

Placenta Previa; Prevalence, Risk Factor and Outcome

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ABSTRACT

Aim: To find out the prevalence of placenta previa, obstetrical risk factors and fetomaternal complications.

Study design: It was a prospective observational study.

Setting: The study was carried out in the department of obstetrics and gynaecology at Sharif Medical City Hospital, from January 1st 2010 to December 31st 2013.

Result: During the study period there were 2401 births at Sharif Medical City. Amongst them 1385 were by Caesarean Section. Thirty seven patients had placenta previa, giving its prevalence of 1.54%. Mean maternal age was 29.63 + 4.59 years (range 22 – 40 years). Only 5 women (14%) were >35 years of age, while 86% of women were <35 years of age. Three women were primigravida while 34 were multigravida. Among them, 18 (48.64%) had previous caesarean section, 7 (18.91%) had history of abortion followed by curettage and one woman (2.7%) had previous myomectomy. Eight (21.62%) had no previous uterine surgery. Average blood loss was 1724.24 + 631.48 ml (range 1000 – 3500 ml). Seven patients underwent emergency hysterectomy. Four of them had bladder injury. Two patients developed disseminated intravascular coagulation. One patient had hepatic and renal failure. Average gestation at the time of delivery was more than 35 weeks (35.165 + 3.32 weeks) and average birth weight of neonate was more than 2.5kg (2.51 + 0.65kg).

Conclusion: Multiparity and previous caesarean sections are the most important risk factors for placenta previa. Maternal complications are because of massive haemorrhage and fetal complications are due to prematurity.

Keywords: Placenta previa, previous caesarean, risk factor, fetomaternal outcome.

INTRODUCTION

Placenta previa is used to describe a placenta that is implanted over or very near the internal cervical os¹. It is relatively an uncommon condition which occurs in 2.8 of 1000 singleton and 3.9 of 1000 twin pregnancies². It is a major cause of concern and challenge among the obstetricians because of its association with massive haemorrhage during ante, intra and postpartum period. Several obstetrical factors have been found to be risk for placenta previa including advancing maternal age, multiparity, multiple gestation, previous caesarean section, myomectomy, curettage and previous placenta previa¹.

An increasing trend of placenta previa has been observed in the past few decades, mainly due to an increasing caesarean section rate³. After caesarean delivery the risk of placenta previa increases to 0.65% after single caesarean section and 10% after 4 or more caesarean sections².

Placenta previa is associated with adverse fetal and maternal outcome. Increased fetal morbidity is because of prematurity and low Apgar score which

needs admission in neonatal intensive care unit. Even neonatal death may occur. Maternal complications are massive haemorrhage, emergency hysterectomy, multiple blood transfusions, urogenital injuries, sepsis, prolonged intensive care unit (ICU) and hospital stay.

Optimal management of placenta previa involves early recognition of women at risk of having placenta previa, confirmation by Ultrasonography (USG) or magnetic resonance imaging (MRI) and care of patient in tertiary care hospital under direct supervision of experienced obstetrician and his or her team.

MATERIAL AND METHOD

This prospective, observational study was conducted in the department of obstetrics and gynaecology of Sharif Medical City Hospital which is a tertiary care centre. All patients with placenta previa from January 1st 2010 to December 31st 2013 were included in this study. The diagnosis of placenta previa was established before surgery using transabdominal Ultrasonography performed by a trained radiologist. In occasional doubtful cases transvaginal scan was used for placental localization after patient's consent. Diagnosis was confirmed by directly observing placental localization at the time of surgery. None of the patients had MRI. In all patients with a suspicion

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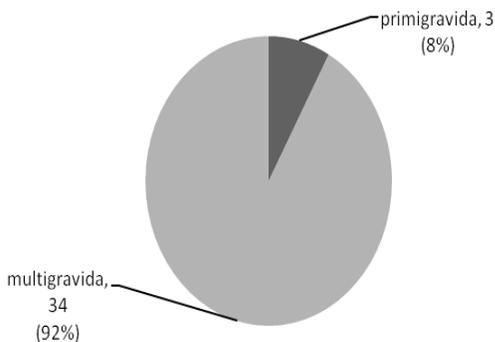
of morbidly adherent placenta, a special consent for hysterectomy was also taken, apart from general consent. At least 4 unit of blood were cross matched in all these cases and surgery was performed by senior consultant. A multidisciplinary approach was adopted in the management of these cases.

Thirty seven patients of placenta previa were included in this study. Data was collected. It included maternal age, parity, previous miscarriage and uterine surgeries, intra and post operative complications, estimated blood loss, number of blood transfusion and stay in hospital. All new-borns were immediately assessed by paediatrician. Fetal outcome was recorded in terms of fetal weight, Apgar at 1 and 5 minutes, admission in NICU, any other complications and perinatal mortality. Maternal and neonatal data was entered and analysed using software SPSS 17. Quantitative data was presented as mean and standard deviation. Qualitative data including all nominal and ordinal variables were described as frequency and percentages.

RESULTS

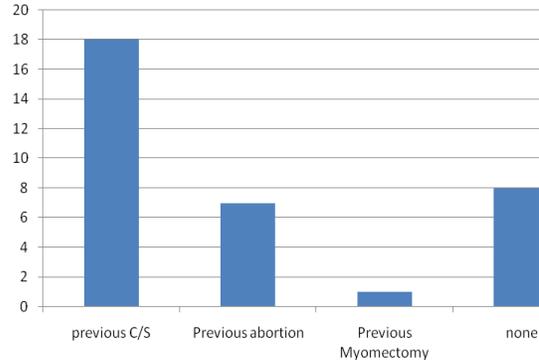
During the study period there were 2401 births at Sharif Medical City. Amongst them 1385 were by Caesarean Section. Thirty seven patients were enrolled for placenta previa, giving its prevalence of 1.54%. The main maternal and obstetrical characteristics of study group are presented using charts and graphs. Mean maternal age was 29.63+4.59 years (range 22 – 40 years) .Only 5 women (14%) were >35 years of age while 86% of women were <35 years of age.

Graph 1: Distribution of parity n=37



Three women were primigravida while 34 were multigravida. Among them, 18(48.64%) had previous caesarean section, 7(18.91%) had history of abortion followed by curettage including 2 induced abortions and one woman (2.7%) had previous myomectomy. Eight (21.62%) had no previous uterine surgery.

Graph 2: Distribution of risk factors (n=37)



Two (5.40%) patients with minor placenta previa delivered vaginally with good maternal and perinatal outcomes. Thirty five patients had caesarean section, among them 19(54.48%) were emergency caesareans and 16(45.71%) were elective caesarean section.

Average blood loss was 1724.24+631.48 ml (range 1000 – 3500 ml). Six of them had more than 2500ml blood loss. While one patient blood loss was estimated even more than 3500ml at the time of surgery, who also developed disseminated intravascular coagulation leading to further loss in post operative period. All patients required blood transfusion along with fresh frozen plasma. . Seven patients underwent emergency hysterectomy, all of them were having major placenta previa. Four of them had intraoperative bladder injury, which was repaired by urologist. Two patients developed disseminated intravascular coagulation corrected with whole blood and fresh frozen plasma transfusion. One patient had hepatic and renal failure which took two weeks to revert back.

A 39 year-old grand multigravida presented with shock at 26 weeks of gestation. A diagnosis of low lying placenta along with abruption was made on USG. These findings were also confirmed at the time of surgery. She needed transfusion of 16 units whole blood and 5 units of fresh frozen plasma .The patient had maximum complications including massive intraoperative loss, post operative disseminated intravascular coagulation, vault hematoma, hepatic and renal failure.

Regarding neonatal outcome average gestation at the time of delivery was about 35 weeks (35.165+3.32 weeks) and an average birth weight was 2.5kg (2.51+0.65kg). However 24(64.86%) were born preterm i.e. less than 37 weeks and 14(37.83%) were low birth weight i.e. less than 2.5kg. Fourteen new-borns were with A/S <7 at 1 min. All preterm babies were admitted to neonatal intensive care unit (NICU) where average stay was 3 – 4 days. However 2 babies stayed in NICU for 7 days and one extremely preterm (1.2kg) required NICU facilities for

20 days. There was one still birth of baby weighing 0.8kg.

Table 1: Obstetrical complications (n=37)

Complications	n	%age
Massive Postpartum haemorrhage	15	40.5
Emergency hysterectomy	7	18.9
Bladder injury	4	10.8
Disseminated intravascular coagulation	2	5.9
Hepatic failure	1	2.7
Renal failure	1	2.7
Hospital stay more than 5 days	14	37.8
Maternal sepsis	1	2.7
Wound infection	2	5.41
Vault hematoma	1	2.7

Table 2: Neonatal complications (n=37)

Complications	n	%age
Prematurity(<37 weeks)	24	64.86
Low birth weight	14	37.83
A/S < 7 at 1 minutes	14	37.83
A/S < 7 at 5 minutes	3	8.11
Still birth	1	2.70
Congenital anomalies	0	0

DISCUSSION

Placenta previa is a major cause of obstetric haemorrhage and is associated with severe maternal complications and adverse fetal outcome. The prevalence of placenta previa in this study is 1.53% which is higher than reported incidence of 0.35 – 0.73% from Ojha, Bhar and Eric 1.^{4,5,6} The difference is attributed to the fact that Sharif Medical City (SMC) is a referral centre where high risk pregnancies are managed and also due to the increasing rate caesarean section leading to increasing incidence of placenta previa. However this incidence is comparable to locally reported incidence of 1.9% and 5.7% by Gulrukh Qazi and Kalsoom^{7,8}. A systematic review and metanalysis suggested a regional variation in its prevalence, being highest among Asian studies (12.2 per 1000 birth) and lowest in Subsaharan Africa (2.7 per 1000 birth)⁹.

Many studies have proved the association of placenta previa with obstetrical risk factors including advancing maternal age, multiparity, previous caesarean delivery, abortion, smoking, cocaine use during pregnancy and male foetuses^{10,11,12}.

In 10% of patients no identifiable risk factor was found, which suggests that etiology of this condition still remains unclear, in few cases. According to Clear et al, advanced maternal age >35 years played a significant role in the development of placenta previa.¹⁰ An association of advancing maternal age was not clearly defined by our study as > 86% of women were less than 35 years of age. However

92% of women were multigravida and 38% of them had parity >3, which suggests its strong association with placenta previa as has been reported in other studies^{5,7,12,13}.

Woman with previous caesarean section or uterine scar are at the highest risk of developing placenta previa. Multiple studies have confirmed a 2–5 fold increased risk of development of placenta previa with previous caesarean section.¹⁴ This risk further escalates with increasing number of caesarean sections. This study shows previous uterine surgery is the highest identifiable risk factor as 49% had previous caesarean, 18.9% had history of evacuation for retained products of conception, and one had myomectomy. None of them had previous history of placenta previa, smoking or drug abuse.

Placenta previa is associated with increased fetomaternal morbidity and mortality^{15,16}. Maternal complications observed in this study were postpartum haemorrhage, emergency hysterectomy, bladder injury, maternal sepsis, wound infection and a prolonged hospital stay. There were 7 caesarean hysterectomies, all were due to morbidly adherent placenta which is a well-known complication of placenta previa with previous caesarean section. This rate of caesarean hysterectomy is higher when compared with other studies^{4,6}. Four of these patients also had bladder injury intraoperatively. One grand-multigravida presenting with a massive antepartum haemorrhage was in a state of intravascular coagulopathy and required transfusion of 15 units of whole blood and five units of fresh frozen plasma. The same patient developed hepatic and renal failure in postoperative period and remained in ICU for 7 days. She also developed sepsis, wound infection and vault hematoma, later on. However, there was no maternal mortality in this study group.

In our study, 64.86% of babies were preterm and 37.83% were low birth weight. 37.83% of babies were born with low Apgar score because of asphyxia and prematurity. There was one still birth of extremely premature baby. However, congenital malformation and intrauterine growth restriction¹³, as reported by Rosenberg, were not encountered in our study.

CONCLUSION

The prevalence of placenta previa is rising with increasing caesarean section rate. All women with identifiable risk factor should be screened for placenta previa. All women with major degree placenta previa should be referred to tertiary care unit where 24 hours blood banking services, in a multidisciplinary approach and neonatal backup can prevent the morbidity and mortality associated with this condition.

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