

Maternal and Fetal Outcome in Placenta Praevia

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ABSTRACT

Objectives: To determine maternal outcome in terms of morbidity and mortality in cases of placenta praevia to determine the fetal outcome regarding morbidity and mortality in placenta praevia.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Aziz Bhatti Shaheed Hospital NSMC, University of Gujrat, for a period of one year 2015 and 2016.

Materials and Methods: Two types of patients were included in the study. The booked patients who were diagnosed by routine ultrasonography as cases of placenta praevia and the patients who presented with vaginal bleeding and were diagnosed by ultrasonography. The babies were followed up for seven days and maternal condition for six weeks after delivery.

Results: Total no of the patients included in this study was 104 and was done for a period of one year 2015-16 at Aziz Bhatti Hospital NSMC Gujrat. Majority of the patients who presented were multigravida and none of the primigravida had placenta praevia. Mean gestational age was 33.4 weeks, 1.92% of the cases had previous c-section. The patients who required admission for more than once were 19.23%, 46.15% of the patients had previous episode of bleeding. The patients who required blood transfusion were 65.3%. Eighty four percent patient had c section and the patient with PPH were 7.69%, 1.92% had cesarean hysterectomy and one patient died because of hemorrhage. The incidence of premature deliveries was 55.76% , and the percentage of the neonates who died because of this were 11.53%.

Conclusion: It is concluded, that in a country like ours, placenta praevia is still one of the important causes of fetal mortality and maternal morbidity. These cases should be screened and should be managed expectantly as suggested by Macafee. These cases should be managed in centres where facilities for advanced surgery, specialized anesthesia, ICU, blood transfusion and blood products and neonatal intensive care units are there and system should be backed by a proper referral facility.

Key Words: Placenta, Praevia, Maternal Mortality, Hemorrhage, Prematurity. Neonatal

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INTRODUCTION

The placenta which is implanted entirely or in part in the lower uterine segment is called placenta praevia.

Minor degrees of placenta praevia include the lateral and marginal placenta praevia (type I and type II). Type I encroaches on the lower uterine segment and the marginal reaches the internal OS. The major degrees of placenta praevia are type III and type IV. Type-III partially covers part of the OS and complete type-IV covers whole of the OS. The incidence of placenta praevia is about 1 in 200, pregnancies as stated by Macafee in his work on placenta praevia. Croswell JA and associates¹ found that overall prevalence of placenta praevia was 52/1000 pregnancies.

Prevalence was highest among Asian (12.2/1000 95% CI 9.5-15.2) 3.6 / 1000 pregnancies in Europe, 2.9/1000 pregnancies in North America and Sub-Saharan Africa.

Ojha N in his study² found that placenta praevia contributed to .55% of the deliveries. The incidence of major placenta praevia was 21.4%, one patient required hysterectomy and ten patients required blood transfusions.

Low implantation was observed in 5-28% of pregnancies during the 2nd trimester on ultrasonography, but as the uterus grows the placental site appears to migrate upward and by term only 3% are previas.

Two percent of those with low lying placenta before 24 weeks, 5% of those at 24-29 weeks and 23% of those at > 30 weeks will still have a praevia at term. The exact cause is unknown, but the endometrial damage due to multiparity, increased age, previous C-Sections, gynecological operations e.g., ERCP, D&C, increased surface area of the placenta in pregnancies like twins and succenturiate lobe predispose to the occurrence of placenta praevia.

Anisodowleh Nankali and associates in their study found that patients with history of one previous

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c-section had mere chances of placenta previa and need for hysterectomy rather than more than one previous cesarean sections. The most common type of abnormal placentation was accrete, percreta and increta respectively.³

Smoking and cocaine use also predispose to the occurrence of placenta praevia. Cande V Ananth, and associates, found that there⁴ is a positive association between smoking and placental abruption but weak association with placenta previa and other uterine bleeding. The incidence is 0.2% in nulliparous, but it may be as high as 50% in the grand multipara. It occurs in 1% of the pregnancies after a single Cesarean section. The incidence after four to five C-section increases up to 10%, and forty fold increased risk compared with no C-sections. Placenta praevia doubles the risk of congenital anomalies.

The other risk factors for placenta previa are multifetal gestation, increased parity and maternal age.⁵

Placenta previa patients usually present with warning and severe painless hemorrhages and malpresentations late in pregnancy.

The management of patients of placenta praevia was expectant as revised by Macaffe. The aim was to attain the gestational age of 37 weeks with restricted physical mobility of the mother supported by multiple blood transfusions if required and liberal use of caesarean section for delivery of the patient.

Oppenheimer L⁶ stated that the important diagnostic tool is U.S.G. An overlap of more than 15mm (os and edge at 18 to 24 weeks) is associated with an increased likelihood of placenta praevia at term. The os placenta edge at 18-24 weeks is important for planning deliveries. When the placental edge lies > 20mm away from the internal cervical os, women can be offered a trial of labour with a high expectation of success.

The diagnosis was done by clinical presentation and was confirmed by ultrasonography. Placenta accreta may be predicted by a history of previous section, low lying placenta, I.V.F pregnancy, increased fetoproteins and estimation of the BHCG⁷.

When the bleeding is complicated by premature labour it would seem logical to inhibit uterine activity by means of tocolytic agents.

Vaginal delivery would be possible in women with minor degrees of placenta praevia, in whom the placenta is anterior and the head engaged. In such circumstances the bleeding usually controlled by amniotomy augmented by syntocinon infusion.

Amniotomy should only be carried out under anesthesia in an operation theatre with everything prepared for an immediate transfusion and C-section, if the examination provokes heavy bleeding, with the exception already mentioned, delivery by C-section is the method of choice for most women with any degree of placenta praevia

Pregnancy complicated by placenta previa is a high risk pregnancy, and it increases the morbidity and mortality of the mother because of the hemorrhages, these pregnancies are complicated by postpartum hemorrhages because of inadequate occlusion of the sinuses in the lower segment. There are more chances of surgical and anesthetic complications in major degrees of placenta previa. There are increased chances of air embolism. Postpartum sepsis is caused by ascending infection of the raw placental bed. There are 15% chances of placenta accreta in placenta previa and the risk of recurrence is 4% to 8% after one placenta previa. There are chances of DIC in major degrees of placenta previa because of repeated hemorrhages and multiple blood transfusions.

Fetal outcome is poor in cases of placenta previa because of preterm birth, the perinatal mortality increases with decreasing gestational age, the overall perinatal mortality ranges from 42 to 81 per 1000 but much higher in developing countries. Fetal growth restriction may occur in up to 16% of the cases. The incidence of serious malformation of the baby doubles in case of placenta previa. The other complications may be cord prolapse, cord compression, malpresentations, fetal anemia, unexpected intrauterine death because of rupture of vasa previa and severe feto maternal shock.

MATERIALS AND METHODS

The study was carried out for a period of one year in a prospective manner in Aziz Bhatti Shaheed Hospital, NSMC College, and UOG for a period of one year (2014-15) it was an observational descriptive study.

Two types of patients were included in the study, the booked patients who were diagnosed by routine ultrasonography as cases of placenta praevia and the patients who presented in emergency department with the complaint of vaginal bleeding in second or third trimester and were diagnosed as cases of placenta praevia.

The patients who presented with antepartum hemorrhage but were not diagnosed as cases of placenta previa were excluded from the study.

Maternal morbidity was assessed by the number of admissions and blood transfusions required during the pregnancy, the outcome was also measured by the mode of delivery, vaginal or operative, the number of retained placentas in vaginal deliveries.

Serious morbidity and mortality was measured in terms of cesarean hysterectomies.

Fetal outcome was assessed in terms of term and preterm deliveries, prematurity, NICU admissions and neonatal mortality.

The baby was followed up for seven days and maternal condition for six weeks after delivery.

Ultrasonography is of utmost importance in the diagnosis of placenta previa. Both abdominal and vaginal were used in the localization of the placenta.

Additional specific investigations were done according to the diagnostic requirement of the patient e.g. CT scan and MRI to confirm the findings. Statistical analysis was performed by using SPSS version 16.

RESULTS

The total no of the patients included in this study was 104. The number of un-booked patients was 86 as compared to the booked one which were 18%. The majority of the patients were in the age group 25-35 years.

None of the primigravida had placenta praevia and maximum number of the patients were gravida four and above.

Majority of the cases presented with painless vaginal bleeding which in most cases was of the severe variety which usually determines the mode of delivery and leads to perinatal mortality. None of the patients presented with reduced foetal movements, which reveals another factor that intrauterine death is very uncommon in cases of placenta previa, 42.3% of the patients presented with mal-presentation.

Mean gestational age at the time of presentation was 33.4 weeks, and about 59.6% patients presented with severe bleeding with clots.

The pain was only in 3.84% of the patients. However labour was associated in 26.92% of the patients.

E&C was the most common predisposing factor found in this study, 23.07% of patients were with previous history of this procedure.

History of previous C.Section was in 1.92% of the cases. 3.84% of the patients were smokers, and the same was the history of previous placenta praevia.

Manual removal of placenta was in 1.92% of the cases and multiple gestations in 0.96%.

Table No.1: Maternal Morbidity in relation with placenta praevia

Morbidity (Foetus)	No of Patients	Percentage
Patients required hospital admission more than once	20	19.23%
The patients who had previous episodes of bleeding	48	46.15%
No. of Patients who required blood transfusion	68	65.3%

As is obvious in the above table, the patients suffered a lot of morbidity due to placenta previa because of multiple episodes of bleeding and transfusion as a mode of expectant management of placenta praevia.

About 19.23% required admission in a hospital before the final admission which shows the importance of this problem and why it needs more consideration. There are warning hemorrhages in placenta previa, these

patients usually have an history of threatened abortions. The table shows that 46.15% of the patients had multiple episodes of bleeding and 65.3% of the patients required blood transfusions.

Table No.2: Maternal Outcome in cases of placenta praevia

Outcome	No of Patients	Percentage
The patients who delivered vaginally	16	15.38%
The patients who had operative delivery by C-section	88	84.62%
P.P.H	8	7.69%
The patients who had retained placenta	2	1.92%
The Patients who had required caesarean hysterectomy	2	1.92%
The patients who had died due to placenta praevia	1	0.96

About 15.38% of the patients were grade I, out of these 25% had to be delivered vaginally, rest of all the patients were delivered by C-Section.

This shows the complete variety of the placenta praevia which is far greater compared to the minor variety, 7.69% had postpartum hemorrhage which is an important determinant of maternal mortality and morbidity.

There was only one patient with placenta accreta and another percreta for which caesarean hysterectomy had to be performed; however one patient died because of placenta previa. About 8% of the patients had P.P.H which is an important determinant of the morbidity and mortality. Two patients presented with retained placenta and required cesarean hysterectomy and one patient died because of adherent placenta.

Table No.3: Foetal Outcome - Total no. of Cases =104. Mean gestational age 33.4 Weeks

Outcome	No of Patients	Percentage
Full term alive delivery after 37 weeks of pregnancy	44	42.30%
Premature alive babies	58	55.76%
Required admission in Nursery	58	55.76%
Still births	2	1.92%
No. of neonates died in cases of placenta praevia	12	11.53%

Table 3 shows the fetal morbidity and perinatal mortality the mean gestational age was 33.4 weeks and about 55.76 of the babies were premature. Almost same percentage of the neonates required emergency

admission, which is in marked contrast to the normal deliveries.

There were only two still births (IUD's) and one was having placental abruption along with placenta praevia, other was with severe vaginal bleeding and could be a case of vasa praevia.

This was in marked contrast to the cases of placental abruption, in which most of the fetuses died in utero.

Out of the alive neonates, 11.53% of the babies died and majority within first week mostly due to the complications of prematurity, but the rate has reduced due to improved pediatric facilities.

DISCUSSION

Hemorrhage is the leading cause of maternal death worldwide and placenta praevia contributes to the hemorrhage as a leading entity, because of its nature and conditions associated with placenta praevia due to prior uterine trauma, previous C-Section, other uterine surgery and previous history of praevia⁸.

As is obvious in table 1, the patients required multiple times admission because of threatening hemorrhages and required multiple blood transfusions, and the morbidity is increased because of the transfusion, and the associated conditions e.g. P.P.H. In this study 65.3% of the patients required blood transfusion.

Multiple admissions or continuous hospitalization increases the cost and the psychological effects of separation on the families, Advantages include, easy resuscitation, prompt delivery and ensuring bed rest and limitation of activities.

Multiple blood transfusions increase the morbidity and sometimes sending with mortality of the mother. The complications could be acute e.g acute hemolytic reactions leading to DIC, infective shock, transfusion related lung injury, fluid overload, non hemolytic reactions to transfusion of platelets and red cells, severe allergic reaction or anaphylaxis, graft versus host reaction presenting with pancytopenia, abnormal LFTs and deranged U&E and also transfusion related bacterial infections. Delayed complications of transfusion are delayed hemolysis of transfused red cells, development of antibodies to red cells in patients plasma, development of antibodies that react with antigens of white cells or platelets, post transfusion purpura, graft versus host disease, iron overload, infections and immune-modulations.

Regarding the maternal outcome majority (84.62%) required cesarean sections; operative delivery has more mortality because of the emergent nature of the situation, anesthesia related complications and increased incidence of hemorrhage in such cases, thus placenta previa directly and indirectly leads to increased mortality and morbidity.

Retained placenta is one of the complications of placenta praevia especially if it is of accreta variety.

In a study by Olive E.C.⁹ and associates it was found, that 14% of the patients with placenta praevia suffered a major morbidity. The proportion of the morbidity that occurred among women delivered electively at term was 40% in hospitals with 24 hour blood banks and 55% in other hospitals ($P > 0.06$). In another study¹⁰ Gomal A Kassem and associates stated that incidence of placenta accrete was 25 out of 122 patient. The median intra-operative blood loss was 2,000 ml (mean 3,000 ml) with a loss of > 2000 ml occurring in 72% and > 5000 in 20%. The mean packed red blood cell transfusion requirement was 7.7 and 28% required > 10 units. In this study 1.92% of the patients required cesarean hysterectomy: Lovina S.M. Machado in his study¹¹ stated that the predominant indication for emergency peripartum hysterectomy was because of the placenta praevia accreta which was noted in 45 – 73.3%. The risk factors were previous C. Section, scarred uterus, age and multi parity.

The maternal morbidity ranged from 26.5 – 31.5 and mortality from 0-12.5%. All most similar results¹² were found by A T Burodo and C.F. Shehu in their study. The grand multiparas were more affected (50%) as compared to the multipara. The major types of the placenta (77.1%) were more prevalent than the minor variety (22.9%) most (83.3%) were delivered by C. Section. The maternal mortality was 1% and perinatal deaths (12.5%). Almost same pattern was found in this study. The patient with minor variety delivered vaginally were 15.38% and 84.62% required L.S.C.S. Gamal A Kasseem and Ali K Alzahravi in their study found that because of the increased risk of maternal morbidity placenta accreta should be excluded in all the cases of placenta previa, especially in those who has uterine surgery, high parity and advanced maternal age. If available a second consultant should share in the surgery of placenta accrete. Elective delivery of patients with placenta accrete at 36 weeks should be considered unless there is maternal risk.¹³

Sheiner et al in this study stated that the pregnancies with placenta praevia had also much co morbidity in the form of higher rates of 2nd trimester bleeding, pathological presentations, abruptio placentae, congenital malformations, perinatal mortality, cesarean delivery, Apgar scores at 5 minutes lower than 7, placenta accreta, postpartum hemorrhage, postpartum anemia and delayed maternal and fetal discharge from the hospital. The maternal mortality from placenta praevia is a rare entity in developed countries now a days, but this is not the case in the developing countries. In this study 84% had caesarean delivery and 1.92% had caesarean hysterectomy, the patient developed disseminated intra vascular coagulation. The patient was with previous history of C. Section and was having placenta percreta.

In a similar study Afshan Ambreen and associates¹⁴ found that maternal mortality among such patients was 1.99% and this was due to P.P.H.

Shruthi Prasanth and associates in their study found that maternal mortality and morbidity is reduced because of placenta previa and it is mainly attributable to an increased use of blood transfusions, effective antibiotic therapy and better understanding of the shock and renal failure.¹⁵

Regarding the fetal outcome, it was found in this study that majority of the deliveries were preterm and mortality and morbidity was due to prematurity. Almost more than half > 55% required admission in the neonatal intensive care unit and the neonatal mortality was > 11%.

The results in this study are comparable with the national and international studies, the mean gestational age of the babies was 33.4 weeks, 58% were premature, 11.5% died and 55.7% required admission in nursery. In their study by Macafee et al,¹⁶ found similar results and suggested, that the expectant management was the answer to reduce their perinatal mortality and they found that fetal mortality reduced from 51% to 11.5%.

Rabia Raheel and associates¹⁷ also found the similar findings, and suggested that due to high perinatal deaths associated with placenta praevia, such cases should be delivered in hospital with appropriate facilities.

CONCLUSION

It is concluded, that in a country like ours, placenta praevia is still one of the important causes of fetal mortality and maternal morbidity. These cases should be screened and should be managed expectantly as suggested by Macafee. These cases should be managed in centres where facilities for advanced surgery, specialized anesthesia, ICU, blood transfusion and blood products and neonatal intensive care units are there and system should be backed by a proper referral facility.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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