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A Study of Proportion, Maternal and Fetal Outcomes in Cases of Placenta Previa

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Abstract: Introduction*: Worldwide, placenta previa has been seen to complicate 0.3% - 0.8% of all pregnancies.[1,2] Risk factors for placenta previa include previous uterine scar, smoking, age of women over 35 years, grand multiparity, recurrent abortions, low socio-economic status, and taking infertility treatment.[3] With the increasing rate of Caesarean sections, the incidence of placenta previa is also increasing. Transvaginal Sonography is a safe and most accurate method in the diagnosis of placenta previa.*
Materials and methods*: The present study is a prospective study and the study group consists of 106 cases of placenta previa, during the study period from Nov 2014 – April 2016 in Goa Medical College and Hospital, Bambolim Goa.*
Results*: In the present study, total number of cases of placenta previa were 106, giving proportion of 1.37 (n=7717). In the present study maximum number of cases of placenta previa were in the age group between 20-29 years that is 52 cases (16+36) (49.05%). The maximum number of cases of placenta previa were found in multigravida that is 84 cases (79.26%). 22(20.75%) cases of patients with placenta previa were primigravida. 22 cases (20.75%) had prior cesarean section, 15 cases (14.15%) had abortions and all these factors acted as important risk factors for the occurrence of placenta previa. Antepartum bleeding was found in 34 cases (32.07%), anemia was found in 32 cases (30.19%). Malpresentation was found in 20 cases (18.87%). Minor degree placenta previa was found in 43 cases (40.57 %) and major degree placenta previa in 63 cases (59.43 %). Among the patients who received blood transfusion, 32 cases (49.20%) had major degree placenta previa, while among patients with minor degree placenta previa only 7 cases (16.28%) required blood transfusion. Caesarean section rate in the present study was 81.13% and vaginal delivery rate was 18.87%. 7 cases (6.60%) had febrile morbidity, 6 cases (5.66%) had UTI. Post partum hemorrhage was seen in 19 cases (17.92%). 6 patients(5.66%) had morbidly adherant placenta. 7 patients (6.60%) underwent hysterectomy out of which 6 were done for morbidly adherent placenta and one was done for post partum hemorrhage. In the present study there was one maternal death (0.94%). 11 cases (57.89%) of post partum hemorrhage were managed conservatively, in 5 cases (26.32%) uterine artery ligation was done, in 2 cases (10.53%) B-Lynch sutures were taken and in one case (5.26%) hysterectomy was done.*
Conclusion*: The awareness of this obstetric complication can help with earlier diagnosis timely referral and to higher centres, blood availability, NICU care availability to prevent the complications and mortality.*
Key words*: Placenta previa, previous Caesarean section, Feto-maternal outcome.*

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I. Introduction

Antepartum hemorrhage is a well known cause of maternal and fetal mortality and morbidity. Worldwide, placenta previa has been seen to complicate 0.3% - 0.8% of all pregnancies.[1,2] Risk of placenta accreta is 20-25% patients with history of previous one Caesarean section which increases to 40-50% with history of two or more caesarean section. [3]Risk factors for placenta previa include previous uterine scar, smoking, age of women over35 years, grand multiparity, recurrent abortions, low socio-economic status, and taking infertility treatment.[4] With the increasing rate of Caesarean sections, the incidence of placenta previa is also increasing. Ultrasound classification Jauniaux and Campbell[5]

Type I –Low lying placenta which is positioned close to the internal cervical os.(within the limit of 5cms).Type II –When the placental edge reaches the internal cervical os.Type III – When the internal cervical os is covered by the placenta when the internal os is closed.Type IV –The internal cervical os is covered by the placenta when the cervix is dilated.

Transvaginal Sonographyis a safe and most accurate method especially in cases of posterior placed placenta and provides better resolution with visualization of the internal cervical os and placental edge[6] with a sensitivity of 87.5% and specificity of 98.8%[12]. Magnetic resonance imaging (MRI)[7,8]is complementary to

ultrasound. Women with placenta previa are at increased risk of spontaneous abortion, premature delivery, Caesarean delivery, multiple transfusions and related complications, and obstetric hysterectomy. Fetal complications associated are increased risk of malpresentation, prematurity, low birth weight, respiratory distress syndrome, intra ventricular hemorrhage and fetal growth restriction because of antepartum hemorrhage and early termination in such cases. Advancement in diagnostic tools has led to early diagnosis of placenta previa including diagnosis of asymptomatic cases, and thus helps in accurate management, and allows for referral to a tertiary care centre with better facilities like blood transfusion, ICU care, NICU care and immediate operative intervention facilities,thus helping in achieving a better maternal and neonatal outcome at the end of pregnancy and reducing maternal and fetal mortality and morbidity.

The aims and objectives of our study were to study the proportion of cases of placenta previa in antenatal patients in Goa Medical College, the factors associated with occurrence of placenta previa, the maternal complications andfetal outcomes in cases of placenta previa.

II. Materials And Methods

The present study is a prospective study and the study group consists of 106 cases of placenta previa, during the study period.It was conducted in the Department of Obstetrics and Gynecology , Goa Medical College and Hospital, Bambolim, Goa to analyse the maternal and neonatal outcome in cases of placenta previa occurring over a period from Nov 2014 – April 2016.Once the pregnant woman was admitted, detailed history was taken including name, age, address, duration of bleeding, associated pain, history of appreciation of fetal movements and the obstetric history. Pregnant women were examined for hemodynamic status, vital signs and general examination. On per abdomen examination, the height of the uterus in weeks, uterine contractions, lie, presentation and position of fetus, mobility and engagement of fetal head and FHS was noted. Investigations included hemoglobin, blood grouping, Rh typing, bleeding time, clotting time and CRT and blood was cross matched when the need for blood transfusion arose. Urine was examined for presence or absence of albumin, sugar and urine microscopy was performed. Ultrasound was performed in all the pregnant women if it was not done previously or was not done after 28 weeks of gestation. In accordance to fetal and maternal condition, cases were managed according to the degree of placenta previa and gestational age. All the delivered babies were managed with proper care paying attention to the resuscitation of the asphyxiated ones by paediatricians.

The study was approved by the Ethical Committee of the hospital. An informed consent was obtained from pregnant women who were eligible for this study.Statistical methods appliedwere Frequencies, Chi-square test, Crosstabs (Contingency coefficient test. SPSS 16.0 (2005) for windows was used for statistical calculations and p-value.

III. Results

In the present study, total number of cases of placenta previa were 106, giving proportion of 1.37 (n=7717).

Table No. 1: Proportion Of Cases Of Placenta Previa

Total number of births	7717
Total number of cases of placenta previa	106
Proportion of cases of placenta previa	1.37
Total number of perinatal deaths due to placenta previa	12
Perinatal mortality rate in placenta previa	10.03
NICU admission	11
Maternal death due to placenta previa	1

Table No. 2: Correlation Of Maternal Age And Parity And Placenta Previa

Age group (years)	Number of cases	Percentage(n=106)%	Parity	No. of cases	Percentage(n=106)%
<19	2	1.89	Primigravida	22	20.75
20-24	16	15.09	Para 1	28	26.42
25-29	36	33.96	Para 2	40	37.74
30-34	28	26.42	Para 3	14	13.21
>/=35	24	22.64	>Para 4	2	1.89
Total	106	100.00	Total	106	100

As seen in the above table, in the present study maximum number of cases of placenta previa were in the age group between 20-29 years that is 52 cases (16+36) (49.05%).The maximum number of cases of placenta previa were found in multigravida that is 84 cases (79.26%). 22(20.75%) cases of patients with placenta previa were primigravida.

Table No. 3 :- Risk Factors And Antenatal Complicationsin Cases Of Placenta Previa

Risk factors	No. of cases	Percentage	Complications	Count and % of complications		
Previous Caesarean section	22	20.75%		Minor (n=43)	Major (n=63)	Total (n=106)%
Abortions	15	14.15%	1st trimester bleeding	1	8	9 (8.49%)
Twin gestation	3	2.83%	2nd trimester bleeding	4	10	14 (13.21%)
Multiparity	84	79.26%	Anaemia	5	27	32(30.19%)
Previous myomectomy	2	1.89%	Transverse lie	4	7	11(10.38%)
Rh iso-immunisation	1	0.94%	Breech	4	5	9(8.49%)
No risk factor	22	24.05%	PIH	0	3	3(2.83%)
			IUFD	0	2	2(1.89%)

*The total is more than 106 as there were more than one risk factor were there in one patient.In the present study, as it is seen in the above table, 84 cases were multiparous, 22 cases (20.75%) had prior Caesarean section, 15 cases (14.15%) had abortions and all these factors acted as important risk factors for the occurrence of placenta previa. Then, in decreasing order, cases with twin gestation (3cases-2.83%), previous myomectomy (2 cases-1.89%), Rh isoimmunisation (2 cases-0.94%) contributing to the occurrence of placenta previa were noted.In the present study, antepartum bleeding was found in 34 cases (32.07%), anemia was found in 32 cases (30.19%).Malpresentation was found in 20 cases (18.87%). 86 cases (81.13%) had vertex presentation.In the present study, PIH was seen in 3 cases (2.83%). 2 cases were found to have IUFD (1.89%).In the present study, minor degree placenta previa was found in 43 cases (40.57 %) and major degree placenta previa in 63 cases (59.43 %).

In the present study, out of 106 cases 63 cases were major degree (Type 2 posterior, Type 3 and Type 4) (59.43%) and 43 cases were minor degree placenta previa (Type 1, Type 2 anterior) (40.57%).Out of 106 cases, active management was carried out in 85 cases (80.18%) and conservative management by Mac Afee regime was given in 21 cases (19.81%).

Table No. 4 : Mode Of Delivery

Mode of delivery	No. of cases of placenta previa		Total	Percentage
	Minor	Major		
Vaginal	20	0	20	18.87%
Caesarean section	23	63	86	81.13%

The Chi-square statistic is 36.1168. The result is significant at p< 0.01. Caesarean section rate in the present study was 81.13% and vaginal delivery rate was 18.87%.70.58 % of caesarean sections were done for term patients and 30.58 % Caesarean sections were done for preterm patients. In the present study, emergency caesarean sections were done in 65 cases (76.47%) and elective caesarean sections were done for 21 cases (24.71%).Out of 106 cases, 39 patients (36.78%) required blood transfusion whereas 67 cases (63.21%) did not require blood transfusion. Among the patients who received blood transfusion, 32 cases (49.20%) had major degree placenta previa, while among patients with minor degree placenta previa only 7 cases (16.28%) required blood transfusion.

Table No. 14 : Intra And Post-Operative Complications:

omplications	linor	lajor	otal (n=106)	ercentage
ebrile morbidity				.60%
rinary tract infection				.66%
PH		6	9	7.92%
hock/hypotension				.94%
ysterectomy				.60%
dherent placenta				.66%
laternal death				.94%

The Chi-square value is 22. The p-value is < 0.001. The result is significant at p=≤0.01. As noted in the above table, 7 cases (6.60%) had febrile morbidity, 6 cases (5.66%) had UTI. Post partum hemorrhage was seen in 19 cases (17.92%). 6 patients(5.66%) had morbidly adherant placenta. 7 patients (6.60%) underwent hysterectomy out of which 6 were done for morbidly adherent placenta and one was done for post partum hemorrhage. In the present study there was one maternal death (0.94%).11 cases (57.89%) of post partum hemorrhage were managed conservatively, in 5 cases (26.32%) uterine artery ligation was done, in 2 cases (10.53%) B-Lynch sutures were taken and in one case (5.26%) hysterectomy was done

In the present study 22 babies(20.08%) required NICU admission out of which 11 recovered .11 babies (10.09%) had required resuscitation.87 babies (79.82%) did not require NICU admission .2 were still births.Major causes of perinatal mortality in the present study were prematurity and asphyxia that is 5 cases (4.58%) and 4 cases (3.67%) followed by intra ventricular hemorrhage (IVH) and Respiratory Distress Syndrome (RDS) that is 1 case each(0.92%).

IV. Discussion:

During this study period, total number of deliveries were 7717, of which 106 cases were diagnosed with placenta previa resulting in proportion of 1.37%.The proportion of cases of placenta previa in present study is 1.37% which correlates with incidence of placenta previa of 1.26% quoted by Qiuying Yang et al [(9)] and Shonali Mayerkar, Gulburga Medical College quoted the incidence of placenta previa to be 1.80%.

The following table shows the age group in which placenta previa cases were maximum in the present study which correlates with other studies:-

Authors	Max age group (years)
Macafee (1945)	25-30
Das.B (1970)	29.6
Steven Clark (1985)	25 – 29
Michelle A Williams (1987-88)	20 – 29
Handler (1994)	20-29
Hemmadi (1995)	20-29
Rani P.R (1999)	20-29
MaheshKumar (2000)	21-25
Kondur Pallavi (2001)	20-29
Shonali Mayerkar (2008)	20-29
Gurol Urganci (2011)	20-29
Present study	20-29

The proportion of placenta previa is lower in primigravida in this study that is 20.75% which is similar to study done by Steven Clark et al (1985) [(10)] that is 21.2%.

The following table shows the Caesarean section rate in the current study which correlates with other studies:-

Author	Caesarean Section Rate
Chakraborthy 1992	81.8%
Rani P.R 1999	64%
Mahesh R 2000	70.09%
KondurPallavi 2001	24.3%
Shonali Mayarkar 2008	82%
Present study	81.13%

In the present study, ante partum bleeding was present in 32.07% and severe anemia (Hb% <7gm %) was found in 21.7% of cases which correlates with the study done by P. Reddi Rani and Chaturvedula [(11)] which stated anemia complicated 20% of cases in their study

The following table depicts the proportion of cases with malpresentation in our study and other studies.

Presentation	Carlyle-1969	Baskar Rao-1976	Rani P.R-1999	Mahesh R-2000	Kondur Pallavi 2001	Shonali Mayarkar 2008	Present Study
Vertex	71%	67.3%	80%	65.42%	77%	36%	81.13%
Breech	11%	23.3%	7%	24.30%	18%	14%	8.49%
Transverse lie	17%	8.6%	12%	10.28%	5%	0%	10.38%

In the present study, 20.18% of babies required NICU admission.10.09% of babies recovered which correlates with the study done by McShane et al., which stated that 22% of babies required resuscitation.
Out of 11 cases of perinatal deaths, prematurity and asphyxia were the major contributors to the extent of 4.58% and 3.67% respectively. This was followed by RDS (0.92%).

The following table shows the maternal mortality by present study and other studies:-

Author	No. of cases	Percentage
Das B 1970	1333	2.1%
Motwani 1988	810	0.97%
BhaskarRao 1989	462	3.44%

Mahesh R 2000	107	0.93%
Oyelese & Smulian 2006	1000	3.00%
Present study	106	0.94%

V. Conclusion:-

Placenta previa is an obstetric complication that presents clinically with vaginal bleeding owing to abnormal placentation in relation to the internal os. The complications of active management and associated life threatening risk of maternal bleeding can be averted by appropriate intra and post-operative medical and surgical care. Efforts have to be made to cut down the maternal and perinatal mortality due to placenta previa as it is preventable. This can be accomplished by spacing of pregnancies, limiting size of the family, registering all pregnant women for antenatal care, routinely using ultrasound in pregnancy and using referral early for high pregnant women to the tertiary care centres. In tertiary centres, it is imperative that a protocol should be formulated and strictly followed in order to decrease fetal and maternal morbidity and mortality. Importantly the highest level of care should be imparted by the senior most obstetrician available to all cases of placenta previa. In order that obstetric hemorrhage associated with placenta previa is optimally managed, it is recommended that drills be conducted in order to impart the knowledge of management of such cases to all caregivers in the obstetric unit.

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