

Fetomaternal Outcome in Placenta Previa Cross Sectional Study in Teaching Hospital: An Original Research

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ABSTRACT:

Introduction: *Placenta previa describes a placenta that is implanted in the lower uterine segment, either over or very near the internal cervical os. Placenta previa is a major cause of maternal morbidity and mortality because of the associated massive antepartum and intrapartum hemorrhage. The maternal and neonatal complications associated with placenta previa are very high. The aims and objectives of the study are to know the maternal and foetal outcome in cases of placenta previa in a tertiary hospital.*

Material & Methods: *This is a cross sectional study of 100 patients admitted during the study period of June 2019 – June 2020. The present study was undertaken to evaluate the various types of placenta previa and its fetomaternal outcome. Out of 100 patients, majority of cases belongs to 26-30 years (56%) with highest incidence being in multigravidas. In the present study, there were 55 were male babies & 45 were female babies. Among the 100 cases, 84 were live born babies, 13 were intrauterine death, 3 were stillborn.*

Results: *Type 3 placenta previa (46%) was the most common type of placenta previa in the present study, out of which 95 (95%) cases were managed actively by Emergency LSCS, Most of the patients, i.e, 39 % were at the gestational age of 28-34 weeks with most common type of placenta previa being Type 4. Malpresentations were common, most common being Breech (13 %). Out of 100 cases, 47 cases (47%) were belonging to scarred uterus category where type 3 placenta (48.9%) was the most common type of placenta previa & 5 cases (10.6%) had abnormal placentation in the form of placenta accrete (8.5%) placenta percreta (2.1%)*

Conclusion: *Primary prevention in the form of reduction in the rate of primigravida caesarean section must be done in order to prevent likelihood of placenta previa in scarred uterus and its associated morbidity.*

Key words: *Fetomaternal outcome, intrapartum haemorrhage, placenta previa,*

INTRODUCTION:

The latin word 'Previa' means 'going before' and in this sense, placenta previa means placenta goes before the foetus into the birth canal. Placenta previa describes a placenta that is implanted in the lower uterine segment, either over or very near the internal cervical os.¹ The incidence of placenta previa is 3-5 per 1000 pregnancies and this increase correlates with the increased caesarean section rates. Placenta previa is classified as, Type I: Low lying placenta. Type II A: Anterior marginal placenta previa. Type II B: Posterior marginal placenta previa. Type III: Partial placenta previa. Type IV: Central/Complete placenta previa.² Placenta previa is a major cause of maternal morbidity and mortality because of the associated massive antepartum and intrapartum hemorrhage. Risk factors for placenta previa are advancing maternal age, multiparity, previous lower segment caesarean operations, maternal cigarette smoking, uterine leiomyomas & uterine anomalies, assisted reproductive technology, male fetus & high maternal serum alfa fetoprotein levels.³ Patients usually presents with painless recurrent vaginal bleeding. The maternal complications associated with placenta previa is antepartum haemorrhage, anaemia, morbidly adherent placenta, malpresentation, early rupture of membranes, cord prolapse, intrapartum haemorrhage, postpartum haemorrhage, disseminated intravascular coagulation & increased incidence of operative interference like caesarean sections & hysterectomy & in puerperium they are at increased risk of sepsis, subinvolution of uterus.⁴ Foetal complications include preterm births & low birth weight, foetal growth restriction, foetal hypoxia, intrauterine foetal death, congenital malformations & birth injuries, respiratory distress syndrome.⁵ In placenta previa patients, postpartum haemorrhage is substantial which increases maternal complications.⁶ The aims and objectives of the study are to know the maternal and foetal outcome in cases of placenta previa in a tertiary hospital.

MATERIAL & METHODS:

The Patients getting admitted to SCB medical college under the department of obstetrics and gynaecology as a case of placenta previa satisfying inclusion & exclusion criteria. This is a cross sectional study of 100 patients admitted during the study period of June 2019 – June 2020. A detailed history and examination was carried out in these patients with close observation till delivery and postnatal period, documented the data and analysed. **Inclusion criteria:** Patients who gives informed consent for the study, Ultrasonologically diagnosed patients of placenta previa admitted during the study period, Gestational age >28 weeks. **Exclusion criteria:** Patients who do not give informed consent for the study, Gestational age <28 weeks, Causes of antepartum hemorrhage other than placenta previa.

RESULTS:

In the present study the incidence of placenta previa was highest in the age group of 26-30 years, i.e.,56% followed in descending order by women in the 21-25 year group, less than or equal to 20 years and more than or equal to 31 years, i.e, 19%,18%,7% respectively. The mean maternal age in my study was 26.11 years. In the present study, the incidence of placenta previa was highest 70% in multigravidas (with two to three viable births). The incidence in Grand multigravidas (> 4 viable births) was 3 % and in Primigravidas it was 27%. In the present study, Type 3 placenta previa (46%) was the most common type, followed by Type 4 (30 %), Type 2(20 %), Type 1(4%) respectively. Out of these 100 cases 4 cases (4%) were managed conservatively by Macafee regimen & was delivered by elective LSCS at term.1 out of 100(1%) cases

had vaginal delivery .The rest 95 (95%) cases were managed actively by Emergency LSCS 4.Incidence of placenta previa with respect to gestational age. In the present study, patients with completed 28 weeks were only included. Out of total 100 patients,36 patients (39 %) were at the gestational age of 28-34. (Table No.1) In the present study, patients with completed 28 weeks were only included. Out of total 100 patients,36 patients (39 %) were at the gestational age of 28-34 weeks with most common type of placenta previa being Type 4 followed by 35- 37 weeks (34%) , 38-40 weeks(26%) , > 40 weeks (1%) at the time of delivery. Malpresentations are common in placenta previa cases .In our study, Cephalic presentation was more common (78 %) followed by Breech (13 %) , Shoulder (8%) & Cord presentation (1 %). The above table shows that majority of cases presented with the chief complaints of bleeding per vagina (93%) and the remaining 7 cases (7%) of cases presented with pain abdomen, where features of abruption was present intraoperatively. Usually pain abdomen is absent in placenta previa unless patient is in labour & when associated with abruption placenta. In the present study, most common antenatal complication seen in placenta previa patient was 2nd trimester bleeding per vagina (most common in type 4 followed by type 2) which is shown by 25(25%) patients followed by Anaemia(13%), HDP (10%), 3rd Trimester bleeding per vagina (4%), Hypothyroidism(2%), FGR(2%), 1st Trimester bleeding per vagina (1%),Type 2 DM(1%). (Table No. 2) In our study, out of 100 patients of placenta previa,21 patients (21%) had post operatively anemia with Hb<10 gm% most commonly seen in Type 4 (30%) followed by Type 3(21.7%), Type2 (10%) & Type 1(4%) which was managed with Blood transfusions if Hb<7 gm% & Injection Iron sucrose if Hb >7 gm%. 11 patients (11%) had post operative wound infection which was most common in type 3(15.2%) followed by type 4(10%) ,type 2(5%) in descending order respectively which was managed with regular wound dressing & secondary suturing under appropriate antibiotic coverage. Out of 100 patients,47 (47%) had blood transfusions with 23(23%) patients having only 1 blood transfusion & 24 patients (24%) having more than 1 blood transfusions. (Table No. 3) In the present study, 34 babies(34%) have their birth weight between 2.6-3 kg followed by 29 babies (29%), 16 babies (16%), 9 babies (9%) ,7 babies (7%), 5 babies (5%) belonging to the 2.1-2.5 kg ,1.6 – 2 kg ,>3 kg ,less than1 kg & 1- 1.5 kg birth weight respectively. In the present study, among the 100 cases, 84 were live born babies,13 were intrauterine dead babies & 3 were stillborn babies. Out of which 21(25%) babies were having poor apgar score(<7 at 1 & 5 minutes), who were admitted in SNCU,out of which 6 babies(7.%) died in SNCU & the rest 15 babies (17.85%)were successfully treated & discharged from SNCU .63 (75%) babies were with good apgar score (>7 at 1 & 5 minutes) & was kept mother side & discharged with mother. In the present study, 24 babies(24%) were admitted to NICU during hospital stay due to various reasons .Among them, 6 babies(7.14%) died in SNCU, out of which 5 babies(5.95%) died due to Prematurity & Respiratory Distress Syndrome and 1 (1.19%) died due to Hypoxic Ischemic encephalopathy & Respiratory Distress Syndrome. 6 babies(7.14%) were admitted to SNCU for Meconium Aspiration Syndrome & was successfully treated & discharged from there. During the hospital stay 12(14.28%) babies developed clinical jaundice & was admitted & discharged from SNCU with the diagnosis of Neonatal Jaundice.The average NICU stay was 3.4 days. In the present study ,total cases were divided into scarred uterus which includes cases with prior h/o LSCS, h/o S&E ,h/o myomectomy & unscarred uterus without these history. Out of 100 case,47 cases(47%) were belonging to scarred uterus category & 53 cases (53%) in unscarred uterus. In the present study it was observed that, type 3 placenta (48.9%)

was the most common type followed by type 4(14%),type 2 (10%)& type 1(0%) whereas in unscarred uterus group again, type 3 (43.4%)was most common followed by type 4(30.2%) type 2(18.9%) & type 1(7.5%) (Table No. 4) In the present study, among the 47 cases of scarred uterus, 5 cases(10.6%) had abnormal placentation in the form of placenta accreta(8.5%) placenta percreta (2.1%) respectively, rest 42 cases (89.4%) had normal placentation . Whereas in unscarred uterus abnormal placentation was found in only 2 cases(3.8%) one in each placenta accrete & Incretta group and the rest 96.2% cases had normal placentation. (Table No. 5)

Table 1: Cross Tabulation of Gestational Age and Type of Placenta Previa

Gestational Age		TYPE OF PLACENTA PREVIA				Total
		1	2	3	4	
28 to 34 weeks	Count	1	3	20	15	36
	%	25.0%	15.0%	43.5%	50.0%	39.0%
35 to 37 weeks	Count	2	9	13	10	34
	%	50.0%	45.0%	28.3%	33.3%	34.0%
38 to 40 weeks	Count	1	8	12	5	26
	%	25.0%	40.0%	26.1%	16.7%	26.0%
More than 40 weeks	Count	0	0	1	0	1
	%	0.0%	0.0%	2.2%	0.0%	1.0%
Total	Count	4	20	46	30	100
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2: Cross Tabulation of Types of Placenta Previa and Antenatal Complications.

Antenatal Complications		Type of Placenta Previa				Total
		1	2	3	4	
Anaemia	Count	0	3	6	4	13
	%	0.0%	15.0%	13.0%	13.3%	13.0%
Hypertensive Disorder Of Pregnancy(HDP)	Count	1	1	6	2	10
	%	25.0%	5.0%	13.0%	6.7%	10.0%
Hypothyroidism	Count	0	0	1	1	2
	%	0.0%	0.0%	2.2%	3.3%	2.0%
Foetal	Count	0	1	1	0	2

Growth Restriction(FGR)	%	0.0%	5.0%	2.2%	0.0%	2.0%
Uncomplicated Pregnancies(UP)	Count	3	14	23	2	42
	%	75.0%	70.0%	50%	6.7%	42.0%
T1 Bleeding Per Vagina(T1 BPV)	Count	0	0	1	0	1
	%	0.0%	0.0%	2.2%	0.0%	1.0%
T2 Bleeding Per Vagina(T2 BPV)	Count	0	0	6	19	25
	%	0.0%	0.0%	13.0%	63.3%	25.0%
T3 Bleeding Per Vagina(T3 BPV)	Count	0	1	1	2	4
	%	0.0%	5.0%	2.2%	6.7%	4.0%
Type 2 Diabetes Mellitus	Count	0	0	1	0	1
	%	0.0%	0.0%	2.2%	0.0%	1.0%
Total	Count	4	20	46	30	100
	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3: Distribution of various postoperative complication associated with placenta previa in our study

			TYPE OF PLACENTA PREVIA				Total
			1	2	3	4	
Anaemia	N	Count	4	18	36	21	79
		%	100.0%	90.0%	78.3%	70.0%	79.0%
	Y	Count	0	2	10	9	21
		%	0.0%	10.0%	21.7%	30.0%	21.0%
	Total	Count	4	20	46	30	100
		%	100.0%	100.0%	100.0%	100.0%	100.0%
Wound infection	N	Count	4	19	39	27	89
		%	100.0%	95.0%	84.8%	90.0%	89.0%
	Y	Count	0	1	7	3	11
		%	0.0%	5.0%	15.2%	10.0%	11.0%

		%	0.0%	5.0%	15.2%	10.0%	11.0%
	Total	Count	4	20	46	30	100
		%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 : Distribution of different types of placenta in scarred & unscarred uterus

TYPE OF PLACENTA PREVIA		Scarred or unscarred		Total
		Scarred	Unscarred	
1	Count	0	4	4
	%	0.0%	7.5%	4.0%
2	Count	10	10	20
	%	21.3%	18.9%	20.0%
3	Count	23	23	46
	%	48.9%	43.4%	46.0%
4	Count	14	16	30
	%	29.8%	30.2%	30.0%
Total	Count	47	53	100
	%	100.0%	100.0%	100.0%

Table 5: Distribution of normal and abnormal placentation in scarred or unscarred uterus

PLACENTATION		Scarred or unscarred		Total
		Scarred	Unscarred	
NORMAL PLACENTATION	Count	42	51	93
	%	89.4%	96.2%	93.0%
PLACENTA ACCRETA	Count	4	1	5
	%	8.5%	1.9%	5.0%
PLACENTA PERCRETA	Count	1	1	2
	%	2.1%	1.9%	2.0%
Total	Count	47	53	100
	%	100.0%	100.0%	100.0%

DISCUSSION:

In the present study, the incidence of placenta previa was highest in the age group of 26-30 years, i.e., 56% & in the mean maternal age was 26.11 years. In a recent study by Sarika Gothwal et al⁷ regarding the maternal age, the maximum number of patients i.e., 42(42%) women were between the age group of 21-25 years, followed by in the descending order by <20 years(25 %), 26-30 years (23%) and >30 years (10 %) respectively. 36.8% of women belonged to the age group of 25-29 years, 20-24 years (30.2%), > 30 years (23.6%) and <20 years(9.4 %) respectively which was similar to our study. In the present study, the incidence of placenta previa was highest 70% in multigravidas (with two to three viable births) followed by Grand multi (> 4 viable

births) and Primi. 1 also had similar inference of the highest incidence in the multiparous group (75%) followed by primi (25%) In the present study, Type 3 placenta previa (46%) was the most common type, followed by Type 4 (30 %), Type 2(20 %), Type 1(4%) respectively.⁸ Out of these 100 cases 4 cases (4%) were managed conservatively by Macafee regimen & was delivered by elective LSCS at term.1 out of 100(1%) cases had vaginal delivery The rest 95 (95%) cases were managed actively by Emergency LSCS . In the study by Yadava PA et al⁹ (2019) Type 3 (34.09%) was the most common type followed by Type 2 (27.27%), Type 1 (23%) & Type 4 (14.77%) respectively where 81 cases (92.04%) were delivered by LSCS & 7 cases (7.95%) by vaginal delivery which was similar to our study. The most common type of placenta previa was Type 1 (43%) followed by Type 2 (27%) , Type 4 (18%) & Type 3 (12%) respectively where 58 cases(58%) was delivered by LSCS & 42 cases (42%) had vaginal delivery. In the present study, out of total 100 patients,36 patients (39 %) were at the gestational age of 28-34 weeks with most common type of placenta previa being Type 4 followed by 35-37 weeks (34%) , 38- 0 weeks(26%) , > 40 weeks (1%) at the time of delivery. In the study by Yadava et al⁶,43 cases (48.86%) between 34-37 weeks followed by 23 cases (26.13%) between 28-34 weeks& 22 cases (25%) >37 weeks respectively. Whereas in the study by Manohar et al⁸,out of 62 cases, 33 (53.2%) cases were present between 38-42 weeks of gestation, 19 (30.6%) cases were between 28-34 weeks followed by 10 (16.1%) cases between 34 to 37 weeks. In our study, Cephalic presentation was more common (78 %) followed by Breech (13 %) , Transverse (8%) & Cord presentation (1 %). In the study by Yadav et al⁹ 8 patients (9.09%) had malpresentations in which 3 patients (3.4%)had transverse lie and 5 patients (5.6%) had breech presentation)& Manohar rangaswamy et al⁸ study showed that the most common presentation was cephalic accounting for 37 cases (59.6%), followed by 15 (24.1%) cases and 6 (9.6%) cases of transverse lie, 4 cases of unstable lie. In our study,93 cases (93%) presented with the chief complaints of bleeding per vagina (93%) and the remaining 7 cases (7%) with pain abdomen. In the Sarojini et al³ study, about 34(32%) patients were admitted with history of bleeding per vagina, further 26 (24.5%) developed bleeding after admission. In 12(11.3%) cases placenta previa was diagnosed during clinical examination or caesarean delivery In the present study, 37 patients (37%) developed Atonic PPH, of which 11 cases (29.72%) were able to be controlled by medical management, 7 cases (18.91 %) by bilateral uterine artery ligation, 7 cases (18.91 %) by bilateral uterine artery ligation & compression suture like Hayman sutures & 6% of cases (16.21%) were controlled by Bilateral uterine artery & Internal iliac artery ligation. 6 cases (16.21%%) of PPH was uncontrolled with all above methods & ended up in peripartum hysterectomy. 7 cases (7%) had Abruptio placenta which was managed conservatively followed by 6 cases (6%) of Rupture uterus of which all were repaired & preserved.5 cases (5%) of Placenta accreta, where all cases were treated with postoperative methotrexate injection & periodic follow up & 2 cases (2%) placenta percreta were complicating 2 cases which ended with in hysterectomy. In Sarojini et al¹⁰ study, there were 13 cases of postpartum haemorrhage of which 10 were managed by conservative surgical measures like cervico isthmic apposition stitch (4.7%), B-lynch stitch (2.8%) and uterine artery ligation (1.9%). 3 cases underwent emergency peripartum hysterectomy .There were 5 cases of adherent placenta, all 5 underwent peripartum hysterectomy following caesarean delivery. About 88 (83%) cases received blood and blood product transfusions. Among them 24 (22.6%) had received one unit transfusion whereas 64 (60.4%) required transfusion of more than one unit. There were 92 (86.8%) ICU admissions, 4 (3.8%) cases of

acute kidney injury, 1 (0.9%) case of septicemia and 1 (0.9%) maternal death in the present series. In Sarika et al¹¹ study 12 cases(14%) had PPH, 7 cases(6%) Haemorrhagic shock & 3 cases(2%) had hysterectomy. In Manohar et al⁸ study, out of 62 cases 10 (16.1%) cases had PPH, 4 (6.4%) cases were minor degree PPH and 6 (9.6%) cases were of major degree of PPH, of which 4 cases went for haemorrhagic shock. Of these 4 cases, 2 cases were controlled by medical and surgical (bilateral uterine ligation) and 2 case landed up in hysterectomy due to Intractable PPH. All cases of placenta previa received blood transfusion and 8 (12.9%) cases received more than 4 units of blood followed by 6 (9.6%) cases requiring 3 units. In Devarmani et al¹⁰ study, 58% of cases required blood transfusion and shock/hypotension was noticed in 12% of cases, PPH was noticed in 10% of cases. In one case B-lynch was utilized to control intraoperative atonic PPH and in 2 cases Cho's multiple haemostatic sutures used for the bleeding from the placental site. Post-operative febrile morbidity was seen in 16% of the cases and sepsis complicated 6% of cases with antenatal blood transfusion rate of 12%. Yadav et al⁹ A total 17.04% of cases suffered from postpartum haemorrhage, 12 7.95% cases underwent obstetric hysterectomy. In the present study, 34 babies(34%) have their birth weight between 2.6-3 kg followed by 29 babies (29%), 16 babies (16%), 9 babies (9%), 7 babies (7%), 5 babies (5%) belonging to the 2.1-2.5 kg, 1.6 – 2 kg, >3 kg, less than 1 kg & 1- 1.5kg birth weight respectively. In the present study, among the 100 cases, 84 were live born babies. Out of which 21(25%) babies were having poor apgar score(<7 at 1 & 5 minutes), who were admitted in SNCU, out of which 6 babies(7%) died in SNCU & the rest 15 babies (17.85%) were successfully treated & discharged from SNCU. 63 (75%) babies were with good apgar score (>7 at 1 & 5 minutes) & was kept mother side & discharged with mother. In the present study, 24 babies(24%) were admitted to NICU during hospital stay due to various reasons. Among them, 6 babies(6%) died in SNCU, out of which 5 babies(5%) died due to Prematurity & Respiratory Distress Syndrome and 1 (1%) died due to Hypoxic Ischemic encephalopathy¹² & Respiratory Distress Syndrome.¹³ 6 babies(6%) were admitted to SNCU for Meconium Aspiration Syndrome & was successfully treated & discharged from there. During the hospital stay 12(12%) babies developed clinical jaundice & was admitted & discharged from SNCU with the diagnosis of Neonatal Jaundice.¹⁴ The average NICU stay was 3.4 days. In Manohar et al⁸ study out of 62 cases, 27% were <2 kg, 25.8% between 2.6-3 kg, 24% 2-2.5 kg 22.5% >3 kg respectively with an average weight of 2.6 kg. Devarmani et al¹¹ study, 48% of babies required resuscitation and 24% NICU admission respectively. Sarojini et al³ study, 39.7% of the patients were delivered before 37 weeks and 30.2% of newborns were admitted to the NICU. We also observed a low 1- minute Apgar score. However, the 5-minute Apgar score was improved, and only 12.3% had a score <7

CONCLUSION:

Placenta previa presenting as APH in third trimester is one of the gravest obstetric emergencies. Even with the best obstetric care due to dramatic suddenness, a pregnant woman can become exsanguinated due to severe bleeding. Neonates born to them are at a higher risk of premature birth, low APGAR score and increased admission to NICU. In the present study advancing maternal age, multiparity, prior caesarean section and prior abortions were found to have significant association with placenta previa. An increasing trend has been noticed in number of cases of previa with increasing incidence of probable risk factors mentioned above. The present study concludes that efforts should be made to reduce the rates of primigravida caesarean

section, because there is greater likelihood of placenta previa in scarred uterus in subsequent pregnancies. Caesarean section is choice of mode of delivery in type 2b,3 and 4 placenta previa, where as normal vaginal delivery can be done in type 1 and 2 placenta previa. Regular antenatal check- ups with antenatal diagnosis of placenta previa, educating patients regarding present risk factors and probability of complications, correction of anemia and prophylactic hematinics supplementation, timely referral and management at tertiary level center equipped with blood and blood products, availability of senior obstetrician, NICU facility will definitely help in reducing the maternal and perinatal complications. Obstetric ICU/HDU facility will further help in better management of such cases. The family planning services should be further improved to attain a decline in the number of women with high parity. Educating our patients and making them aware of the importance of antenatal care and its availability is very important. Incidence of placenta previa and its associated complications is more in scarred group when compared to unscarred group although statistically significant values were not obtained. So, primary prevention in the form of reduction in the rate of primigravida caesarean section must be done in order to prevent likelihood of placenta previa in scarred uterus and its associated morbidity. Early diagnosis by ultrasound and planned delivery should be the goal in both groups

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