

ORIGINAL ARTICLE

A Study of Fetomaternal Outcome in Relation to Major Degree Placenta Previa: An Experience at a Tertiary Care HospitalSHAZIA TABASSUM¹, RABEEA SADAF², NASREEN KISHWAR³, ZAHIDA PARVEEN⁴, SAMREEN⁵, SAMAN MUDASSIR⁶^{1,3}Assistant Professor, Gynae & Obs, HMC Peshawar²Associate Professor, Gynae & Obs, HMC Peshawar^{4,5,6}Senior Medical Officer, Gynae & Obs, HMC PeshawarCorrespondence to Dr. Rabeea Sadaf, Email: rabeeasadaf@gmail.com**ABSTRACT****Background:** Placenta previa is one of the major causes of antepartum hemorrhage. Although placenta previa accounts for approximately 0.4 – 0.6% of all pregnancies, still it remains a major cause of fetomaternal morbidity and mortality.**Aim:** To determine the incidence of major degree placenta previa and its relation to fetomaternal outcome in a tertiary care hospital.**Methods:** This is a prospective observational study which was carried out in the department of Obstetrics and Gynecology Hayatabad medical complex, a tertiary care hospital in Peshawar Khyber Pakhtunkhwa from January 2022 to December 2022. Study was started after ethical approval was taken from institutional ethical committee. Total 35 pregnant women with ultrasonographic diagnosis of major degree placenta previa were enrolled in the study after fulfilling inclusion and exclusion criteria. Detailed history was taken, relevant Obstetrical examination was performed and relevant baseline labs and pre-op workup was done. All the relevant data was entered in a predesigned proforma and fetomaternal outcome was studied in addition to the incidence of major degree placenta previa.**Results:** Total no. of deliveries were 5712 in the study period. Total number no. of major degree placenta previa were 35 making its incidence as 0.6%. In present study majority of the patients presented between age 21-35 years. All the patients with a diagnosis of major degree placenta previa were multigravida and there was no single case of primigravida in the present study. Majority patients were unbooked. Majority of the patients ended up in emergency C/Section due to massive bleeding episode. Previous C/Section was the most important risk factor found in present study. 29 women required blood transfusion, 5 women had accidental diagnosis of the morbidly adherent placenta and cesarean hysterectomy was done in 4 cases. Uterine packing was done in 16 cases. There was no maternal mortality in the present study. Majority of the patient delivered between 33-36 weeks of gestation and majority of the babies had a birth rate of > 2.5Kg.**Practical implication** Patients with or without previous history of cesarean section and with major degree placenta previa diagnosed on ultrasonography should be booked and admitted earlier in Tertiary Care Hospital with all pre-op preparation to prevent maternal morbidity and mortality and better neonatal outcome.**Conclusion:** The higher fetomaternal morbidity and mortality, associated with placenta previa can definitely be curtailed by early antenatal diagnosis of placenta previa, advance planning, timely referral, delivery at a tertiary care hospital with availability of round the clock blood bank facility, NICU facility and obstetric ICU / HDU facility.**Keywords:** Major degree Placenta previa, maternal mortality, perinatal mortality, fetomaternal morbidity.**INTRODUCTION**

Antepartum hemorrhage is one of the most dangerous and catastrophic group of obstetrics disorders. Placenta previa is one of the major causes of antepartum hemorrhage which complicates two to five percent of the pregnancies¹.

Placenta previa is traditionally described as a placenta that is implanted in the lower uterine segment and further classified into four types depending upon the relationship of the lower edge of placenta with the internal os. Type 1 (low lying): the lower edge just encroaches onto the lower segment, type 2 (marginal): the lower edge reaching the os but does not cover it, type 3 (partial): partially covering the os, type 4 (complete): completely covering the os². It occurs in 2.8/1000 singleton pregnancies and 3.9/1000 twin pregnancies³.

Global incidence of placenta previa is 3-5 cases per 1000 pregnancies and it tends to increase further⁴. Although placenta previa accounts for approximately 0.4-0.5% of all pregnancies, still it remains a major cause of maternal and perinatal mortality and morbidity⁵. Clinical presentation is recurrent painless vaginal bleeding with each episode tends to be heavier than the previous one. Bleeding is triggered by intercourse, vaginal examination and labour. During labour, the lower part of the uterus begins to stretch in preparation for delivery and when the cervix begins to efface and dilate, it results in detachment of placenta from its site of attachment resulting in inevitable bleeding⁶. Diagnosis of placenta previa is usually made during the second half of pregnancy by

transvaginal or trans-abdominal ultrasonography⁷. However, transvaginal ultrasonography is the gold standard for the diagnosis of placenta previa and using this route does not provoke vaginal bleeding and resolution of the scan is also good with this route⁸. Cesarean section is the recommended mode of delivery⁹.

Risk factors for placenta previa include previous uterine surgery (Myomectomy, C/S and D&C), increasing maternal age, high parity, prior placenta previa, multiple gestation, smoking and cocaine use¹⁰. The association between previous C/section, placenta previa and pathological adherence of the placenta is well recognized. This may be because lower segment uterine scar can trigger a low placental implantation. This condition is frequently complicated by invasion of the placental villi beyond the decidua basalis causing placenta accreta¹¹. Due to abnormal location and invasion of placental tissue, catastrophic bleeding is likely to occur especially in the third trimester and with the onset of labour. The maternal complication associated with placenta previa is either recurrent episodes of per vaginal bleeding leading to anemia or massive catastrophic hemorrhage especially if associated with morbidly adherent placenta leading to maternal shock, DIC, ARF, ARDS and even maternal mortality¹². Placenta previa related massive obstetrical hemorrhage accounts for 30% maternal deaths in Asia¹³. Post-op complications associated with placenta previa include sepsis, PPH and peripartum cesarean hysterectomy.

Perinatal mortality rates are three to four times higher than in normal pregnancies¹⁴. Babies born to mothers with placenta previa have a 15% chance of delivery before 34 completed weeks of gestation¹⁵. This causes prematurity related effects in the baby such as respiratory distress syndrome, intrauterine growth retardation, low birth weight, increased risk of cerebral palsy and HIE.

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MATERIALS AND METHODS

This is a prospective observational study which was carried out in the department of Obstetrics and Gynecology Hayatabad medical complex, a tertiary care hospital in Peshawar Khyber Pakhtunkhwa from January 2023 to December 2023. Ethical approval was taken from the institutional ethical committee before starting the study. Total 35 pregnant women with a diagnosis of major degree placenta previa were enrolled in the study group after fulfilling inclusion and exclusion criteria.

Inclusion criteria: All pregnant women with a diagnosis of major degree placenta previa (type 3 and type 4) and confirmed by the ultrasonography with a gestational age beyond 28 weeks of gestation were included.

Exclusion criteria:

- Low lying placenta covering the os partially or completely at a gestation less than 28 weeks.
- Minor degree of placenta previa (type 1 and type 2) beyond 28 weeks of gestation.
- Multiple pregnancy
- Morbidly adherent placenta (MAP)

Patients admitted to the labour room either via emergency or through Out-Patient Department (OPD) were enrolled in the study. Informed verbal consent was obtained from all participants for the purpose of enrollment into the study. Detailed history was taken from the patients including patient demographic data such as age, parity, education, socio economic status, mode of admission via emergency or OPD, booking status, clinical presentation, risk factors, (Myomectomy, Cesarean section, D&C) regarding current pregnancy, date of LMP and gestational age at delivery were noted down, length of hospital stay was also recorded. Then thorough general physical examination (GPE) and systemic examination was performed with a special emphasis on abdominal Obstetrical examination. Then required relevant baseline investigations were done including blood group + Rh factor, CBC, RBS, urine R/E and viral profile (HBV, HCV, HIV). Repeat ultrasonography was performed from expert sonologist for reconfirmation of major degree placenta previa in case of any doubt. After confirmation of the diagnosis, the women were counseled about the prolongation of pregnancy as close to term as possible (ideally to 37 completed weeks) in the absence of any heavy episode of per vaginal bleeding. Patients were confined in the labour room till delivery with strict feto-maternal monitoring.

Steroid cover was given for fetal lung maturity in the form of injection Betamethosone 2 injections 12mg each 12-24 hours apart. Patients were kept prepared for emergency urgent crash cesarean section in case of heavy per vaginal bleeding. For this purpose well informed written consent was taken before hand for anesthesia and surgery. In addition written consent was also taken for measures to be taken intra-operatively to control bleeding including consent for "Cesarean Hysterectomy" in-case of massive uncontrollable bleeding or accidental finding of morbidly adherent placenta (MAP). Elective c/section was performed at term (37 completed weeks) by senior Obstetrician and anesthesia was given by senior anesthetist. Type of anesthesia to be given was anesthetist's decision & choice and it depended upon the hemodynamic status of the patient at that time. Those who presented at earlier gestation with massive per vaginal bleeding ended up in emergency c/section.

At the time of surgery the following intra-operative findings were noted down, type of surgery (elective/emergency), type of anesthesia (spinal/G.A), operative time, intraoperative measures to control bleeding → (haemostatic sutures taken in the placental bed, Uterine Artery Ligation, Internal iliac artery ligation, uterine packing, Cesarean Hysterectomy), estimation of intraoperative blood loss, intra operative blood transfusion, any surgical complication (bladder/bowel/uretery injury). Presence of morbidly adherent placenta (MAP) was also noted down. Post operative maternal complications (postpartum hemorrhage, fever, sepsis, wound infection, DVT/T.E and maternal mortality were noted down.

Neonatal outcome in the form of pre term delivery, IUGR, RDS, Apgar score at 1 and 5 minutes, admission to NICU and early neonatal deaths (within 24 hours) were noted down. All the relevant data was entered in proforma. Data was tabulated, analyzed and presented as frequency and percentage of cases.

RESULTS

Total I: Number of deliveries were 5712 in the study period. Total 2 shows major degree placenta previa were 35 cases, which makes the incidence of major degree placenta previa as 0.61% in present study as shown in table 1.

Table 1: Incidence

Total number of deliveries in study period	5712
Total number of placenta previa	35
Incidence of placenta previa = $\frac{35 \times 100}{5712}$	0.61%

In present study, majority of the patient i.e. 33 cases (94.28%) presented at the age group between 21 – 35 years (Table 2).

Table 2: Maternal age and placenta Previa

Age	n	%ages
< 20 years	0	0
21 to 35 years	33	94.28%
> 35 years	02	5.71%
Total	35	100

In present study, all the women with the diagnosis of major degree placenta previa were multigravida. There was no single case of major degree placenta previa in primigravida in present study as shown in table 3.

Table 3: Parity and placenta Previa

Parity	n	%ages
Primigravida	0	0
Multigravida	35	100%
Total	35	100%

In present study majority of the women were unbooked i.e. 31 cases (88.57%). Only 4 cases (11.42%) were booked (Table 4).

Table 4: Booking Status

Booking Status	n	%ages
Booked	04	11.42
Unbooked	31	88.57
Total	35	100%

In present study majority of the women ended up in emergency lower segment cesarean section i.e. 23 cases (65.71%) and only 12 cases (34.28%) had planned schedule elective cesarean section as shown in table 5.

Table 5: Type of surgery

Type	n	%ages
Elective C/S	12	34.28%
Emergency C/S	23	65.71%
Total	35	100%

Previous cesarean section was the most important risk factors for placenta previa in present study. i.e., 9 cases (25.71%), while 24 cases (68.57%) had no risk factor for placenta previa in present study as shown in table 6.

Table 6: Percentages of risk factors for placenta Previa in previous pregnancies

Risk factors	n	%ages
No risk factors	24	68.57%
Previous C/S	09	25.71%
Previous myomectomy	0	0
Previous miscarriages f/b D&C	2	5.71%
Total	35	100%

In present study 23 women (65.71%) had intraoperative bleeding and required blood transfusion. 5 women (14.28%) had morbidly adherent placenta, out of which 4 ended up in cesarean hysterectomy while 01 case was managed with uterovaginal packing and uterus was conserved. There was no bladder, bowel or ureteric injury in present study. There was no maternal mortality in present study as shown in table 7.

Table 7: Intraoperative complications among women with placenta previa

Complication	N	%ages
Intraop hemorrhage requiring blood transfusion	23	65.71%
Intraop diagnosis of Morbidly Adherent Placenta	05	14.28%
Bladder injury	0	0
Bowel Injury	0	0
Ureteric injury	0	0
DIC (Disseminated intravascular coagulation)	0	0
Acute Renal Failure	0	0
Maternal Mortality	0	0
ICU Care needed	03	8.57

In 8 women (22.85%) multiple hemostatic sutures were taken in placental bed. In 16 women (45.71%) uterovaginal packing was done. 23 women (65.71%) required blood transfusion, 19 cases (54.28%) required 1-4 blood transfusion while 04 cases (11.42%) required > 5 blood transfusion.

Table 8: Intra-op interventions to control bleeding among women with placenta Previa

Intervention	N	%ages
Multiple Hemostatic sutures and placental bed	08	22.85%
Blood transfusion	23	65.71%
No. of packs transfused 1 – 4	19	54.28%
5 – 10	04	11.42%
Uterine packing	16	45.71%
β-Lynch suture	0	
Uterine artery ligation	0	
Internal iliac artery ligation	0	
Cesarean Hysterectomy	04	11.42%

The most common post-op complication was wound infection 5 cases (14.28%), Postpartum Hemorrhage was seen in 03 cases (8.57%) and UTI in 03 cases (8.57%). There was no case of re-opening in present study as shown in table 9.

Table 9: Post-op complication among women with placenta Previa

Complication	n	%ages
Postpartum Hemorrhage	03	8.57%
Sepsis	0	0
D.V.T / T.E	0	0
Wound Infection	5	14.28%
UTI	3	8.57%
Re-opening	0	
Total	11	31.42

In present study majority of the women presented at a gestation between 33 – 37 weeks as shown in table 10.

Table 10: Gestational age at delivery

Gestational Age	n	%ages
28 – 32 weeks	02	5.71%
33 – 37 weeks	30	85.72%
> 37 weeks	03	8.57%
Total	35	100%

In present study majority of the babies i.e. 33 babies (94.28%) had birth weight > 2.5Kg as shown in table 11.

Table 11: Birth weight of the babies born to patients with placenta previa

Gestational Age	n	%ages
< 1.5 Kg	0	0
1.5 – 2.5 Kg	2	5.71%
> 2.5	33	94.29%
Total	35	100%

In present study 34 babies (97.14%) were alive and only 01 baby was still birth. Pre-mature babies were 11 (31.42%), 6 babies (17.14%) needed NICU admission. Majority of the babies had good Apgar score > 7 at 5 minutes in present study (Table 12).

12: Perinatal Outcome

Perinatal Outcome	n	%ages
Alive	34	97.14%
Still birth	1	2.58%
IUGR	0	0
Prematurity	11	31.42%
RDS	0	0
APGAR Score at 5 minutes < 7	3	8.57%
APGAR Score at 5 minutes > 7	32	91.43%
NICU admission	6	17.14

DISCUSSION

In present study, total no. of deliveries were 5712. Total no. of major degree placenta previa (partially or completely covering the os i.e type 3 & type 4 were 35 cases. This makes the incidence of major degree placenta previa in our study as 0.61%. This is in contrast to the higher incidence in a study done by Salim NA et al¹⁶, where the incidence of placenta previa overall is 1.4%. This higher incidence may be due to inclusion of all types of previas in their study i.e: both minor and major degree.

In present study majority of the patients presented at age group between 21 – 35 years. In present study all the patients included in the study diagnosed with major degree placenta previa were multigravida and none presented as primigravida. In present study 9 women (25.71%) had history of previous cesarean section, 2 cases (5.71%) had previous history of D&C. No risk factor was found in 24 cases (68.57%) in present study. Study done by Salim NA et al¹⁶ showed higher incidence of placenta previa in the age group between 30 – 34- years which was 30.77%. In their study, majority of the patients were of parity 1 – 4, 69.23% had previous cesarean section and 13.46% had previous history of D&C. In present study majority of the patients i.e. 31 cases (88.57%) were unbooked. Majority i.e: 23 cases (65.7%) ended up in emergency cesarean section due to heavy episodes of per vaginal bleeding. Only 12 cases (34.28%) had schedules elective LSCS, this might be due to lesser number of booked cases in present study. These findings are similar to findings obtained from a study done by Shakuntala P.N et al¹⁷ where elective c/sections were performed in 35.1% and emergency c/section were done in 64.9%.

In present study intra-op hemorrhage requiring blood transfusion was seen in 23 cases (65.7%), intra-op diagnosis of MAP was seen in 5 cases (14.28%). In all 5 cases of MAP there was history of previous c/section. Multiple hemostatic sutures in placental bed were taken in 8 cases (22.85%), uterovaginal packing was done in 16 cases (45.71%), 04 cases (11.42%) ended up in cesarean hysterectomy. Total of 23 patients (65.71%) needed blood transfusion, 19 cases (54.28%) needed 1 – 4 packs and 4 cases (11.42%) needed more than 5 packs. There was no bladder, bowel or ureteric injury in present study. There was no case of DIC or ARF. There was no maternal mortality in present study. However 3 cases (8.75%) needed ICU care. Postpartum Hemorrhage was seen in 3 cases (8.57%), wound infection 5 cases (14.28%) and UTI in 3 cases (8.57%). There was no case of re-opening in present study. Findings obtained from a study done by Mahliqa et al¹⁸ were as follows: Cesarean Hysterectomy 19.2%, PPH 5.8%, ICU admission 5.8% and maternal mortality 1.7%. In present study total number of babies born was 35. Among them 34 babies (97.14%) were alive and only one was still birth (2.58%).

Premature babies were 11 (31.42%), 03 babies (8.57%) had Apgar < 7 at 5 minute. 06 babies (17.14%) needed NICU admission. Study done by Mahliqa Maqsdud et al¹⁸ showed NICU admission of 25.0%, IUD 10.8%. Another study done by Kumari S et al¹⁹ showed the following findings: premature babies 68.57%, NICU admission 25.7%, perinatal deaths 19.99%, neonatal mortality 11.42%, still birth 8.57% and Apgar score at 5 minute > 7 was seen in 80% and <7 in 8.5%.

Overall fetomaternal outcome with major degree placenta previa was not that bad in present study compared to other studies. This may be due to conduction of the study in a main tertiary care hospital which is well equipped with all the facilities required to improve that fetomaternal outcome in such cases.

CONCLUSIONS

Antepartum Hemorrhage and post partum hemorrhage are on forefront in deadly triad for maternal mortality followed by Eclampsia and sepsis in developing countries like Pakistan. Placenta previa contributes to 1/3 cases of Antepartum Hemorrhage and is associated with increased Fetomaternal morbidity and mortality. The incidence of this serious condition is on the increase due to increase in its risk factors. The two most important and consistent risk factors for placenta previa are previous C/Section and multiparity. Developed countries have a near zero maternal mortality but even with today's better medical facilities and awareness, Pakistan which is a developing country is still lagging behind this decreasing trend. Fetomaternal complications can definitely be curtailed with regular antenatal care, antenatal diagnosis of the condition with routine second trimester ultrasonography, counseling and educating the patient about the probable anticipating grave complications, timely referral and management at a tertiary care hospital well equipped with all the facilities to tackle with this devastating condition. This includes availability of blood bank round the clock, availability of senior obstetrician, senior anesthetist and NICU facility. Obstetric ICU/HDU is the need of the labour room today.

RECOMMENDATIONS

- Strategies and protocols should be made to reduce C/Section rate
- Family planning care should be provided at the door step to limit parity
- Timely decision to proceed to cesarean hysterectomy without delay in-case of catastrophic bleeding to save mother life
- Every effort should be made to exclude morbidly adherent placenta antenatally which further worsen the situation so as to make forward planning.

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