (%)
2001-2500	18	2(11.11)	16(89.89)
2501-3000	20	1(05)	19(95)
3001-3500	12	1(08.33)	11(91.67)

Majority (11.11%) of the perinatal mortality were found in low-birth-weight group (2001gm-2500gm).

Table 10: Types of placenta praevia (n=50)

Type	n=50	%
I	7	14
II	18	36
Anterior	2	4
Posterior	16	32
III.	13	26
IV.	12	24

In this study 36% placenta praevia cases belonged to type –II group and 50% were type III and IV i. e central placenta praevia group. In type III and type IV placenta praevia most of the post-partum complications occurred in these groups posterior.

Table 11: Relation between type of placenta praevia and mode of delivery (n=50)

Type	Vaginal delivery		Caesarian section	
	n	(%)	n	%
I	7	14	0	0
II (anterior)	2	4	0	0
III (Posterior)	0	0	16	32
III.	0	0	13	26
IV.	0	0	12	24
Total	9	18	41	82

In this series 18% patients delivered vaginally, most of whom had minor placenta praevia and 82% patients delivered by caesarian section most of them had major degree placenta praevia.

Table 12: Relation between mode of delivery and fetal outcome (n=50)

Fetal outcome	Mode of delivery	
	Caesarean section (n=41) n(%)	Vaginal (n=9) n(%)
Live birth	41(100)	5(55.6)
Neonatal death	0(00)	2(22.2)
Still birth	0(00)	2(22.2)

Caesarian section was done in 41 cases and 41 babies were live birth. Vaginal delivery was 9, among them maximum 5(55.6%) were live birth, 2(22.2%) were neonatal death and 2(22.2%) were still birth.

Table 13: Major post-partum complications (n=20)

Post-partum complications	n	%
Post-partum haemorrhage	15	75%
Puerperal sepsis	1	5%
Urinary tract infection	3	15%
Wound infection	1	5%

PPH and UTI are two most common post-partum complications.

Table 14: Postpartum complications in relation to type of placenta praevia (n=20)

Type	Post-partum Complications			
	PPH (n=15)	Puerperal Sepsis (n=1)	Urinary tract infection (n=3)	Wound infection (n=1)
I	0	0	0	0
II	1	0	0	0
III	4	1	1	0
IV	10	0	2	1

Postpartum complications were common among type -III&IV placenta preavia.

Table 15: Perinatal mortality in relation to type of placenta preavia (n=4).

Types	Number of patients	Perinatal mortality	
		Still Birth	Neonatal death
I	7	(0.0)	(0.0)
II	18	0.0)	(0.0)
III	13	1(7.69%)	1(7.69%)
IV	12	1(8.33%)	1(8.33%)

Perinatal mortality was high with more severe degree of placenta preavia and total perinatal mortality was 8%.

Table 16: Relationship between the severity of bleeding and fetal outcome (n=50).

Amount of bleeding	n=50	Perinatal loss(n=4)	
		Still birth	Neonatal loss
Nil/mild	15	0(0.0)	0(0.0)
Moderate	20	0(0.0)	0(0.0)
Severe	15	2(50%)	2(50%)

Perinatal mortality was high with severe bleeding.

DISCUSSION

This is a prospective cross-sectional hospital-based study was carried out with an aim to find out the maternal and neonatal outcome of placenta preavia. To find out the risk factors of placenta preavia, the maternal and perinatal morbidity and mortality caused by placenta preavia and also to assess the management of placenta preavia.

The present study findings were discussed and compared with previously published relevant studies.

In the present study it was observed that the commonest age group of placentas preavia was 25-29 years. The mean age of the patients having placenta preavia was 30.0 years.^[3] Which is similar with the present study.^[15,16] Advanced

maternal age increases the chance of placenta preavia.^[21] Placenta preavia occurs 2-3 times more commonly in women above 35 years as compared to those at age 20 or less.^[16] In a study It is shown that advancing maternal age has independent adverse effect on the risk of placenta preavia regardless of other known risk factors.

In this study it was observed that the most (88%) of the patient having placenta preavia were came from lower socio-economic condition than that of middle and upper class. Patients of low socio-economic condition in this country usually have more children than that of upper and middle class. The causes of higher incidence of placenta preavia in lower class of people may be because of their factors of-high parity, larger number of patients attending

Govt. hospital and increased rate of MR and induced abortion etc.

As regards to the incidence of gravidity, a number of investigators studied the placenta previa correlating with multigravidae (80%) and (10%) of the cases were grand multipara. The incidence of placenta previa were 76.0% and mean parity was 4.8+3.2 in their studies.^[3,16] Women of >3 parity had three-fold higher risk than nulliparous women.^[22] In a study it is confirmed that the frequency of placenta previa increased with increasing parity.^[23] The results of the present study closely resemble with the above studies.

Antenatal check-up is an important aspect of management of placenta previa such as adequate antenatal care helps to improve the health status of patients specially by correction of anaemia, antenatal vigilance helps to detect the suspected cases of placenta previa, family planning advice during antenatal checkup can help to lower the incidence of placenta previa. Only 30% of the cases had received regular antenatal checkup and 30% of patients did not receive any antenatal checkup and 40% had received irregular antenatal checkup, which indicates that most of the study patients were not acquainted with the importance of antenatal checkup.

Gestational age at first episode of bleeding is a very important factor, in relation to maternal morbidity and perinatal mortality. In this study it was observed that 16.6% patients with placenta previa had the history of first episode of bleeding <30 weeks of gestation and most 83.3% of the patients had bleeding episode were in between 30 to >36 weeks, which is closely resemble with the above-mentioned study.

Perinatal loss (50%) was more in cases where first episode of bleeding occurred before 30 weeks of gestation. The earlier in pregnancy the first bleeding occurred, the worse was the outcome of pregnancy. In fact, the incidence of preterm delivery, the number of bleeding episodes, the severity of bleeding and the number of units of blood required for blood transfusion were higher in patients who begun to have bleeding before 30 weeks. According to Oppenheimer et al. approximately one third of patients with placenta previa have their first bleeding episode before 30 weeks of gestation, one third from 30 to 35 weeks and one third after 36 or more weeks. The mean gestational age at first bleeding episode is 29.6weeks.^[17]

In this study it was observed that majority of the patients 70% with placenta previa came with moderate to severe degree of anaemia during the time of admission and the complications were found more in the severely anaemic patients than the non anaemic or mildly anaemic patients. The absolute amount of blood loss should always be evaluated in relation to the clinical status before the bleeding episode: anaemic patient may lose one unit of blood and shows sign of profound hypovolaemia, whereas, a normal patient may handle this loss without any significant change in vital signs.^[24]

Majority of the patient (80%) were free from shock on admission. The patients who came with hemorrhage and shock 20%, their prognosis was bad in term of maternal morbidity and mortality as well as perinatal mortality. Patients who were in hypovolaemic shock, their fetuses suffered from hypoxia and resulted poor fetal outcome. Abnormal fetal presentation was found in this study that was 30%. In certain cases, fetal malpresentation was

the only clue to diagnosis of placenta previa. In this study no specific congenital abnormality of fetuses was detected. The two classical presentations of placenta previa are fetal malpresentation in late pregnancy and painless vaginal bleeding.^[25]

In this study 88% patients were diagnosed to have placenta previa by transabdominal ultrasonography and 6% patients were diagnosed during caesarian section. Only 6% cases vaginal examination was done in OT for confirmatory diagnosis and typing of placenta previa. Manyonda et al. introduced ultrasound for the diagnosis of placenta previa. Since then, transabdominal sonography is a commonly used method for diagnosis of placenta previa.^[26] The ultrasound diagnosis of placenta previa is best achieved by direct visualization of placental edge in relation to the internal cervical os. However, this may be difficult in the case of posterior placenta previa because the presenting fetal part may obscure the lower uterine segment in up to 23% of scans.^[27] An indirect method of assessment is necessary only when direct visualization cannot be achieved or when practical considerations make it desirable to exclude posterior placenta previa by trans abdominal scanning alone. The indirect assessment most widely used is a measurement of distance between the fetal skull and the maternal sacral promontory, with a measurement of more than 15mm suggestive of placenta previa.^[27]

It was observed in this study that majority (11.11%) of the perinatal mortality were found in low-birth-weight group (2001gm-2500gm). Adequate antenatal care, a greater number of hospital deliveries, proper care of babies of low birth weight in intensive care unit etc. definitely

reduces the incidence of perinatal mortality. Despite an increased utilization of abdominal delivery, prolonged expectant management, extended hospitalization and newer methods of diagnosis of placenta previa, the salvage of placenta previa has not appreciably improved in the past 20 years.^[23]

Perinatal mortality is high (16.2%) if the bleeding occurs at second trimester or earlier.^[28] Cotton et al,^[29] (1980) reported that perinatal mortality fell significantly with increasing gestational age: less than 27 weeks, 100%; 27 to 37 weeks, 29.6%; 33 to 36 weeks, 6.3% and more than 36 weeks, 2.6% 34.0%.

In this study incidence of placenta previa minor was 18% and major placenta previa was 82%. Type-I was 14%, Type-II was 36%, Type-III was 26% and Type IV was 24% in the present study. With the availability and improvement in ultrasound, the need for the so called 'double setup examination' or vaginal examination in the operating theater with full preparation for a cesarean delivery has become increasingly rare.^[30] Placenta previa is classified according to the relationship of placenta with the internal os having important prognostic value of mother and fetus.

In this current study it was observed that 18% patients delivered vaginally most of whom was minor degree of placenta previa and 82% were delivered by cesarean section most of them had major degree of placenta previa. Cesarean section has become the delivery method of choice with placenta previa. Perinatal mortality rates are lower with cesarean delivery for every type of placenta previa (even lesser degrees). Many now believe that there is almost no indication for vaginal delivery in these cases.



The advantage of cesarean section in placenta previa are that the fetal prospects are good, the maternal mortality is reduced, the cervix is not torn as a rule with far less loss of blood.

Cesarean section was done on 41 cases and 41 babies were live birth. Those in whom vaginal delivery were allowed, perinatal deaths were more as compared to that with operative delivery. Ratnam et al. first advocated conservative management insisted that the patient should be managed as in patient in a well-equipped maternal hospital until delivery. Even today this is the policy followed by most obstetric units.^[30]

Most common postpartum complications were PPH and UTI which were 75% and 15% respectively in this study. Factors are related to occurrence of PPH, these are unsatisfactory retractility and contractility of the lower uterine segment, presence of large uterine vessels at placental site, undue adherence (placenta accreta) placenta and exhaustion of the patient.

In this study postpartum complications were common among Type-III and Type -IV placenta previa. Causes of post-partum hemorrhage in placenta previa were uterine atony, placenta accreta and percreta.

In this study it was observed that the perinatal mortality was high with more severe degree of placenta previa and total perinatal mortality was 8%. Perinatal mortality was high with severe bleeding.

Severe bleeding was associated with high maternal morbidity. Maternal death is a very unfortunate outcome of pregnancy. In 1945, Ratnam showed that maternal mortality

associated with placenta previa was as high as 5%.^[30] With the introduction expectant management in 1945, a marked reduction in the maternal mortality rate has been achieved. Now-a-days maternal mortality rate in western world is almost 0.57%.^[21] Fortunately, we could lower the maternal mortality rate in placenta previa to a greater extent by improving maternal health, providing good antenatal care, as well as by prompt cesarean section of cases of placenta previa whenever indicated.

CONCLUSIONS

This study shows patients with lower socio-economic condition usually suffered from placenta praevia. Most of the patients were multi gravid. First episode of bleeding occurred in between 30 to >36 weeks of gestational period in majority of cases. Perinatal loss (50%) was more in cases where first episode of bleeding occurred before 30 weeks of gestation. Most of the patients with

Placenta praevia came with moderate to severe degree of anaemia at the time of admission. Majority of them were free from shock on admission. Perinatal mortality was high with more severe degree of placenta previa. PPH and UTI are two most common postpartum complications. Postpartum complications were common among type-III& IV placenta previa. Women with these conditions should be considered at high risk and should be delivered at institutions with skilled personnel, adequate blood transfusion facilities, and good neonatal resources. Emergency referral system should be established from union to thana health center and district hospital. Early diagnosis and proper monitoring of these patients could minimize the possibility of poor outcome.



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Source of Support: Nil, Conflict of Interest: None declare