ORIGINAL ARTICLE

Clinical Presentation and Risk Factors Associated with Placental Abruption

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ABSTRACT

Objectives: To illustrate the pattern of clinical presentation in placental abruption and to seek association of various factors with abruption of placenta.
Study design: Case control study.
Setting: This study was conducted in the department of Obstetrics and Gynaecology, Unit-1, Jinnah Hospital, Lahore.
Duration of study: This study was conducted over a period of one year from 24-04-06 to 23-04-07.
Subjects and methods: 64 cases and 64 controls were included in the study.
Cases were the patients with abruptio after 24 weeks of gestation and control were the patients presenting > 24 weeks of gestation without any bleeding/ abruptio.
Results: In group-A (cases), and group-B (controls) mean age was 31.3±6.7 and 27.4±4.5, respectively. Raised diastolic blood pressure (> 90 mmHg) was recorded in 48 patients (75%) in group-A and in 9 patients (14.9%) in group-B. Gestational diabetes mellitus was found to be in 6 patients (9.4%) in group-A and 1 patient (1.6%) of GDM was found in group-B. Distribution of multiple pregnancy shows 3 patients (4.7%) in group-A and 1 patient (1.6%) in group-B. Polyhydramnios was present in 6 patients (9.4%) in group-A and in 3 patients (4.7%) in group-B.
Conclusions: Haemorrhage is the main presenting complaint. Increasing age and parity has significant association with placental abruption.
Key words: placental abruption, clinical presentation, risk factors, haemorrhage.

INTRODUCTION

Abruptio placenta is the premature separation of normally situated placenta after 24 completed weeks of gestation, and before delivery of a baby. It is a self-extending process with accumulating blood clots leading to more separation of placenta.Basic cause is unknown but placental abruption has strong association with high parity pre-eclampsia and hypertention[1]. It has been speculated that there may be an association between abruption and abnormal placentational or trophoblastic invasion as in the case with pre-eclampsia[2]. Direct abdominal trauma may also lead to placental haemorrhage and abruption; hence, pregnant women sustaining an abdominal injury such as a road traffic accident should also have an obstetric review after the event[3]. Within the context of direct abdominal trauma, the possibility of physical abuse by a partner or other person should not be forgotten[4]. Despite these various associations in the majority of cases of placental abruption etiology remains uncertain.Over recent years, an increasing number of acquired and inherited thrombophilias have been identified and and it has become apparent that these are associated with a variety of poor outcomes in obstetric including abruption[5]. In a study in New York, it was concluded that placental abruption carries increased risk of stillbirth, preterm delivery and fetal growth restriction. Greater degree of placental separation is associated with fetal demise but risk of preterm delivery is increased even with lesser degree of placental separation[6]. Pregnancy with placental abruption must be considered high risk pregnancy because of increased risk of small for gestation babies, premature delivery and its association with pregnancy induced hypertention and maternal morbidity and mortality too[7]. Placental abruption occurs in 0.5% of singleton gestations[4]. Abruption is twice as likely to occur in twins than in singleton pregnancy[8] in a study in UK in 1995 perinatal mortality due to placental abruption was 119/1000 births compared with 8.2/100 among all other births. Babies were nine times likely to be born with lowest centile of weight in case of placental abruption[9]. Even babies at 40 weeks of gestation with birth weight 3500-3999 g had 25 fold increased risk of mortality[10]. Abruptio placentai is the major cause of antepartum haemorrhage. Our hospital is a tertiary care referral

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centre, and most of the patients are neglected Dai handled and referred from different clinics. The result of this study will help in making the definitive clinical assessment and management plan for pregnancy with abruption placentai to reduce the risk of maternal and perinatal mortality and morbidity.

PATIENTS AND METHODS

Over a period of one year, from April 2006 to April 2007, a case control study was conducted at the Department of Gynaecology and Obstetrics, Jinnah Hospital, Lahore. A total of 64 cases of abruption were taken and 64 controls were included in the study. The inclusion criteria for cases were all the patients with antepartum haemorrhage with gestational age at ≥24 weeks and fulfilling the prerequisite for controls. All the patients with placenta praevia, with pathology of lower genital tract and patients having bleedings disorders were excluded from the study. All the patients with placental abruption after 24 weeks of gestation were considered for further evaluation. Assessment was done on history and previous episodes of antepartum haemorrhage was noted. Factors like trauma (domestic violence, road traffic accident, external cephalic version, amniocentesis), hypertension (diastolic BP >90 mmHg), poor nutritional status (body mass index BMI < 18), polyhydramnios (maximum vertical pool MVP >8 cm or AFI > 21cm) and multiple pregnancies were analysed. .Laboratory investigations including tests like blood grouping, rhesus factor, haemoglobin level, liver function test (LFTs), renal function test (RFTs), coagulation profile, non-stress test (NST) and ultrasonography was done to assess the clinical status of the patient.All the data was collected on the pre-designed proforma. Data analysis was computer based. Computer software SPSS ver 11.00 was used. Data entry sheet was developed in SPSS. Frequency tables and percentages were calculated. Mean$\pm$SD was calculated for descriptive statistics, like age, and gestational age. Chi square test was applied on qualitative data as test of significance. The qualitative variables included were parity, haemorrhage, abdominal pain, general condition (stable, in shock), fetal movement. Odds ratio was also calculated for risks factors, diastolic blood pressure (>90mmHg and $\leq$ 90 mmHg), domestic violence, known diabetic, diabetes mellitus, multiple pregnancies, polyhydramnios, and nutritional status.

RESULTS

A total of 128 patients were selected during the study period. As it was a case-control study, sixty-four patients were taken as cases (group-A) and sixty-four patients taken as controls (group-B) in the department of Obstetrics and Gynaecology, Jinnah Hospital, Lahore. Study period was from 24-04-06 to 23-04-07.While studying the distribution of cases by age it was found that 16 patients (25%) in group-A and 26 patients (40.7%) in group-B were between 20-25 years.8 patients (12.5%) in group-A and 27 patients (42.1%) in group-B between 26-30 years. The age group between 31-35 years had 15 patients (23.4%) from group-A and 8 patients (12.5%) from group-B. There were 21 patients (32.8%) from group-A and 3 patients (4.7%) from group-B who were above 36-40 years of age. While $\geq$ 40 years old patients were 4 (6.3%) in group-A and none was in group-B. In group-A, and group-B mean age was 31.3$\pm$6.7 and 27.4$\pm$4.5, respectively. Gestational age distribution revealed that 48 patients (75%) in group-A and 46 patients (71.8%) in group-B belonged to gestational age < 37 weeks. In gestational age group $\geq$37 weeks, there were 16 patients (25.0) in group-A and 18 patients (28.2%) in group-B. Mean gestational age in group-A and group-B was found to be 32.9$\pm$3.7 and 33.5$\pm$3.5, respectively.

There were 10 primigravidae (84.4%) in group-A and 16 (25%) in group-B. 54 multigravidae (84%) in group-A and 48 (75%) in mulitigravidae in group-B. Distribution of haemorrhage shows that maximum number of cases were of revealed type in group-A i.e 40 (62.5%). Concealed were 14 (21.9%) and mixed haemorrhage was found in 10 patients (15.6%). Abdominal pain was present in 55 patients (85.9%) in group-A while It was there in only 4 patients (6.25%) in group-B.As regards general condition, stable patients were 50 (78.1%) in group-A and 63 (98.4%) in group-B .those in a state of shock were 14 (21.9%) in group-A and only 1 (1.6%) in group-B .Loss of fetal movements was seen in 41 patients (64.1%) in group-A and in 1 patient (1.6%) in group-B .Raised diastolic blood pressure (> 90 mmHg) was recorded in 48 patients (75%) in group-A and in 9 patients (14.1%) in group-B. Domestic violence was observed in 3 patients (4.7%) in group-A and in 1 patient (1.6%) in group-B. Known diabetic patients were 5 (7.8%) in group-A and 2 patients (3.1%) had this disease in group-B. Gestational diabetes mellitus was found to be in 6 patients (9.4%) in group-A and in 1 patient (1.6%) in group-B. Distributions of multiple pregnancy shows 3 patients (4.7%) in group-A and in 1 patient (!.6%) in group-B. Polyhydraminios was present in 6 patients (9.4%) in group-A and in 3 patients (4.7%) in group-B. Thirty-seven patients (57.8%) had poor nutritional status in group-A while 18 patients (10.9%) had poor nutritional status in group-B.

Table 1: Distribution of cases and controls by qualitative study variables

Variables		Cases n(%)	Controls n (%)
Gestation age	<37 wks.	48 (75)	46 (71.8)
	>37 wks.	16 (25)	18 (28.2)
Parity	Primi	10 (15.6)	16 (25)
	Multi	54 (84.4)	48 (75)
General condition	Stable	50 (78.1)	63 (98.4)
	In shock	14 (21.9)	01 (1.6)
Diastolic BP	<90 mm	48 (75)	09 (14.1)
	>90 mm	16 (25)	55 (85.9)
Abdominal pain	Yes	55 (85.9)	04 (6.2)
	No	09 (14.1)	60 (93.7)
Loss of fetal movement	Yes	41 (64.1)	01 (1.6)
	No	23 (35.9)	63 (98.4)
Poly hyhdramnions	Yes	06 (9.4)	03 (4.7)
	No	58 (90.6)	61 (95.3)
Known diabetes	Yes	05 (7.8)	02 (3.1)
	No	59 (92.2)	62 (96.9)
Gestational diabetes	Yes	06 (9.4)	01 (1.6)
	No	58 (90.6)	63 (98.4)
Poor nutrition	Yes	37 (57.8)	18 (28.2)
	No	27 (42.2)	49 (89.1)
Domestic violence	Yes	03 (4.7)	01 (1.6)
	No	61 (95.3)	63 (98.4)

DISCUSSION

Placental abruption is still a grave obstetrical emergency. Global mortality for mothers during a child birth is about 500,000 each ear and majority of maternal death occur in developing world. In Pakistan with a total population of more than hundred and a sixty million, only 43% women have access to antenatal facilities. Only 235 deliveries are being carried out by skilled personals (doctors, nurses and midwives). We have one of the highest maternal mortality rates (500 per 100,000 live birth) not only in the world but also in the region[11].

The incidence of placental abruption is much higher in developing countries than the studies from developing countries[12]. Contributing factors affecting higher incidence rate in our population may be low socioeconomic condition (low BMI), grand multiparty, ignorance about antenatal care, poor diagnosis and poor control of predisposing factors for placental abruption.

The classical symptoms of placental abruption include haemorrhage and abdominal pain. Haemorrhage may be revealed or concealed. In our study 62.5% cases presented with revealed haemorrhage, 21.9% with concealed haemorrhage and in 10% cases there was a mixed pattern (P=0.45). these results are in accordance with previous studies in which 65-80% cases had revealed haemorrhage and 25-30% had concealed[13,14]. Abdominal pain was present in 85% cases (P<0.001) which supports results of a study conducted by saadia et al in which it was present 50% cases. 21.9% (P<0.001) presented in a state of shock and in 64.1% cases (P<0.001) loss of fetal movement was seen.

One of the study carried out by Ananth et al (2003) showed an increased incidence of preterm birth in patients of placental abruption [15]. Similar association was seen in our study as abruption was seen in 75% cases of less than 37 weeks gestation. Significantly increased incidence of abruption was found in low socioeconomic class and grand multiparity with advancing age as 62.5% cases in our study were more than 30 years of age. 23.4% were between 31-35 years, 32.8% were between 36-40 years and 6.3% were more than 41 years. These results are also evident from an other study of Hladky et al (2002).

A study of begum (2003) on age and parity related problems reports that placental abruption is one of the intrapartum complication that is classically associated with grand multiparity[16].

Our study has shown similar association as 84% cases were multigravida and only 15% cases were primigravidae.

The study by Begum has also shown association and hypertension as a risk factor and found a 9 fold increased risk with chronic hypertension. Incidence of placental abruption in that study and in 74% of these patients hypertension was causative factor [16]. The results of our study are not very different as hypertension was found in 75% cases (P<0.001).

Other medical disorder in our study was diabetes mellitus. Diabetes can cause and aggregate placental dysfunction thus causing placental abruption[17]. Our study had gestational diabetes in 9.4% and known diabetes in 7.8% cases. Regarding the other risk factors like domestic violence is seen in 4.7% cases (P=0.31) and multiple pregnancy in 4.7% (0.31), these results are comparable with the results reported by Jabeen and Gul (2004) in which 3.1 cases had history of troma and 4.53% had multiple pregnancy[18].

Polyhydramnios was found to be in 9.4% cases. These results are comparable with those reported with the study of Hung et all (2007)[19]. In our study 57.8% cases of placental abruption had poor nutritional status (BMI < 18). This significantly relation with is reported by Hung et al[19] as well.

CONCLUSION

Both maternal and neonatal morbidity and mortality can be reduced by identification of risk factors for placental abruption. We concluded from our study

that haemorrhage and abdominal pain are the main presenting complaints. Significant correlations exists between increasing age multiparity and placental abruption. Hypertension is found to be the major risk factor in placental abruption.

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