IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 20, Issue 1 Ser.3 (January. 2021), PP 19-24
www.iosrjournals.org

Study of Incidence of Placenta Previa among Previous Cesarean Section and Previous Vaginal Deliveries and Its Effects on Fetomaternal Outcome

Katta Aravinda[1], Ramana Bai Ramavathi[2], Batchu Surekha Naidu[3]
[1]*Associate Professor, Katuri Medical College and Hospital, Guntur.*
[2]*Assistant Professor, Katuri Medical College and Hospital, Guntur.*
[3]*Post Graduate, Katuri Medical College and Hospital, Guntur.*

Abstract:
Objective: *The objective of this study is to compare the incidence of placenta previa in women who underwent cesarean section previously versus vaginal deliveries and to compare maternal and fetal outcomes in subjects with placenta previa among previous cesarean section and vaginal deliveries.*
Method*: Prospective study conducted in 50 previous Lower Segment Cesarean Section and 50 previous Normal vaginal delivery cases. Women were enrolled in the study in Mid Trimester, 12-20 weeks of Gestational Age followed until 1 week after delivery.*
Results*: Among the 50 women who underwent normal vaginal delivery one case of placenta previa was observed whereas among the 50 women who underwent previous cesarean sections four women developed placenta previa in their successive pregnancies. The maternal outcome was almost similar in both whereas the fetal complications i.e., Low Birth Weight, Low APGAR Score and the necessity for NICU admission were more in women with placenta previa who underwent cesarean section previously.*
Conclusion: *Incidence of placenta previa was higher in Post Cesarean Delivery. Among the study group,2% of cases with placenta previa in patients with Normal Vaginal Delivery and 8% of cases with placenta previa in post cesarean pregnancies was observed. Fetal and Maternal complications are high in patients with placenta previa with previous cesarean sections.*
Key Word: *Post cesarean pregnancy, placenta previa, post vaginal delivery, Fetal, Maternal.*

Date of Submission: 26-12-2020 Date of Acceptance: 07-01-2021

I. Introduction

Cesarean section rates are rising worldwide. The rates of cesarean section in 2015-16 were around 17.2% in India, which had increased from 8.5% in 2005-06.[1] Cesarean sections can decrease serious risks of maternal and perinatal mortality and morbidity.[2,3] Obstetric risk in subsequent pregnancies such as placenta previa, morbidly adherent placenta and uterine rupture are seen. The risk of adverse outcomes following the cesarean section increases with an increased number of cesareans. A single cesarean section increases risk by 0.65% up to 10% by 4 or more cesarean sections.[4] Women with prior cesarean section should have placental localization done in current pregnancy to exclude placenta previa.[5] If diagnosed, they must be further investigated to exclude placenta previa, a potential life-threatening condition. The incidence of placenta previa was also reported to be higher among woman with previous cesarean section.[6,7]

II. Materials And Methods

Study of incidence of placenta previa among previous cesarean section and previous vaginal deliveries and its effects on feto-maternal outcome is a prospective study which had been carried out from NOV-2017 to OCT-2019 in the department of obstetrics and gynecology, Katuri Medical College and Hospital (KMCH), Guntur. The data from the present study were collected from the antenatal patients with prior history of vaginal and cesarean delivery in mid-trimester (12-20 weeks of gestation) attending KMCH, Guntur. It was conducted after the approval of the Ethical Committee of the hospital.

Inclusion criteria:
Antenatal women between 12-20 weeks of gestation with history of one or more prior vaginal or cesarean deliveries.

Exclusion criteria:
1. First trimester pregnancy.
2. Pregnancy with other maternal complications like heart diseases complicating pregnancy, Eclampsia, HELLP etc.

Procedure and methodology:
An informed consent was taken from the study group. Detailed history, examination and investigations were recorded.
1) Descriptive statistics of the placental location and the abnormal placentation proportions in previous vaginal and cesarean delivery patients were analyzed.
2) A chi-square test was used to find the association between abnormal placentation and the pregnancy outcome in previous vaginal and cesarean delivery patients. Data was entered into excel and the analysis was carried out using SPSS software. A p-value of less than 0.05 was accepted as indicating statistical significance.

III. Results

In our study placenta previa was seen in one case out of 50 cases of previous normal vaginal deliveries (PVD) and out of 50 cases of cesarean sections, 4 had Placenta previa at term. In our study placental migration, 33.33% was seen in previous cesarean section (PCS) group, whereas it was 50% in previous NVD group as seen in Table (1).

TABLE 1: Relation between previous pregnancy events and placental migration

PREVIOUS PREGNANCIES	NUMBER OF MIDTERM	NUMBER OF PLACENTAL MIGRATIONS	% OF MIGRATION
1) PVD	2	1	50%
2) PCS	6	2	33.33%
TOTAL	8	3	37.5%

There was 7.14% increase incidence of placenta previa in previous one cesarean section and 12.5% in previous two cesarean section as shown in table (2).

TABLE 2: Relation of Placenta previa with a number of previous cesarean sections

Number of previous Cesarean section	No of Cases	No of Placenta previa in post cesarean pregnancy	Percentage
1	42	3	7.14%
2	8	1	12.5%
TOTAL	50	4	8%

Antenatal complications like antepartum hemorrhages were seen in 20% cases of placenta previa and nil in Normal placenta. Other complications are depicted in the comparison table (3).

TABLE 3: Comparison of antenatal complications in placenta previa and normal placentation

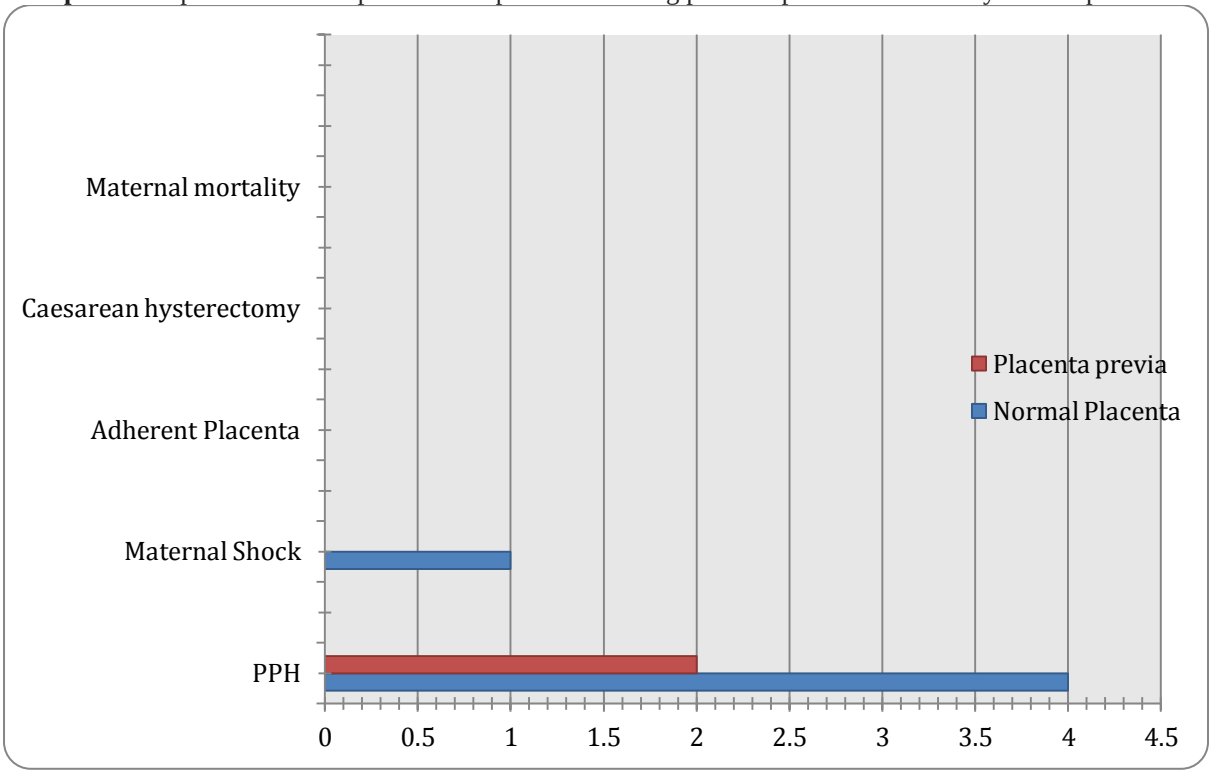
ANTENATAL COMPLICATIONS	PLACENTA PREVIA (n=5)	NORMAL PLACENTA (n=95)
1) Ante-Partum Hemorrhage	1 (20%)	0 (0%)
2) Malpresentations	1 (20%)	1 (1.05%)
3) Preterm Labour	2 (40%)	0 (0%)
4) IUD	0 (0%)	1 (1.05%)
5) BT	5 (100%)	5 (5.26%)

Intra operative complications like PPH were seen 80% cases of placenta previa and 2.1% cases of normal placentation. The maternal shock was seen in 20% of cases of placenta previa and none with normal placentation. Adherent placenta, cesarean hysterectomy and maternal mortality weren't seen in both groups as shown in table (4) and graph (1).

Table no 4: Comparison of Intraoperative complications among placenta previa and normally located placenta.

Complications	Placenta previa (n=5)	Normal Placenta (n=95)
PPH	4 (80%)	2 (2.1%)
Maternal Shock	1 (20%)	0 (0%)
Adherent Placenta	0 (0%)	0(0%)
Cesarean hysterectomy	0 (0%)	0 (0%)
Maternal Mortality	0 (0%)	0 (0%)

Graph 1: Comparison of Intraoperative complications among placenta previa and normally located placenta.

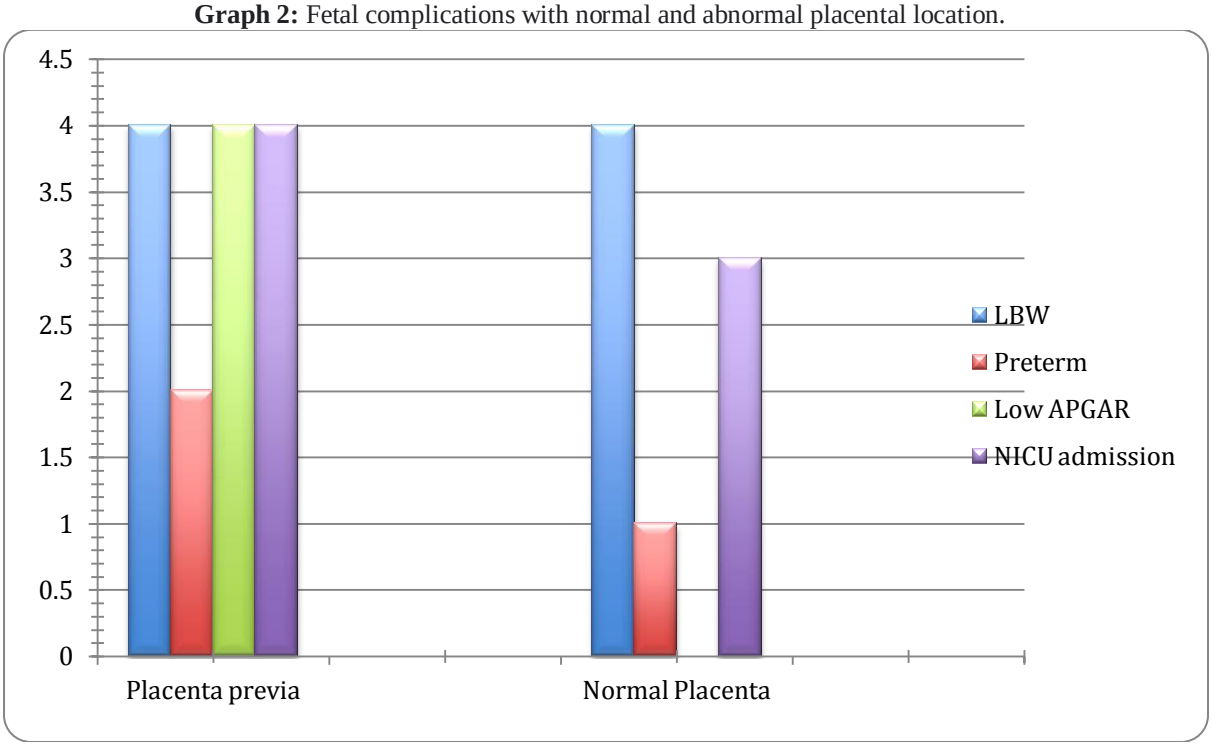


Fetal complications like LBW seen in 80% cases of placenta previa and 4 cases of Normal placenta other complications like preterm, low APGAR and NICU admission are as in table (5) and graph (2).

TABLE 5: Fetal complications with Normal and Abnormal placental location

PLACENTA	LBH	PRETERM	LOW APGAR	NICU ADMISSION
Placenta Previa (n=5)	4 (80%)	2 (40%)	4 (80%)	4 (80%)
Normal placentation (n=95)	4 (4.4%)	1 (1.05%)	0 (0%)	3 (3.15%)

Graph 2: Fetal complications with normal and abnormal placental location.



Fetal complications in placenta previa in comparison with Normal placentation in previous NVD and previous cesarean section as in table (6).

TABLE 6: Fetal complications with normal placentation and in previous normal vaginal delivery (P NVD) and previous Cesarean Section

DELIVERY TYPE	PLACENTAL LOCALIZATION	FETAL COMPLICATIONS			
		LBH	PRE-TERM	LOW APGAR	NICU ADMISSION
P NVD (n=50)	Placenta previa (n=1)	0 (0%)	0 (0%)	1 (100%)	1 (100%)
	Normal placenta (n=49)	1 (2%)	1 (2%)	0 (0%)	1 (2%)
P CS (n=50)	Placenta previa (n=4)	4 (100%)	2 (50%)	3 (75%)	3 (75%)
	Normal placenta (n=46)	2 (4.3%)	0 (0%)	0 (0%)	3 (6.5%)

IV. Discussion

Incidence of placenta previa in previous vaginal delivery and previous cesarean deliveries at term are analyzed. Maternal and fetal outcomes in placenta previa among both groups are analyzed. Placenta previa increases the risk of maternal and neonatal mortality,[8,9,10] fetal growth restriction, preterm delivery,[11] antenatal and intrapartum hemorrhage,[12,13,14] which necessitates blood transfusion[15] for the mother; sometimes even an emergency hysterectomy.

The main objective of diagnosing placenta previa as soon as possible is to minimize maternal and neonatal morbidity and mortality.[16,17] Numerous studies concluded this result that cesarean section increases the risk of placenta previa by 2 to 5 fold.[18,19]

As Hypothesized, the incidence of placenta previa was higher among previous cesarean patients.

Among 50 previous normal vaginal deliveries 1(2%) case had placenta previa, whereas in 50 previous cesarean deliveries 4(8%) cases had placenta previa (***p***-value 0.7823).

Most of the studies have shown that the incidence of placenta previa is more in previous cesarean than in previous vaginal delivery patients. Our study shows that there are more chances of fetal complications in the placenta previa group than normal placenta cases, which is similar to other studies.

In a similar Indian study by S.R.Singhal et al.,[20] in patients with placenta previa, the incidence of blood transfusion was 78% and 21.84% of them had postpartum hemorrhage, 83% of babies were Low birth weight, 41.8% are premature, 12.50% Low APGAR, 23% are shifted to NICU.

Results of many other studies have proven the link between increasing cesarean sections and placenta previa in subsequent pregnancies.[21, 22]

In our study, fetal complications like Low birth weight (80%) of placenta previa and 4.16% cases of normal placentation, preterm were 40% of placenta previa and 1.04% of normal placenta. Low APGAR in 80% cases of placenta previa and none in normal placenta, NICU admissions seen in 80% of placenta previa cases and 3.15% in normal placenta.

In a similar study done by Clark et al.,[23] it was found that the risk of placenta previa increased almost linearly from 0.26% in an unscarred uterus to 1% in women with previous cesarean delivery.

Chattopadhyay SK et al.,[24] concluded in their study that placenta previa rates were 0.24% and 2.54% for previous vaginal and previous cesarean delivery respectively.

V. Conclusion

In our hospital based prospective study, it is concluded that incidence of placenta previa is higher among previous cesarean deliveries, when compared to those of previous vaginal deliveries. It also suggests that maternal and fetal complications were higher in patients with placenta previa in comparison to that of normal placenta.

The study also suggests that maternal complications like antepartum hemorrhage, PPH are high in placenta previa with post cesarean delivery than they are with placenta previa with normal vaginal delivery. The study also shows that fetal complications like LBW, NICU admission, Preterm births were higher in placenta previa with previous cesarean deliveries.

References

[1]. International Institute for Population Science. (2017).NFHS-4(National Family Health survey-4)-2015-16-India fact sheet.
[2]. Molina G,et al. RelCaesareanp between caesarean delivery rate and maternal and neonatal mortality.JAWA.2015;314:2263-2270 doi:10.1001/jama.2015.1555.
[3]. Thomas S,Meadows J, McQueen KA . Access to cesarean section will reduce maternal mortality in low-income countries.A mathematical model,World Sug.2016:40:1537-1541.
[4]. Quddusi H, Shafi S. Frequency of Placenta Praevia – Placenta Accreta in Patients with Previous Cesarean Section. Annals 2011;17(4):407-9.
[5]. Lewis G,(ed) The Confidential Enquiry into Maternal and Child Health (CEMACH).Saving Mothers lives: To make motherhood safer 2003-2005.CEMACH;2007 seventh report, London.
[6]. Ananth CV,Smulian JC, Vintzileos AM.The association of placenta previa with history of cesarean delivery and abortion :A metaanalysis.Am J Obstet gynecol. 1997;177(5):1071-1078.doi:10.1016/S0002-9378(97)70017-6.
[7]. Adeela Bashir, Humaira Naz Jadoon, Aziz-un-Nisa Abbasi. Frequency of placenta praevia in women with history of previous caesarean and normal vaginal deliveries. J Ayub Med Coll Abbottabad. 2012;24(3):151-4.
[8]. Sahilu HM,Li Q,Rouse DJ,Alexander GR.Placenta previa:Neonatal death after live births in the United States.Am J Obstet Gynecol. 2003;188(5):1305-1309. Doi:10.1067/mob.2003.303.
[9]. Ananth CV, Smulian JC, Vintzileos AM.The effect of placenta previa on neonatal mortality: a population-based study in the United States,1989 through 1997. Am J Obstet Gynecol. 2003;188(50:1299-1304. Doi: 10.1067/mob.2003.76.
[10]. Iyasu S, Saftlas AK, Rowley DL, Koonin LM,Lawson Hw,Atrash HK. The Epidemiology of Placenta-Previa in the United states,1979 Through 1987. Am J Obstet Gynecol. 1993;168(5):1424-1429.
[11]. Ananth CV, Demissie K, Smulian JC, Vintzileos AM. Relationship among placenta previa, fetal growth restriction, and preterm delivery: A population based study. Obstet Gynecol. 2001;98(2):299–306. doi: 10.1016/S0029-7844(01)01413-2.
[12]. Brace V, Kernaghan D, Penney G. Learning from adverse clinical outcomes: major obstetric haemorrhage in Scotland, 2003-05. BJOG. 2007;114(11):1388–1396. doi: 10.1111/j.1471-0528.2007.01533.x.
[13]. Crane JMG, Van den Hof MC, Dodds L, Armson BA, Liston R. Maternal complications with placenta previa. Am J Perinatol. 2000;17(2):101–105. doi: 10.1055/s-2000-9269.
[14]. Bhide A, Prefumo F, Moore J, Hollis B, Thilaganathan B. Placental edge to internal os distance in the late third trimester and mode of delivery in placenta praevia. BJOG. 2003;110(9):860–864. doi: 10.1111/j.1471-0528.2003.02491.x.
[15]. Lydon-Rochelle M, Holt VL, Easterling TR, Martin DP. First-birth cesarean and placental abruption or previa at second birth. Obstet Gynecol. 2001;97(5):765–769. doi: 10.1016/S0029-7844(01)01121-8.
[16]. MacDorman M, Declercq E, Menacker F. Recent trends and patterns in cesarean and vaginal birth after cesarean (VBAC) deliveries in the United States. Clin Perinatol. 2011;38(2):179-92.
[17]. Akram H, Bukhari. AA. Multiple caesarean sections an association with increasing frequency of placenta Praevia. Biomedica. 2009;25(1):28-31.
[18]. Nankali A, Keshavarzi F, Shajari A, Daeichin S. Frequency of placenta praevia and maternal morbidity associated with previous cesarean edelivery. Open J Obstet Gynecol. 2014;4: 903-8.
[19]. Garmi, G. and Salim, R. (2012) Epidemiology, Etiology, Diagnosis, and Management of Placenta Accreta. Obstet Gynecol Intern. 2012, Article ID: 873929.
[20]. Singhal S. Nymphaea, Nanda S. Maternal and Perinatal Outcome In Antepartum Haemorrhage: A Study At A Tertiary Care Referral Institute. The Internet Journal of Gynecology
[21]. and Obstetrics.2007;9(2).
[22]. Sinha P, Oniya O, Bewley S. Coping with placenta praevia and accreta in a DGH setting and words of caution. J Obstet Gynaecol 2005; 25: 334-8.

[23]. Solheim K, Little S, Esakoff T, Cheng Y, Sparks T, Caughey A. How will increases in cesarean rates affect the incidence of placenta praevia, placenta accrete, and maternal death in feature years. Am J Obstet Gynaecol. 2008;199(6): S88.
[24]. Clark et al, (1985). Placenta previa and previous caesarean section, Am J Obstetrics and Gynecology,66,89-92.
[25]. Chattopadhyay SK et al, (1993). Placenta previa and accrete after previous caesarean section, European Journal of Obstetrics and Gynecology, 52,151-156.

Katta Aravinda, et. al. "Study of Incidence of Placenta Previa among Previous Cesarean Section and Previous Vaginal Deliveries and Its Effects on Fetomaternal Outcome." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(01), 2021, pp. 19-24.