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Original Research Article

## Maternal and perinatal outcome of placenta previa in a tertiary care centre: an observational study

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### ABSTRACT

**Background:** Placenta previa is an important cause of maternal and fetal morbidity and mortality and is on forefront in deadly triad for maternal mortality followed by eclampsia and sepsis in India. To determine the incidence, maternal and perinatal outcomes among women with placenta previa.

**Methods:** This is a prospective observational study carried out at in the Department of Obstetrics and Gynaecology of a tertiary care hospital of Northern India for a period of six months between Feb 2018 to July 2018.

**Results:** Total number of patients delivered during this period was 6840 and out of which 35 patients were diagnosed with placenta previa, so the incidence is 0.51%. Incidence of placenta previa was the highest in the maternal age group 20-30 years i.e. 71.42%. Placenta previa was noticed in 17.14% of the women with previous cesarean section. Caesarean hysterectomy was performed in 2.85%, 11.42% of the women had postpartum haemorrhage. Perinatal morbidity was studied as the percentage of babies requiring resuscitation and NICU admission which was 25.71 %. There was 19.99 % perinatal mortality.

**Conclusions:** Placenta previa is a major cause of maternal and perinatal morbidity and mortality which could be prevented by early registration, regular antenatal care, early detection of high-risk cases, and early referral to higher centre with good NICU services and blood bank facility.

**Keywords:** Perinatal mortality, Placenta previa, Postpartum hemorrhage

### INTRODUCTION

Haemorrhage remains the most important cause of maternal morbidity and mortality in developing countries. Antepartum Haemorrhage and postpartum Haemorrhage are on forefront in deadly triad for maternal mortality followed by eclampsia and sepsis in India. In a report of Registrar General India, haemorrhage accounts for 38% amongst all causes of maternal deaths.<sup>1</sup> Placenta previa occurs when the placenta is wholly or partially implanted in the lower uterine segment. Reported incidence of placenta previa averages 0.3% or 1 case in 300 to 400 deliveries.<sup>2</sup> Multiparity, advanced maternal age, cigarette

smoking, cocaine usage, multiple pregnancy, previous caesarean delivery, history of abortions or uterine surgical procedures are some of the risk factors contributing to the development of placenta previa.<sup>3-7</sup> Placenta previa is classified as “complete” when the placenta completely covers the internal cervical os, “partial” when the placenta partially covers the os, “marginal” when the lower edge of the placenta just reaches the os, and “low-lying” when the placenta is in the lower segment but does not reach the internal os.<sup>8</sup> Studies have shown that placenta previa carries greater risks of surgical complications including obstetric hysterectomy and massive haemorrhage requiring blood

transfusion.<sup>9</sup> Morbidly adherent placenta is a serious complication of pregnancy and is associated with massive intrapartum hemorrhage and high maternal morbidity and mortality. With the rising incidence of caesarean section combined with increasing maternal age, the number of cases of placenta previa and its complications, including placenta accreta is expected to increase.<sup>10</sup> Prematurity has been reported as a consistent finding in the cases of placenta previa in many studies.<sup>11-12</sup>

The aim of the present study is to observe the prevalence of placenta previa and to study maternal and perinatal outcome in cases of placenta previa.

## METHODS

The present study is a prospective observational study carried out in a tertiary care hospital of Northern India. The study included antenatal patients diagnosed as placenta previa on sonography at or > 26 weeks of pregnancy.

All patients included had delivery in our institution. It is an observational study carried out in High Dependency Unit of Obstetrics at Sardar Patel Medical College and hospital, Bikaner, Rajasthan for the period of 6 months from Feb 2018 to July 2018.

Antenatal women with a complaint of vaginal bleeding (>24 weeks of period of gestation) were included in this study. A detailed history, thorough clinical examination with special reference to abdominal examination, laboratory test, and ultrasound for fetal wellbeing, placental localization and any retroplacental haemorrhage were carried out in all the cases.

The diagnosis of placenta previa was based on ultrasonography and confirmed at cesarean delivery. Calculation of gestational age was determined by the last menstrual periods and first-trimester ultrasound.

Risk factors such as age, parity, multiple pregnancy, malpresentation, anaemia, previous caesarean and smoking in present pregnancy were recorded.

Past history of scarred uterus (caesarean section, myomectomy, check curettage, medical termination of pregnancy), placenta previa or any other risk factors were also evaluated.

Maternal complications in the form of intrapartum haemorrhage, postpartum haemorrhage, need of peripartum hysterectomy, need of blood transfusion, DIC, acute renal failure and maternal death were recorded.

Parinatal morbidity and mortality were evaluated in relation to prematurity, fetal growth restriction, low birth weight low APGAR at 1 and 5 mins, admission to Neonatal intensive care unit and still birth were recorded.

## RESULTS

Total number of patients delivered during this period was 6840 and out of which 35 patients were diagnosed as Placenta Previa, so the incidence is 0.51%.

**Table 1: Sociodemographic characteristics in placenta previa.**

Sociodemographic factors	Number	%
Booked	9	25.71
Unbooked	26	74.28
<b>Age</b>		
<20	0	0
20-30	25	71.42
>30	10	28.57
<b>Parity</b>		
Primi gravida	8	22.85
Gravida 2-3	21	60.00
Grandmultipara (gravid >4)	6	17.14
<b>Socioeconomic status</b>		
Lower	27	77.14
Middle	6	17.14
Upper	2	5.71

Table 1 showing sociodemographic profile of the women with placenta previa. Incidence of placenta previa was highest in the maternal age group 20-30 years i.e. 71.42% followed by 28.57% in the age group of >30 years. Incidence of placenta previa was highest (60%) in the multiparous group. It was 22.85% in the primi group and 17.14 % in grand multigravidas (>4). Majority of the women (74.28) were unbooked and referred cases. Maximum proportion of the women (77.14%) belonged to lower socioeconomic status.

Type IV was the commonest type of placenta previa (71.42%) followed by Type III (11.42%) and three cases each in type I and II (8.57%) as shown in Table 2.

**Table 2: Distribution according to type of placenta previa.**

Types of placenta previa (total 12)	No.	%
Type I	3	8.57
Type II	3	8.57
Type III	4	11.42
Type IV	25	71.42

Totally 14.28% (68) patients were previous one LSCS, 2.85% had previous two LSCS and 17.14% patients had previous dilatation and curettage (Table 3) emphasizing that previous LSCS and curettage are important risk factors for placenta previa in subsequent pregnancy. 14.28% of the women with placenta previa were elderly gravida with age >35 years.

Similarly placenta previa was noticed in 14.28% of the grand multipara women (parity>4) as shown in Table 3.

Malpresentation was observed in 17.14% of the women with placenta previa. None of the women in present study was smoker and no one had previous history of MROP, though both are the risk factors for placenta previa (Table 3).

**Table 3: Risk factors for placenta previa.**

Risk factors	No.	%
<b>Present pregnancy</b>		
Maternal age (>35)	5	14.28
Grand multi para	5	14.28
Malpresentation	6	17.14
Smoking/ drug misuse	0	0
First trimester bleeding	1	2.85
<b>Past history</b>		
H/O placenta previa	0	0
<b>H/O previous LSCS</b>		
Previous 1 LSCS	5	14.28
Previous 2 LSCS	1	2.85
Previous 3 LSCS	0	0
H/O previous MTP/Check curettage	6	17.14
H/O previous MROP	0	0

All the women in Type III and IV placenta previa had cesarean section while one out of three women in type II had vaginal delivery (Table 4). All the women in Type I delivered vaginally under close maternal and fetal monitoring.

**Table 4: mode of delivery in all types of placenta previa.**

Type of placenta	Total no of cases	Spontaneous vaginal delivery		Caesarean section	
		No.	%	No.	%
Type I	3	3	100	0	0
Type II	3	1	33.33	2	66.66
Type III	4	0	0	4	100
Type IV	25	0	0	25	100
Total	35	4	11.42	31	88.57

PPH was noticed in 11.42% of cases. Severe anemia was observed in 37.14% of the women and 51.42% of cases required blood transfusion.

Intraoperative haemorrhage was encountered in 5.71% of the women which was managed by uterotonic drugs, haemostatic sutures (2.85%) and uterine artery ligation (5.71%).

There was one peripartum hysterectomy due to morbidly adherent placenta (Table 5).

There was no intraoperative bowel or bladder injury. Post-operative febrile morbidity was not seen in any of cases and no sepsis complications in any of the women. There was one maternal death due to intractable intraoperative haemorrhage after all conservative

measures to arrest bleeding failed. The same women went in DIC.

**Table 5: Maternal outcome in placenta previa.**

Maternal outcome	No.	%
Intraoperative haemorrhage	2	5.71
Hemostatic suturing	1	2.85
Uterine artery ligation	2	5.71
PPH	4	11.42
MROP	0	0
Peripartum hysterectomy	1	2.85
DIC	1	2.85
Anaemia (<7gm%)	13	37.14
<b>Unit of blood transfused</b>		
1-4	17	48.57
5-10	1	2.85
Acute renal failure	1	2.85
Maternal mortality	1	2.85

Table 6 shows perinatal outcome in women with placenta previa. New born with birth weight <2.5kgs were 54.28% while among them 5.71% were extreme low birth weight <1.5kgs.

**Table 6: Perinatal outcome in placenta previa.**

Perinatal outcome	No.	%
<b>Maturity</b>		
<34 weeks	10	28.57
34-37 weeks	14	40
> 37 weeks	11	31.42
<b>Birth weight</b>		
<1.5 kg	2	5.71
1.5 -2.5kg	17	48.57
> 2.5kg	16	45.71
<b>Congenital anomaly</b>		
1	1	2.85
<b>Apgar in 1 and 5 mins</b>		
<7	3	8.57
7-9	4	11.42
>9	28	80
Nicu admission	9	25.71
Neonatal mortality	4	11.42
Still birth	3	8.57

There were 68.57% premature newborns signifying major contribution of placenta previa in newborn prematurity. Significant proportion of the newborn had NICU admission (25.71%) mainly due to prematurity and low birth weight.

One of the fetus had congenital anomaly in the form of spina bifida.

Perinatal deaths were 19.99% (Table 6). 11.42% of the newborn had mild asphyxia with apgar <9 at one and five minutes while 8.57% had moderate to severe asphyxia with apgar < 7.

## DISCUSSION

Present study reports incidence as 0.51% similar to the study conducted by Faiz et al.<sup>13</sup> In the present study the incidence of placenta previa was highest in the age group of 20-30 years i.e., 71.42%, followed in descending order by women in the 30-35 year age group which is similar to observation made by Das et al with the main age of 28.6 years and Singhal et al (2008) as 26.2 years.<sup>14,15</sup> It was observed that increasing age has a strong relationship with placenta praevia. Farkhunda Khursheed et al have suggested that there is a strong relationship of increasing age with placenta praevia.<sup>16</sup> In this study 14.28% women with placenta previa were elderly gravida (age >35 years). The number is comparatively lesser due to early age of marriage in Indian population. As women age, collagen gradually replaces muscle in walls of myometrial arteries, which results in defective vascularisation of the decidua. These under vascularised area have been suggested to participate in the progress of placenta praevia. In present study, 77.14% patients were multiparae. This is consistent with earlier studies where multiparity is reported as a risk factor.<sup>13</sup> In present study 74.28% of cases were unbooked and 77.14% belonged to poor socioeconomic status resulting in anemia, malnutrition predisposing to poor placental structure formation (villi and blood vessels).

Recurrence rate following placenta previa is 4-8% but in the present study there was no history of previous placenta previa. Out of 35 cases of placenta praevia, who had one previous section were five and one had previous two sections giving an incidence of 14.28% and 2.85% respectively which is similar to the study conducted by Sarella et al.<sup>17</sup> It is suggested that scar provides a nest for placental implantation in lower segment of uterus. Malpresentation was seen in 17.14% women similar was reported by Sarella et al.<sup>17</sup> Smoking has been reported as a risk factor for Placenta Previa in earlier studies.<sup>5,6</sup> But none of the patients in present study had a history of smoking. It can be due to variable demographic profile and cultural behaviour of different population.

Prematurity has been observed in 68.57% (<37 weeks) of the newborn which has also been reported in earlier studies.<sup>11-13</sup> In present study there was 19.99% perinatal mortality and 2.85% maternal mortality which is comparable to Singhal et al study with 23 % perinatal mortality and maternal mortality of 2%.<sup>15</sup> Majority of the newborn has birth weight between 1.5-2.5kg in present study which is comparable to Singhal, Nymphaea, S Nanda et al study.<sup>15</sup>

In present study coagulation failure was noted in 2.85% of cases, 11.42% of cases had PPH managed with uterotonics, B-Lynch, B/L uterine artery ligation, 2.85% developed acute renal failure, blood was transfused in (51.42%) and uterine artery ligation was done in 5.71%. Similar results were observed by Shabnam Naz et al.<sup>18</sup> One woman in present study underwent cesarean

hysterectomy due to uncontrolled intraoperative bleeding. The indication for emergency peripartum hysterectomy in recent years has changed from traditional uterine atony to abnormal placentation.<sup>19</sup> Patients with placenta previa in scarred uterus had 16% risk of undergoing emergency peripartum hysterectomy compared to 3.6% in patient with unscarred uterus.<sup>20</sup>

RCOG guidelines recommend that Women with a previous caesarean section require a higher index of suspicion as they are more associated with two obstetrical complications: placenta praevia and placenta accreta. If the placenta lies anteriorly and reaches the cervical os at 20 weeks, a follow-up scan should be done to identify if it is implanted into the caesarean section scar. According to RCOG guidelines elective delivery by caesarean section in asymptomatic women is not recommended before 38 weeks of gestation for placenta previa or before 36-37 weeks for placenta accreta.<sup>21</sup>

## CONCLUSION

Placenta previa is a major cause of maternal and perinatal morbidity and mortality which could be prevented by early registration, regular antenatal care, early detection of high-risk cases, and early referral to higher centre. Placenta previa with previous cesarean sections are at increased risk of placenta accrete and need of hysterectomy. Throughout antenatal period obstetrician needs to be more vigilant in such cases to prevent the complications. Neonatal care should be improved to decrease neonatal morbidity and mortality arising mainly due to prematurity in pregnancy with placenta previa.

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