ORIGINAL ARTICLE

Comparison of Pregnancy Outcome in Placenta Previa versus Placenta Abruption

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ABSTRACT

Objective: To compare the maternal and fetal complications, due to placenta previa and placental abruption.
Design: A comparative cross sectional study
Place and duration of study: Gynae Unit I, Allama Iqbal Medical College/Jinnah Hospital, Lahore, from January 2008 to December 2008.
Patients and methods: The patients were divided into two equal groups. Group A & group B each comprised of 60 consecutive patients who presented with placenta previa and placental abruption respectively and had duration of pregnancy 28 weeks or more. All the patients with placenta previa were diagnosed by ultrasound, where as placental abruption was diagnosed on the clinical features. The patients with duration of pregnancy less than 28 weeks, multiple pregnancy and past history of caesarean section were excluded from the study. Age, parity, gestational age, predisposing factors like hypertension, anaemia and polyhydraminos, symptoms of abruption, mode of delivery and fetal outcome were studied.
Results: 46(76.7%) patients in group A and 20(33.3%) patients in group B were delivered abdominally. Hypertension was present in 14(23.3%) patients and 46(76.7%) patients in group A and group B respectively. Diabetes was noted in group B only. 2(6.6%) patients of group B presented with the history of trauma. Perinatal deaths were 4(13.4%) and 28(46.7%) in group A and B respectively. 24(40%) and 40(66.7%) patients of group A and group B had babies with low birth weight (<2.5kg).
Conclusion: Antepartum haemorrhage is an obstetric emergency associated with significant maternal and fetal morbidity and mortality. Prematurity is the single most common cause of neonatal mortality.
Key words: Placenta previa, placental abruption, mode of delivery.

INTRODUCTION

Ante-partum haemorrhage is an important cause of maternal and fetal morbidity and mortality, despite modern improvement in obstetric practice and transfusion service. It is defined as any vaginal bleeding from the 24th week of gestation till delivery. The initial management of ante-partum haemorrhage should concentrate on resuscitation and accurate diagnosis[1]. The most important causes of ante-partum haemorrhage are placenta previa and abruption, accounting for more than half the cases[2]. The number of cases of placenta previa and placenta accreta is increasing with the increasing caesarean section rate[3]. In many patients, it is not possible to make a definite diagnosis, despite all the investigations. Development of ultrasound especially transvaginal scan has helped in the definitive diagnosis and management of placenta previa[4].

Placental abruption complicates approximately 1% to 2% of all pregnancies and remains a significant cause of both maternal and fetal morbidity[5]. Abruptio placentae are an important cause of vaginal bleeding in the latter half of pregnancy. The key factor in the pathophysiology is hemorrhage at the decidual-placental interface. The maternal effect of abruption depends primarily on its severity, whereas its effect on the fetus is determined both by its severity and the gestational age at which it occurs[5]. Small episodes may escape clinical detection, but severe grades impact significantly on fetal and maternal morbidity and mortality, with the most frequent complications being fetal death, severe maternal shock, disseminated intravascular coagulopathy, and renal failure. Important risk factors for the development of abruptio placentae are previous abruption, hypertensive diseases, abdominal trauma, growth restriction, and smoking[6]. The diagnosis is essentially made on the clinical picture that includes vaginal bleeding (usually dark blood), abdominal pain, and uterine contractions[6].

The true incidence of placenta previa `is difficult to determine with any degree of certainty. The reported prevalence varies between as high of one in 100 to as low as one in 1000 live births[7]. In general this condition is found in 0.4 percent to 0.6 percent of all births. Placenta previa is a rare catastrophe

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associated with high maternal morbidity and mortality[8]. Placenta previa triples the rate of neonatal mortality, which is mediated mainly through preterm birth[8]. The detection of placenta previa should encourage a careful evaluation with timely delivery in order to reduce the associated maternal and perinatal complications[2]. From 1945, when conservative approach began, to 1970s, however, little change has been noted in perinatal mortality (10 to 25%) although maternal death is now a very rare occurrence (less than 0.1%)[9]. Placenta previa is still an important complication of the pregnancy. Its incidence is on rise because of the increasing number of caesarean section being performed, liberalization of abortion laws and a trend of child bearing at a later age among the women[1]. The dangerous complication of placenta accreta associated with placenta previa and prior caesarean deliveries has also increased in frequency[9].

This study is designed to compare the maternal and fetal complications due to placenta previa and placental abruption. Early diagnosis, careful evaluation with timely delivery and adequate resuscitation with multidisciplinary approach can significantly improve maternal and perinatal outcome.

PATIENTS & METHODS

It was a Comparative cross-sectional study, carried out at Gynae Unit I, of Allama Iqbal Medical College/ Jinnah hospital from January 2008 to December 2008. 120 patients with pregnancy of more than 28 weeks duration, who were diagnosed to have placenta previa on ultrasound or had placental abruption, were divided into two equal groups. Group A comprised of 60 patients of placenta previa and Group B had 60 patients of placental abruption. Patients with multiple pregnancy and past history of caesarean section with medical disorders were not included in the study.

After an informed consent, data was collected from history, examination, investigation and relevant details of selected cases by using performa, which included age, parity, gestational age, predisposing factors, symptoms of abruptio placenta, and placental abruption. The details of babies born and fetal morbidity was specifically be noted. The morbidity in the form of admission in neonatology unit for more than 48 hours was considered morbidity

RESULTS

Most of the patients in both groups were young (Table I). . Mean gestational age was 37.4±1.9 and 35.3±3.1 in group-A and B, respectively. In group-A, 24 patients (40%) and 38 patients (63.3%) in group-B had gestational age below 37 weeks while 36 patients (60%) in group-A and 22 patients (36.7%) in group-B had gestational age of > 37 weeks. Most of the patients were multigravida (70%) in group-A and (80%) in group-B.

Table-1: Distribution of cases by age

Age (Year)	Group-A Placenta Previa		Group-B Placental Abruption	
	=n	%age	=n	%age
< 20	02	03.3	06	10.0
20-30	44	73.4	40	66.7
31-40	14	23.3	14	23.3
Total	60	100.0	60	100.0
Mean±SD	27.4±6.1		26.9±5.5	

58 cases (96.7%) in group-A and 38 cases (63.3%) in group-B had revealed haemorrhage. 14 patients (23.4%) in group-B had concealed haemorrhage while 2 cases (3.3%) in group-A and 8 cases (13.3%) in group-B had mixed pattern. On presentation 60 patients (100%) in group-A and 46 patients (76.7%) in group-B were in stable hemodynamic condition while 14 patients (23.3%) presented in state of shock belonged to group-B only. Most of the patients (76.7%) in group A were delivered abdominally, where as majority (66.7%) in group B were delivered vaginally. Risk factors are shown in Table II.

The abruptio placentae symptoms included Vaginal bleeding in 50 patients (83.3%), abdominal pain in 34 patients (56.7%) and loss of fetal movement in 44 patients. Degree of abruption was mild in 22 patients (36.7%), moderate in 26 patients (43.3%) and severe in 12 patients (20.0%). Low birth weight (<2.5 kg) was seen more commonly in group-B, 40 (66.7%) as compared to group-A, 24 (40.0%). Fetal outcome is summarized in Table III.

Table-II: Distribution of cases by risk factors

Risk factors	Group-A - Placenta previa		Group-B - Placental abruption		P value
	=n	%age	=n	%age	
Hypertension	14	23.3	46	76.7	<0.001
Trauma	-	-	02	03.3	0.313
Diabetes mellitus	-	-	08	13.3	0.038
Poor nutritional status	54	90.0	50	83.3	0.447
Premature rupture of membranes	02	03.3	08	13.3	0.150
Smoking	-	-	02	03.3	0.313

Table-III: Distribution of cases by fetal outcome (n =120)

Fetal outcome	Group-A - Placenta Previa		Group-B - Placental Abruption	
	=n	%age	=n	%age
Resuscitation required	16	26.7	30	50.0
Admission to nursery	26	43.3	20	33.3
Neonatal jaundice	-	-	20	33.3
Respiratory problem	06	10.0	06	10.0
Apgar score $\geq$ 6 (at birth)	26	43.3	08	13.3
Apgar score $\geq$ 6 (at 5 min)	48	80	40	66.7
Dead babies	04	6.7	28	46.7

DISCUSSION

Antepartum haemorrhage is an important obstetric entity. The associated high maternal and fetal morbidity and mortality is very challenging for the obstetricians. Various studies have been conducted to identify the high risk population with an objective to improve the fetomaternal outcome. Inspite of defining the risk factors which are high parity, advancing maternal age, rupture membranes, hypertension, previous scaring of uterus the outcome remained poor[10].

Prematurity was high in abruption than placenta previa. In placental abruption group, 63.3% patients were delivered before 37 weeks of gestation compared to 40% in placenta previa. These findings are close to the study of Ananth et al[11]. In another study conducted by Cheng and Lin in the department of obstetrics and gynecology, Shanghai Jiaotong University Medical College, Shanghai reported prematurity in 88% in placental abruption group[12] which is high rate as compared to findings of the current study i.e. 63.3%.

The study by Begum has also shown association between placental abruption and hypertension as a risk factor in 74% of these patients[13]. The results of our study are not very different as hypertension was found in 76.7%. While in a study by Ananth et al, the results from this study clearly show a decreased frequency of pregnancy-induced hypertension among those pregnancies with placenta previa[14].

Other risk factor in our study was diabetes mellitus. Diabetes can cause and aggregate placental dysfunction thus causing placental abruption[2]. In current study diabetes mellitus was found to be in 13.3% while there was no case of diabetes mellitus in placenta previa group.

The clinician should be aware of the significant association between preterm premature rupture of membranes and the risk for subsequent placental abruption, especially in patients with early midtrimester premature rupture of membranes and history of bleedings before rupture of membranes or bleedings during the latency period[5,15]. In the current study, premature rupture of membranes found in 13.3% cases in placental abruption while 3.3% in placenta previa.

Smoking is associated with a 2.5 fold increased risk of abruption severe enough to result in fetal death. The risk increases by 40 percent for each pack smoked per day[6]. In present study, only 3.3% cases of smoking were observed in placental abruption. As in our population female patients with smoking are less frequently found.

In this study, vaginal bleeding was experienced in 83.3% and abdominal pain in 56.7% of abruption cases. These results are with accordance to Tikkanen M et al, they demonstrated the symptoms of abruptio placentae include vaginal bleeding (> 80 percent of patients) abdominal pain (> 50 percent)[16].

Placental abruption resulting in fetal death may seriously affect maternal health, especially when clotting disorders arise. The prevailing view is that the clotting system will only normalize after the uterus has been evacuated and therefore prompt delivery, often by induction of labor, is advocated[17]. In our study, fetal mortality was 46.7% in placental abruption cases while 6.7% in placenta praevia. These results supported by López-Llera et al in where fetal mortality of 44.7% was demonstrated[18].

In current study, in placental abruption cases 66.7% babies belonged to low birth weight (<0.5 kg) and 40% having low birth weigh in placenta praevia. These findings supported by the study of Pitaphrom and Sukcharoen, they reported low birth weight cases in placental abruption (65.0%)[19].

Nath et al demonstrated that fetal heart rate pattern reflected the severity of placental abruption. Undetectable variability and bradycardia occurred significantly more frequently in cases of severe placental abruption, and thus may reflect the severity of placental abruption[20].

CONCLUSION

Antepartum haemorrhage is an obstetric emergency associated with maternal and fetal morbidity and mortality. Prematurity is the single most common reason for neonatal mortality.

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