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Original Research Article

Placenta Praevia: A Study on Maternal Outcomes

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Abstract: This study was conducted with the aim to find out the maternal outcome in placenta praevia cases. 100 women, complicated with placenta praevia with or without antepartum haemorrhage, beyond 28 weeks of gestation were randomly selected for the study. The incidence of placenta praevia was 1.62% in this study. Overall 46% of the cases were booked and 54% unbooked. Majority of cases were of 24 to 30 years. Maternal outcomes in terms of socioeconomic status, multiparity, previous obstetrics performance, antepartum hemorrhage, gestational age, mode of delivery, duration of hospital stay, amount of blood transfusion, intra operative and post-operative complications, type of placenta etc. were studied and their rationality were explained. Early diagnosis, proper antenatal care, counseling, regular follow up, patient education can reduce maternal mortality/morbidity up to a significant extent.
Keywords: maternal mortality, maternal morbidity, incidence of placenta praevia

INTRODUCTION

Placenta praevia contributes to about 35% of all Antepartum haemorrhage and is associated with severe maternal morbidity and mortality accounting for 30% of maternal deaths in Asia [1]. The perinatal mortality in placenta praevia has not shown significant fall as compared to maternal mortality. The leading indication for caesarean hysterectomy is placenta accrete [2]. In women with placenta praevia, history of abortions as well as prior CS, and a total praevia are strong antepartum risk factors of peripartum hysterectomy [3].

Placenta praevia is one of the commonest cause of increased maternal and perinatal morbidity and mortality in the developing countries. The incidence is approximately 4-5 per 1000 pregnancies [4]. It occurs in 2.8/1000 in singleton and 3.9/1000 in twin pregnancies [5]. Risk factors include high parity [6], advancing maternal age [7], multiple gestations [8], closely spaced pregnancies, IVF [9], smoking and cocaine use [10], past history of placenta praevia, previous caesarean section [11], uterine surgery [12] and women having mullerian anomalies. The risk of placenta praevia is reported to be high in post–caesarean pregnancy than after vaginal delivery and incidence increases with the number of caesarean deliveries. A meta-analysis showed that the rate of placenta praevia increases with increasing numbers of caesarean deliveries, with rate of 1% after 1 caesarean delivery, 2.8 % after 3 caesarean deliveries, and as high as 3.7 % after 5 caesarean deliveries [11]. Placenta praevia contributes to about 35% of all Antepartum haemorrhage and is associated with severe maternal morbidity and mortality accounting for 30% of maternal deaths in Asia [1].

AIMS AND OBJECTIVES

- To find out the incidence of placenta praevia in our institution.
- To find out the maternal morbidity and mortality in cases of placenta praevia.

MATERIALS AND METHODS

This was a prospective, cross sectional, hospital based study carried out on 100 pregnant women complicated with placenta praevia admitted in the department of Obstetrics and Gynaecology of Gauhati medical college and hospital, Guwahati for a period of one year from 1st June, 2015 to 31st May 2016.

INCLUSION CRITERIA

Antenatal patients attending Obstetrics and Gynaecology department of Gauhati Medical College and Hospital for delivery during the study period constituted the study population. Women with history of antepartum haemorrhage (APH) due to placenta

praevia after 28 weeks or without any history of APH with ultrasound diagnosis of placenta praevia after 28weeks were included in this study.

EXCLUSION CRITERIA

Women with bleeding per vaginum before 28 weeks of pregnancy and women with bleeding per vagina after 28 weeks from causes other than placenta praevia (eg. Abrutio placentae, vasa praevia, systemic disorders like Von Willebrands disease, local causes like cervical polyp, cervical erosion, cervical cancer, and varicosities) were excluded from study.

METHODOLOGY

All the patients were examined as per our protocol and managed accordingly. The study protocol was approved by the Ethical Committee of Gauhati Medical College and Hospital. Written and informed consent was taken from the patient or their family member. In all cases immediate hospitalization was done, patient's general condition was assessed and resuscitative measures started by good sedation, intravenous fluid including blood transfusion where necessary.

- Patients were put to absolute bed rest and closely observed for any further bleeding by putting sterile vulval pads.
- Strict instruction was given regarding avoidance of vaginal examination.
- Ultrasound examination along with routine investigation to be done in all cases.
- More conservative attitude was adopted within the available gazettes to prolong the pregnancy beyond 37 weeks if the bleeding was mild by bed rest, iron, calcium and antibiotics, blood transfusion, tocolytics where necessary.

Active Management was instituted if the bleeding was excessive or continuous or if the pregnancy reached beyond 37 completed weeks or in case of fetal distress or IUFD.

RESULTS AND OBSERVATIONS

The maternal outcome of 100 cases of placenta praevia was observed and analyzed. The study covered a tenure of one year from 1stJune 2015 to 31st May 2016.

During the period under study the total number of deliveries in the Gauhati Medical College and Hospital was 16844. It was noted that the incidence of antepartum haemorrhage was 3.26% (550) and incidence of placenta praevia was 1.62% (273) which constituted 49.63% of all antepartum haemorrhage.

Table-1: Showing demographic profile of women

Parameter		Number	Percentage	Chi-square test
Booking Status	**Booked**	46	46%	χ^2= 0.64 P >0.05
	Unbooked	54	54%	
Age (In years)	**20**	3	3%	χ^2 = 62.58 P <0.001
	21-30	67	67%	
	31-40	30	30%	
Parity	**Primigravida**	15	15%	χ^2= 49.0 P <0.001
	Multigravida	85	85%	
Residence (Social Status)	**Rural**	72	72%	χ^2= 19.36 P <0.001
	Urban	28	28%	

46% cases were booked & 54% were unbooked. There is no statistically significant difference observed between the booking status of cases. Maximum number of cases (67%) belongs to age group of 21-30 year and least number of cases (3%) in the age group of less than equal to 20 years of age. This difference in case of age is statistically highly significant.85% cases were multigravida and 15% were primigravida so difference in case of parity is statistically highly significant.72% patients live in rural area rest 28% live in urban area and difference in case of residence is statistically highly significant.

The socio-economic profiling was done to understand if such a demographic difference is significant in its effect on the placenta praevia cases. Out of 100 cases, 50% cases belonged to lower socio-economic class, 38% to middle class and 12% were from higher class and this difference in case of socio-economic status is statistically highly significant.

Table-2: Showing Obstetric Evaluation

Parameter		Number	Percentage	Chi-square test
Gestation age at the time of presentation	**26 to 34 weeks**	26	26%	χ^2= 52.64 P <0.001
	35 weeks to 40weeks	66	64%	
	40+ weeks	8	7%	
APH	**Bleeding absent**	12	17%	χ^2= 43.56 P <0.001
	Bleeding Present	88	83%	
Presentation of foetus	**Cephalic**	88	85.44%	χ^2= 203.68 P <0.001
	Breech	12	11.65%	
	Oblique	0	0.00%	
	Transverse	3	2.91%	
Previous Obstetric performance	**Nulliparous**	24	24.00%	χ^2= 43.36 P <0.001
	Vaginal (SVD)	46	46.00%	
	VBAC	1	1.00%	
	LSCS	29	29.00%	
	Abortion	40	40.00%	

- Out of 100 cases, 26% cases presented between 26 weeks to 34 weeks gestation, 64% cases presented between 35 weeks to 40 weeks and 7% cases presented after 40 weeks of gestation. The difference between gestation age at time of presentation is statistically highly significant.
- Maximum number of cases (88%) came with history of antepartum hemorrhage at the time of presentation. In 12% of the cases there was no history of antepartum hemorrhage at the time of presentation and this difference in APH is statistically highly significant.
- In 85.44% of cases fetus were in Cephalic presentation. Malpresentations were present in 15 cases. The difference between presentations of foetus is statistically highly significant.
- There are 24 cases with no previous vaginal delivery (includes primigravida cases and cases with 1 or more abortions before period of viability with no pregnancy crossing period of viability), 46 cases had previous vaginal delivery while 29 cases had previous LSCS. In 42% cases there is history of previous abortions. The difference between previous obstetric performances is statistically highly significant.

Table-3: Showing distribution of cases under different types of placenta praevia

Type	Ultrasound Evaluation				Chi-square test	Intraoperative Evaluation				Chi-square test
	No.		Percentage			No.		Percentage		
Type I	21		21%		χ^2 = 1.84 p > 0.05	16		16%		χ^2= 5.84 p > 0.05
Type II A	12	30	12%	30%		15	33	15%	33%	
Type II B	18		18%			18		18%		
Type III	23		23%			25		25%		
Type IV	26		26%			26		26%		

- Out of 100 cases, majority of cases in the study were of type II 33% followed by 26% cases of type IV placenta praevia, 25% of type III placenta praevia and 16% of type I placenta praevia on the basis of intraoperative evaluation.
- In case of type of placenta praevia on ultrasound evaluation statistically no significant difference between the cases was found. Similarly, in intraoperative evaluation it was not significant.
- With respect to general condition of patient post-delivery in immediate puerperium 93% cases had good status, and 7% cases had poor general condition. The difference between general condition post-delivery/post-operative is statistically highly significant.
- 34% patient had haemoglobin value below 9 g/dl at the time of admission, 37% cases had Hb levels between 9 – 11g/dl and in 29% cases Hb level was more than 11g/dl.
- Post-delivery (day 3 post op/ post SVD) Hb level was less than 9 g/dl in 39% cases and in majority cases 61% it was more than 9 g/dl. The difference in haemoglobin at the time of presentation, after delivery is statistically highly significant.
- Duration of stay in 8% cases was more than 2 weeks, 43% had to stay between 1-2 weeks and in 49% cases it was less than a week. The difference

in duration of hospital stay of mother is statistically highly significant.

Table-4: Showing General Factors / General Considerations

Parameters		No.	Percentage	Chi-square test
Mode of Delivery	**SVD**	6	6%	χ^2= 162.21 p < 0.001
	VBAC	1	1%	
	LSCS	93	93%	
General condition post-delivery/post-operative	**Poor**	7	7%	χ^2= 70.94 p < 0.001
	Good	93	93%	
Hb (g/dl) at the time of presentation	**< 6**	3	3%	χ^2= 27.2 p < 0.001
	6 – 9	31	31%	
	>9 - 11	37	37%	
	> 11	29	29%	
Hb (g/dl) post-delivery/post-operative	**< 6**	3	3%	χ^2= 87.12 p < 0.001
	6 – 9	36	36%	
	>9 - 11	58	58%	
	> 11	3	3%	
Duration of hospital stay of mother	**Less than a week**	49	49%	χ^2= 29.73 p < 0.001
	1 - 2 weeks	43	43%	
	> 2 weeks	8	8%	

Table-5: Showing Intraoperative complications and amount of blood transfusion

Intraoperative Complications	No.	Percentage	Chi-square test
Caesarean Hysterectomy	8	8%	χ^2=1.35 p > 0.05
Bladder Injury	4	4%	
Internal Iliac artery ligation	6	6%	
Amount of blood transfusion (in units)			
NIL	14	14%	χ^2=66.16 p < 0.001
1-2 units	59	59%	
3-4 units	21	21%	
> 4 units	6	6%	

In 8% cases caesarean hysterectomy was done mainly due to atonic PPH, while in two cases it was done due to placenta accrete. In 4 cases bladder injury was encountered due to abnormal placentation (accrete and increta).6 cases required internal artery ligation for controlling PPH. The difference in cases of intraoperative complications is of not much statistical significance.

Majority of cases (86 %) required blood transfusion and out these, 6% cases required more than 4 units of blood. In 59% cases, 1-2 units of blood transfusion were required and 21% cases needed 3-4 units of blood transfusion. On the other hand, 14% cases did not require blood transfusion possibly because of minor degree of placenta praevia and good Hb levels pre- delivery. The difference in the units of blood transfusion is of statistically high significance.

Table-6: Showing Post operative complications

Post-operative Complications	No.	Percentage	Chi-square test
Caesarean Wound Infection	18	18%	χ^2=2.44 p > 0.05
UTI	14	14%	
Sepsis	11	11%	
Post-partum haemorrhage (PPH)	11	11%	
Wound Gaping	9	9%	
Post-op Hb (<8 g/dl)	5	5%	

In 18% cases there were caesarean wound infection out which 9% developed wound gaping. UTI was diagnosed in 14% cases, Sepsis in 11% cases, PPH in 11% cases. Post-op haemoglobin was found to be less than 8 g/dl in 5% cases. The difference in cases of post-operative complications is of not much statistical significance.

Maternal death occurred in two cases. Out of these one case died due to severe jaundice and DIC and other case expired due to haemorrhagic shock.

Severe blood loss was found in 5% cases, in 34% cases there was moderate amount of blood loss while in 61% cases blood loss was mild. The difference in amount of blood loss antenately and intraoperatively is of high statistical significance.

ASSOCIATED MATERNAL CO-MORBIDITIES

The main co-morbidity associated was found to be anaemia which accounted for 29% of cases. PIH was found in 9% cases, hypothyroidism in 6% cases, HbE disease in 4% cases, GDM in 3% cases, deranged LFT in 2%, jaundice and chicken pox was found in 1% cases each.

DISCUSSION

In this study we can see, like in previous studies, that placenta praevia is associated with multiparity. 85% of the placenta praevia cases were multiparous. In a study in 2012, Neebha *et al*. [13] reported the incidence of multiparity as 61.4% in placenta praevia.

In the present study we found that 72% cases were from rural areas and 28% cases of placenta praevia were from urban areas. In a study (2014) by Yifru Berhan [14] it was found that 66% of placenta praevia cases were found in rural areas and 34% in urban areas. Thus the findings in the present study are comparable to those in recent past.

Present study shows a significant association between placenta praevia and prior caesarean section. The incidence of placenta praevia climbs with the number of prior caesarean section [15] and there is a suggestion that the incidence of placenta praevia is rising because of the increasing caesarean section rate [16].

In 88% cases there was history of antepartum haemorrhage in our study. In a study, Rouse *et al*. [17] and Jang *et al*. [18] described haemorrhage to be one of the biggest risks due to placenta praevia.

The study shows that majority of placenta praevia cases belonged to lower socio-economic class (50%). 38% cases were of middle class socio-economic status and 12% cases were from upper class background. This finding bears high statistical significance.

It was found in the present study that in majority (64%) of placenta praevia cases the gestational age at time of presentation was 35 weeks to 40 weeks. This is comparable to the findings in the study by Salah Roshdy *et al*. [19].

In our study it was found that 49% of women with placenta praevia were discharged within first week of delivery and 43% were discharged after 1 to 2 weeks of delivery. The observation was found to be statistically highly significant. In his study (2014), Roshdy *et al*. [19] mentioned the mean days of stay to be 5.9 days. Yifru Berhan [14] reports (2014) that in 83.4% cases of placenta praevia the mothers were discharged after a week.

In the present study it was found that a majority (59%) of placenta praevia patients required 1-2 units of blood transfusion. 21% of placenta praevia cases required 3-4 units of blood transfusion. 14% patients did not require any blood transfusion. The relatively larger percentage of patients requiring blood transfusion in the present study can be attributed to the relatively lower haemoglobin values at the time of admission and greater number of major degree placenta praevia cases. This observation was statistically highly significant.

In present study, among the post-operative complications caesarean wound infection was most common (18%) followed by UTI (14%) and 11% of patients suffered from sepsis and PPH each. Wound gaping was observed in 9% cases. However, the observations in the present study were not found to be statistically significant. Lavanyakumari [20] found in her study (2014) the maternal complications in placenta praevia to be blood transfusion in 80% and PPH in 27.87% cases. Salah Roshdy *et al*. [19] found in their study (2014) the maternal complications in placenta praevia cases as: 15.1% required obstetric hysterectomy, 13.2% sustained bladder injury and 3.8% bowel injury. In the present study 8% of placenta praevia cases required caesarean hysterectomy, 6% required internal iliac artery ligation and 4% sustained bladder injury.

In the study done by Lavanyakumari [20] among the placenta praevia cases, she found 81.96% cases presenting with cephalic, 13.11% breech, 3.27% oblique and 1.63% transverse lie. In present study it was found that 85.44% cases with cephalic presentation, 12% with breech presentation, 3% with transverse presentation & no oblique presentation found and the difference between presentations of fetus is statistically

highly significant. The findings of our study are comparable with the study done by Lavanyakumari [20].

SUMMARY

- During the study the total number of delivery was 16844. The incidence of placenta praevia was 1.62%.
- A big fraction of the patients (54%) of these 100 cases were admitted as emergency without antenatal check-up. The perinatal mortality was 8.7% in the booked cases and 22.22% in the unbooked cases. However, the perinatal morbidity was higher (58.7%) in booked cases than in emergency cases (40.74%).
- Expectant treatment had been employed in 35 cases of placenta praevia and 65 cases had immediate delivery (active management). Prematurity was lower (11.43%) in expectantly managed group than the actively managed group (60%).
- Similarly, perinatal mortality was higher (21.54%) in the actively managed group than the expectantly managed cases. Expectant management had been instituted in 35% of cases with a perinatal mortality of 5.71%. The perinatal mortality was 21.54% in the non-expectant group. The perinatal morbidity in expectantly managed group was 14.29% and 36.92% in actively managed group.
- Out of total 100 cases of placenta praevia, caesarean section was performed in 93% cases, whereas 7 cases had vaginal deliveries. Perinatal mortality was lower (24.73%) in caesarean deliveries than the vaginal deliveries (42.86%). Likewise, perinatal morbidity was 42.86% in vaginal deliveries and 27.96% in caesarean deliveries.

CONCLUSION

- Maternal Mortality and Morbidity in Placenta Praevia is still high in developing countries including our institution in comparison with the developed countries
- Adequate antenatal care services, early diagnosis and referral to a higher centre where 24 hours blood transfusion facilities and competent team of obstetricians, anaesthetists and neonatologists are available round the clock to deal with any emergency to reduce the maternal and perinatal mortality and morbidity.
- Maternal outcome will definitely improve if we can improve literacy, provide favourable socio-economic conditions and improve transportation facilities particularly in rural areas of the developing countries.

REFERENCES

1. Kainer F, Hasbargen U. Emergencies associated with pregnancy and delivery: peripartum hemorrhage. Dtsch Arztebl Int. 2008 Sep 12;105(37):629-38.
2. Kastner ES, Figueroa R, Garry D, Maulik D. Emergency peripartum hysterectomy: experience at a community teaching hospital. Obstetrics & Gynecology. 2002 Jun 1;99(6):971-5.
3. Choi SJ, Song SE, Jung KL, Oh SY, Kim JH, Roh CR. Antepartum risk factors associated with peripartum cesarean hysterectomy in women with placenta previa. American journal of perinatology. 2008 Jan;25(01):037-41.
4. Bhide A, Thilaganathan B. Recent advances in the management of placenta previa. Current Opinion in Obstetrics and Gynecology. 2004 Dec 1;16(6):447-51.
5. Marshall NE, Fu R, Guise JM. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. American journal of obstetrics and gynecology. 2011 Sep 30;205(3):262-e1.
6. Nørgaard LN, Pinborg A, Lidegaard Ø, Bergholt T. A Danish national cohort study on neonatal outcome in singleton pregnancies with placenta previa. Acta obstetricia et gynecologica Scandinavica. 2012 May 1;91(5):546-51.
7. Yang Q, Wen SW, Phillips K, Oppenheimer L, Black D, Walker MC. Comparison of maternal risk factors between placental abruption and placenta previa. American journal of perinatology. 2009 Apr;26(04):279-86.
8. Rosenberg T, Pariente G, Sergienko R, Wiznitzer A, Sheiner E. Critical analysis of risk factors and outcome of placenta previa. Archives of gynecology and obstetrics. 2011 Jul 1;284(1):47-51.
9. Romundstad LB, Romundstad PR, Sunde A, von Düring V, Skjærven R, Vatten LJ. Increased risk of placenta previa in pregnancies following IVF/ICSI; a comparison of ART and non-ART pregnancies in the same mother. Human Reproduction. 2006 Sep 1;21(9):2353-8.
10. Macones GA, Sehdev HM, Parry S, Morgan MA, Berlin JA. The association between maternal cocaine use and placenta previa. American journal of obstetrics and gynecology. 1997 Nov 30;177(5):1097-100.
11. Marshall NE, Fu R, Guise JM. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. American journal of obstetrics and gynecology. 2011 Sep 30;205(3):262-e1.

12. Ananth CV, Smulian JC, Vintzileos AM. The association of placenta previa with history of cesarean delivery and abortion: a metaanalysis. American journal of obstetrics and gynecology. 1997 Nov 30;177(5):1071-8.
13. Ojha N. Obstetric factors and pregnancy outcome in placenta previa. Journal of Institute of Medicine. 2013 Oct 30;34(2):38-41.
14. Berhan Y. Predictors of perinatal mortality associated with placenta previa and placental abruption: an experience from a low income country. Journal of pregnancy. 2014 Jun 4;2014.
15. Gilliam M, Rosenberg D, Davis F. The likelihood of placenta previa with greater number of cesarean deliveries and higher parity. Obstetrics & Gynecology. 2002 Jun 1;99(6):976-80.
16. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa–placenta accreta. American journal of obstetrics and gynecology. 1997 Jul 31;177(1):210-4.
17. Rouse DJ, MacPherson C, Landon M, Varner MW, Leveno KJ, Moawad AH, Spong CY, Caritis SN, Meis PJ, Wapner RJ, Sorokin Y. Blood transfusion and cesarean delivery. Obstetrics & Gynecology. 2006 Oct 1;108(4):891-7.
18. Jang DG, We JS, Shin JU, Choi YJ, Ko HS, Park IY, Shin JC. Maternal outcomes according to placental position in placental previa. Int J Med Sci. 2011 Sep 10;8(5):439-4.
19. Ahmed SR, Aitallah A, Abdelghafar HM, Alsammani MA. Major Placenta Previa: Rate, Maternal and Neonatal Outcomes Experience at a Tertiary Maternity Hospital, Sohag, Egypt: A Prospective Study. Journal of clinical and diagnostic research: JCDR. 2015 Nov;9(11):QC17.
20. Lavanyakumari Sarella, Arunajyothi; A Study Onmaternal and Perinatal Outcome in Placenta Previa Scholars Journal of Applied Medical Sciences, 2014; 2(5A):1555-1558.