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A study on modalities and management of ante partum hemorrhage

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Abstract
The incidence of placenta praevia increases in a linear way with increasing number of previous caesarean section. A retrospective study showed an incidence of 0.26%88 in an unscarred uterus, 0.65% after one Caesarean section rising up to 16% in women with 4 or more abdominal deliveries. The risk of placenta praevia is highest in the pregnancy immediately following Caesarean section and with multiparas with previous LSCS. Each case on inclusion into this study was given a code number. At delivery the newborn was also given the same code no to facilitate the follow up of newborn through the perinatal period. The detailed history of each case was taken followed by through clinical examination clinical data of each case was recorded on a performed Proforma in serial manner. 78.09% of women with placental abruption were delivered after artificial rupture of membranes and augmentation with syntocinon, 22.91% were delivered after tab misoprost.

Keywords: antepartum haemorrhage, management, mode of delivery

Introduction
The fertilized ovum drops down and is implanted into the lower uterine segment. Poor decidualization in the upper segment may be the cause of failure of the zona pellucida to disappear in time. Defective decidua result in spreading of the chorionic villi over a wide area on the uterine surface to get nourishment. This explains the placenta becoming membranaceous and encroaching the lower segment. Teh larger placental area in multiple pregnancies could predispose to lower implantation [1].

The risk of placenta praevia increases markedly with advancing age such that the risk is two or three times in women over 35 years when compared with women less than 20 years of age. According to some studies, maternal age is more significant risk factor for placenta praevia than is increasing parity.

Placenta praevia occurs in 0.2% of nulliparous women and up to 5% of grand multiparas. In nulliparous women, lower segment formation occurs mostly in weeks leading up to labour. In multiparous women this development is less pronounced and may occur as part of the labour process. This may explain the large observed difference in the incidence of placenta praevia between nulliparas and multiparas [2].

The effect of ethnic origin on the incidence of placenta praevia was considered in a study and a higher incidence (OR 1.39-2.15, CI-95%) was found in Asian women when compared with the white women. Vietnames (4.4/1000) had the lowest incidences while the Filipino women had highest incidence (7.6/1000).The incidence in Indian women was 4.5/1000.

Twin gestation is associated with a large placental size and it has long been hypothesized that this would increase the incidence of placenta praevia. This was confirmed in a study, which showed an incidence of placenta praevia of 0.55% for twins as compared to 0.31% in singleton gestations [3].

Damage to the endometrium or myometrium has been shown to be a risk factor for low implantation site. There are significant associations between placenta praevia and previous dilatation and curettage, spontaneous abortions or evacuation of retained products of conception. A six fold increase in the risk of placenta praevia following therapeutic termination of pregnancy in the first trimester has been reported. However, a number of studies have been unable to demonstrate any association with therapeutic abortions. It may be the method of suction curettage as opposed to sharp curettage which accounts for the different findings [4].

The incidence of placenta praevia increases in a linear way with increasing number of previous caesarean section. A retrospective study showed an incidence of 0.26%88 in an unscarred

uterus, 0.65% after one Caesarean section rising up to 16% in women with 4 or more abdominal deliveries. The risk of placenta praevia is highest in the pregnancy immediately following Caesarean section and with multiparas with previous LSCS. Failure of appropriate lower 32 segment development due to scar tissue as well as an inability of low lying placenta to migrate across scar tissue could explain this correlation [5].

Cigarette smoking at any time in pregnancy increases the relative risk of developing placenta praevia. Compensatory placental enlargement due to carbon monoxide hypoxemia has been proposed as a mechanism to account for this association. A woman smoking more than 20 cigarettes had an increase risk of 2.6 to 4.4 times placenta praevia and in those who stop smoking, perinatal mortality decreased by 33%. A positive correlation between material opioids and cocaine use has been demonstrated with placenta praevia [6].

Uterine scars from surgical procedure such as myomectomy, endometritis, submucous fibroids, adenomyosis and uterine adhesions may all predispose to placenta praevia due to defective vascularization, the possible end result of inflammatory and atrophic changes.

Women with placenta praevia have a higher risk of fetal malpresentation such as breech or transverse lie than women with normal placental sites. Malpresentations are found in 30% of cases. It has been suggested that the combination of a marginal placenta praevia and a breech, increases the number of Caesarean section associated placenta praevia. However, as the mechanism of malpresentation in placenta praevia is assumed to be to the bulk of the placenta in the lower segment preventing engagement of the fetal head, it is likely that malpresentation indicates situations with a significant degree of placenta praevia in whom safe vaginal delivery would be unlikely The primary indication for caesarean section will be the degree of placenta praevia. Fetal malpresentation is not important in management decision but as a clinical indicator of possible placenta praevia.[7]

Abnormal placentation such as placenta acreta and percreta have an association with placenta praevia and in particular with the combition of previous caesarean section done for placenta praevia. In study by clark *et al* 177, 5% of women with an unscarred uterus had placenta praevia and 24% of women with 1 previous Caesarean section done for placenta praevia had acreta. The risk of placenta accrete rises with each repeat Caesarean section, such that 40% of women with two or three previous operations and 69%17 of women with four or more previous Caesarean section had placenta accrete [8].

Methodology

Study setting: This study conducted at Department of Obstetrics and Gynecology, Medical College.

Inclusion criteria

- All Pregnant women with gestation more than 28 weeks and having bleeding per vaginum
- All pregnant women > 28 weeks who were asymptomatic but ultrasound showing placenta previa or placental abruption were also included in this studyl
- Booked / unbooked / referred cases were included.

Method of study

Each case on inclusion into this study was given a code number. At delivery the newborn was also given the same code no to facilitate the follow up of newborn through the perinatal period. The detailed history of each case was taken followed by through clinical examination clinical data of each case was recorded on a performed performa in serial manner.

Investigation and Clinical Examination

Each case was subjected to routine investigation like hemoglobin, blood grouping Rh typing, Urine routine / Microscopy, bleeding time, Clotting time, Ultrasonography special investigation were done as per the merits of the case like renal function test, prothrombin time, serum fibrinogen etc. and these were also recorded on the performa.

Clinical diagnosis was confirmed by USG, Clinical progress, mode of delivery, complications, blood transfusion etc., recorded.

Results

Table 1: Gestation age at time of LSCS in case of placenta praevia

Gestation in weeks	No. of cases	Total (n=94)
28-33	35	37.23%
34-36	30	31.92%
>37	29	30.85%
Total	94	100%

It is seen from the above that 69.15% (37.23%+31.92%) of LSCS were preterm delivery and only 30.85% were term LSCS.

Table 2: Maternal hemoglobin at the time of delivery in cases of placenta praevia

Hb in gm%	<6	6 to 8	8 to 11	>11	Total (n=162)
No. of cases	14	59	73	16	162
Percentage	8.64%	36.43%	45.06%	9.87%	100%

In cases had <6gm% Hemoglobin at the time of delivery. And in 59 cases Hb was 6-8 gm%, 73 cases Hb was 8t011gm%, 16 cases had hemoglobin>11gm%.

Table 3: Blood transfusion in placenta praevia

No. of units of blood transfusion	None	1	2 units	3 units	≥ 4 units	Total
No. of cases	80	42	22	14	4	162 cases
Percentage	49.48%	25.92%	13.48%	8.66%	2.46%	100%
No. of units of transfusion		42 x1 42	22 x 2 44	14 x 3 42	20	148 units of transfusion

Out of 162 women, 82 women received blood transfusion while 80 women did not receive any blood transfusion. Total 148 units was used for these 82 women of those who received blood transfusion 4 cases received massive blood transfusion i.e., 2.46% and 25.92% received one unit.

Out of 162 of cases of placenta praevia delivered 4.9% had febrile morbidity.4.3% had urinary tract infection, 8.02% women had PPH and there was no maternal death.

Table 4: Management of PPH in placenta praevia

Management	No. of cases
Conservative methods like Bimanual massage oxytocin, prostaglandins	7
Blynch suture	1
B/L uterine artery ligation	3
Obstetric hysterectomy	2
Total	13

Majority of women with PPH were managed with conservative methods.1 patient undergone B Iynch, 12 women undergone obstetric hysterectomy, 3 women undergone B/L uterine artery ligation.

Perinatal outcome in cases of placenta praevia

Total No. of newborn 164(2T*)
Total No. of still born 2
No. of neonate died with 7 days 16

*T-twin

There were 18 perinatal death out of 164 newborn. (2 were still born, 16 were neonatal death). Perinatal mortality rate -10.97%

Table 5: Apgar score in cases of placenta praevia

Apgar Score	0	<4	4-7	≥	Total (n=164)
No. of babies	2	6	3	153(2T)	164
Percentage	1.22%	3.66%	1.83%	93.29%	100

Out of 164 babies 2 were still born.6 babies had Apgar of <4and 93.29% of babies had Apgar≥7.

Table 6: Break up of birth weight in perinatal mortality in case of placenta praevia

Birth Weight	Still born	Neonatal death < 7 days	Total	Percentage (n=18)
1000-1499	1	9	10	55.55%
1500-1999	1	8	8	44.45%
2000-2499	-	-	-	-
>2000	-	18	18	100%

Among perinatal death 55.5% were in the weight group 1000-1499 gms.44.05% were in weight group of 1500-1999gms.

Table 7: Associated obstetric disorders with placental abruption.

Associated obstetric disorders	No. of cases	Percentage(n=133)
Hypertensive disorder	62	46.62%
Hydramnios	3	2.25%
Multiple pregnancy	6	4.51%
Uterine	2	1.50%
PROM	10	7.52%
No risk factor	50	37.80%
Total	133	100%

Most common associated obstetric disorder was hypertensive disorder 46.62% 37.60% didn't have any risk factor, PROM were 7.52% multiple pregnancy 4.51%.

Table 8: Type of placental Abruption

Type	No. of cases	Percentage (n=133)
Mixed	106	79.69%
Concealed	19	14.28%
Revealed	8	6.03%
Total	133	100%

In the present study, maximum type of abruption was mixed type 79.69%.Concealed type contributed only 6.03% of abruption.

Table 9: Grade of placental abruption (Geofry Sher Classification)

Grades	No. of patients	Percentage(n=133)
I	26	19.54%
II	47	35.33%
III	60	45.13%
Total	133	100%

In the present study, maximum grade of placental abruption was grade III i.e 45.13% followed by 35.33% and 19.54% of grade II and grade I placental abruption respectively.

Table 10: Number of blood transfusion in relation to grades of placental abruption. [Sher's Classification]

Grades of placental abruption	No. of cases	No. of whole blood units	No. of fresh frozen plasma units	No. of platelet concentrate
I	26	12	-	-
II	47	84	84	10
III	60	160	124	48
Total	133	256	208	58
Total units of transfusion			522	

Maximum no. of transfusion was required in grade III placental abruption i.e.160 units of WB, 124 units of FFP, 48 units of platelet concentrate. Least transfusion as required in grade I placental abruption i.e.12 units of WB.

Table 11: Mode of delivery in cases of placental abruption.

Mode of delivery	No. of cases	Percentage(n=133)
LSCS	28	21.06%
Vaginal delivery	105	78.94%
Total	133	100%

In this study maximum deliveries were vaginal i.e., 78.94% and 21.06% were LSCS.

Table 12: Breakup of cases of placental abruption in relation to vaginal delivery.

Mode of delivery	No.of cases	Percentage(n=105)
Arm + Syntocinon	82	78.09%
Prostaglandins (Tab misoprost)	23	21.91%
Total	105	100%

78.09% of women with placental abruption were delivered after artificial rupture of membranes and augmentation with syntocinon, 22.91% were delivered after tab misoprost.

Table 13: complication in placental abruption

Complication	No. of cases	Percentage (n=133)
DIC	6	4.51%
Shock	5	3.75%
Renal failure	1	0.75%
PPH	14	10.52%
Maternal deaths	0	0
Total	26	19.53%

In this study complications were seen in 26 cases out of 133. Most common complication seen in this study was PPH. DIC was seen in 4.51% renal failure in one case patient presented with shock in 5 cases. And there was no maternal death.

Discussion

During the study period, the total number of deliveries were 11,549, of which 323 were presented with Antepartum hemorrhage (>28 weeks) resulting in an incidence of 2.79%

Sharma *et al* (2007) [9] in their study gave an the incidence of APH as 3.1%, Khosla *et al* (1989) [10] 4.08%, Quiying Yang *et al* (2007) [11] 4.5%. All reported higher incidence of APH than this study. This study primarily focused on the two major causes of APH i.e., placenta previa and placental abruption and this could be the reason for a lower incidence in this study.

In the present study of 323 cases of APH, 162 were placenta previa and total number of deliveries during the study period was 11,549 thus incidence of placenta previa was 1.40% which correlates closely with incidence of placenta previa 1.26% observed by Quiying Yang *et al* (2008) [11].

However the incidence of placenta previa in this study is in contrast with that of DAS *et al* (1989) [12] and Tariq *et al* (1995) [13] i.e., 0.38% and 0.63% respectively. This low incidence could be attributed to trends of obstetric practice in late 80's when diagnostic facilities were not so advanced.

A lower incidence of medical abortion in Arab countries, which is the risk factor for placenta previa may explain a lower incidence of placenta previa in the study done by Tariq *et al* (1995) [13].

Incidence of mild, moderate servere anemia in this study was 45.06%, 36,43% and 8.64% respectively which is in contrast with study done by tariq *et al* (1995) [13] wherein incidence of mild, moderate, severe anemia was 13.04%, 2.05% and 2.65% respectively.

This could be explained by the fact that in this study 44.44% of cases were un booked and therefore had no prior antenatal care.

Mal presentations are common with placenta praevia. In this study incidence of malpresentation was 20.98%which closely correlated with the study done by Rani Reddy (1999) and Mc Shena *et al* (1985) [14] which is 20 % and 275 respectively.

Incidence of febrile morbidity, urinary tract infection and PPH was 4.9%, 4.3%, 8.2% respectively.

Mc Shena *et al* (1985) [14] in their study found febrile morbidity and urinary tract infections was 5.95%, 5.40% respectively which closely correlated with this study.

Incidence of PPH was higher in this study i.e 8/25% when compared to McShance *et al* (1985) [14] i.e 4.1% which can be attributed to higher incidence of anemia in this study.

Perinatal mortality in this study was 10.97% which correlated with the study done by cotton *et al* [15] 12.6% and McShane *et al* [14] 1985 i.e 8.1%.

In the present study out of 223 cases APH, 133were that of placental abruption and total number of deliveries during the study period was 11,549 thus resulting in an incidence of placental abruption of 1.15% which correlated with study done by Hibbard *et al* (1996) [16] i.e 10.3% Anant *et al* (2003) [17] and Voigt *et al* [18] found higher incidence of abruption in age group 30 yrs i.e 40.94% and 28.7 respectively when compared to this study i.e 1.52%.

This could be explained on the basis of difference in the social background and life style of the patients in western studies.

In this study the incidence of DIC and renal failure were 4.5% and 0.75%.Measuring *at al* (2006) [19] found higher a incidence of complication like DIC and renal failure i.e,15.6% and 11.1% in their study. This can be attributed to intimation of prompt treatment and quick replacement of blood and blood products in the present study.

Perinatal in this study was 82.01% which is in agreement with study done by Iram Sarwar *et al* (2006) [20] i.e., 67.9% Anant *et al* found low perinatal morality in their study i.e 11.9% which can be attributed to very good neonatal care in western countries.

46.76% of placental abruption in this study, delivered babies with birth weight <1.5 Kg only 14.38% of babies weighed more than 2.5 kgs. This is in sharp contrasts with study done by Anant *et al* (1999) wherein 65.3% of babies weighed more than 2.5 kg.

This is because most of the patient who developed accidental hemorrhage in this study had small for gestational age. Also in the present study 70.70% percent of babies were preterm. These two reasons may explain the lower percentage of babies weighing more than 2.5 kg in the present study.

Conclusion

- Post-operative febrile morbidity was seen in 4.9% of cases, urinary tract infection in 4.3% of cases and the incidence of PPH was 8.02%.
- In the present study, numbers of perinatal deaths were 18, of which 2 were still born and 16 were neonatal deaths with perinatal mortality rate of 10.97%.
- Amongst the perinatal deaths 55.55%were in the birth weight group 1000-1499.44%in 1500-1999 weight group. No perinatal death seen in the babies weighing >2kg.
- There was no maternal mortality in our study
- abruption
- The predominant symptom with which the patient presented was vaginal bleeding (84.96%). The next common symptoms were pain abdomen (67.66%) tender uterus (51.87%) absent fetal heart sound 65.41% and pallor in 79.69%.
- Majority of cases (78.94) were delivered vaginally only 21.06% were delivered by LSCS 3.75% of cases of abruption had complications like shock, 0.75% renal failure, 4.5% coagulation failure, 10.52% had PPH.
- Total number perinatal death was 114.99 were still born and 15 were neonatal deaths (Expired within 7 days) overall perinatal mortality was 82.01%.
- There were no maternal deaths in this study.

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