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Abruptio Placentae – Risk Factors and Clinical Manifestations

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Abstract
Background: *Abruptio placentae is one of the major cause of ante partum haemorrhage. Many risk factors are known to be associated with increased risk of abruption such as smoking, maternal age and pregnancy induced hypertension.*
Objectives: *To determine the risk factors of abruption in our population and to identify the signs and symptoms of abruption in them.*
Materials and Methods: *Retrospective case- control study where all cases of abruption which occurred in a one year period were included . Patients with classical signs and symptoms of abruption and diagnosed in the antenatal period and all patients diagnosed post natally by the presence of retroplacental clot was included in the study. Control group consisted of equal number of patients selected randomly. Statistical analysis for comparing the risk factors was performed using Chi Square test.*
Result: *The incidence of placental abruption during the study period was 0.52 %. Major risk factors for abruption were age more than 30 years, previous history of abruption, prematurity, pregnancy induced hypertension and Premature rupture of membrane. Most of the cases presented as abdominal pain (74.44%) and bleeding per vaginum (73.33%).*
Conclusion: *Placental abruption is a major cause of antepartum haemorrhage and is an obstetric emergency. Early diagnosis and prompt treatment will minimize the serious sequelae to a great extent.*
Keywords: *Placental abruption, Pre – eclampsia, risk factors.*

Introduction

Abruptio placentae is a common obstetric emergency which endangers the life of both the mother and the foetus. It is one of the major causes of antepartum haemorrhage [1]. Placental abruption is defined as the premature separation of a normally located placenta. The perinatal mortality rate varies between 20 and 67 % depending on gestational age, foetal weight and degree of abruption [2].

The main pre-disposing factors of placental abruption are age, parity, smoking, pregnancy induced hypertension, premature rupture of membranes, trauma etc. [3]. Recently placental abruption has been reported to be more prevalent in patients with thrombophilia and in women with family history of venous thromboembolism [4].

Abruption usually presents as abdominal pain and bleeding per vagina. Bleeding and pain constitute the classical symptoms of placental abruption, but the clinical picture varies from asymptomatic cases in which the diagnosis is made by inspection of placenta at delivery, to massive abruption leading to foetal death and severe maternal

morbidity [5]. The diagnosis is always clinical. The etiology of placental abruption is not fully understood but impaired placentation, placental insufficiency, intrauterine hypoxia, and uteroplacental under perfusion are likely the key mechanisms causing abruption. Abruption results from a rupture of maternal decidual artery causing dissection of the decidual-placental interface. Acute vasospasm of small vessels may precede abruption. The trophoplastic invasion in the spiral arteries and subsequent early vascularization may be defective. Moreover, placental abruption may also be a manifestation of an inflammatory process which could affect vascular bed. Despite heightened awareness, placental abruption still remains unpredictable and unpreventable.

Depending upon the severity of symptoms, abruptio placentae is divided in to three grades.

Grade 1 – This is not recognized clinically before delivery and is usually diagnosed by the presence of retroplacental clot.

Grade 2 – The classical signs of abruption are present, but the foetus is still alive.

Grade 3 – The foetus is dead.

3 a - without coagulopathy

3 b – with coagulopathy.

Maternal complications and perinatal complicat-ions in abruption are hypovolemic shock, consum-ptive coagulopathy, renal failure, uterine apoplexy, postpartum haemorrhage, prematurity, low birth weight, intrauterine death, birth asphyxia, maternal and foetal mortality.

This study was conducted to find out the risk factors for placental abruption and the clinical manifestations.

Materials and Methods

This retrospective case control study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College, Trivandrum. All cases of abruption diagnosed during a one year period were included in the study. All patients who were diagnosed of placental abruption in the antenatal period by the classical signs and symptoms and all those who were diagnosed by retroplacental clot postnatally were included in the study. An equal number of controls were selected in a random fashion. Women presenting with bleeding per vaginum due to causes other than abruption were excluded.

Data collected included maternal age, parity, gestational age, previous history of abruption, history of pregnancy induced hypertension, premature rupture of membranes, symptoms and signs, mode of termination, abruption – delivery interval, maternal and foetal complications. Statistical constants like mean and standard deviation were computed. Hypothesis were tested using statistical tests like Chi Square test and Student t test.

Result

The incidence of abruptio placentae during our study period was 0.52 %. A total of 295 cases of antepartum haemorrhage occurred in this period out of which 90 were abruption , 197 cases were placenta previa and 2 cases were unclassified antepartum haemorrhage.

The distribution of placental abruption in women above 30 years was greater than those who were younger (23.34 % and 6.66 % , $P < 0.01$)

Table 1. Distribution according to age

Age group(years)	Study group		Control group	
	Number	Percentage	Number	Percentage
< 20	4	4.44	24	26.67
20 - 24	36	40.00	42	46.67
25 - 29	29	32.22	18	20.00
30 & above	21	23.34	6	6.66

In this series 46.67 cases were primigravidas which was not significant when compared with the control group ($p > 0.05$). The occurence of preterm labour was significantly higher in women with abruptio placenta than in the control group (62.21 % vs. 10 %, $p < 0.001$). Women with placental abruption had evidence of abruption in previous pregnancy in 6.66 % cases and this is statistically significant in comparison with the control group (6.66% vs. 0.5 % , $p < 0.0001$).

Pregnancy induced hypertension was found to be a major factor associated with abruptio placentae. Pregnancy induced hypertension was detected in 38.89 % cases and premature rupture of membranes in 14.44 % cases.

Table 2 Factors associated with abruptio placenta

Conditions	Number	Percentage
Pre eclampsia	35	38.89
Chronic hypertension	0	0
Eclampsia	1	1.11
Fibroid	4	4.44
Hydramnios	2	2.22
Trauma	2	2.22
Premature rupture of membranes	13	14.44
Smoking	0	0
Previous history of abruption	6	6.66

Most of the cases of placental abruption presented with abdominal pain (74.44 %) and / bleeding per vaginum (73.33 %).The signs of abruptio placentae varies according to the severity of the condition.

Table 3 Clinical features

Clinical features	Number	Percentage
Abdominal pain	67	74.44
Bleeding per vaginum	66	73.33
Tense & tender uterus	28	31.11
Fetal distress	9	10.00

Maternal complications that occurred in our series were as follows.

Table 4 . Maternal complications

Complications	Number	Percentage
Oliguria	2	2.22
Maternal shock	2	2.22
Coagulopathy	3	3.33
Couvelaire uterus	9	10.00
Post partumhaemorrhage	7	7.80
Maternal death	0	0

It is rather difficult to get the exact time of onset of abruption. In our series we depended upon the patients word about the time at which she noticed the abdominal pain or bleeding as the time of onset of abruption. In all cases with coagulopathy and renal failure, abruption – delivery interval was more than 8 hours.

Table 5. Abruption – delivery interval and the occurrence of coagulation and renal failure.

Clinical type	Number	Abruption – delivery interval in hours						
		0 - 4	5 - 8	9 - 12	13- 16	17 - 24	- 36	>36
Without coagulopathy& renal failure	85	19	31	19	9	5	2	1
Coagulopathy	3	0	0	0	2	1	0	0
Renal failure	2	0	0	1	1	0	0	0

Discussion

Placental abruption is still a grave obstetric emergency. The incidence of placental abruption among singleton pregnancies is usually reported to range from 0.7 – 1 %. Abbasi RM reported an incidence of 1.87 % [6]. In our study, the incidence of placental abruption was found to be 0.52 %. There are many conditions associated with placental abruption. Conditions that increase the risk of abruption include smoking, toxaemia and having either twins or triplets [3]. Other risk factors include drug use , particularly tobacco , alcohol , cocaine and opiod [7].

Pregnant women younger than 20 or older than 35 years had greater risk for abruption [6,7]. In our series, age more than 30 years is found to be a significant risk factor. 23.34 % cases were above 30 years whereas in the control group only 6.66 % were above 30 years. Several studies have reported a 2 – 5 fold increased risk of placental abruption in women with a history of previous caesarean section [6]. In our series , there was no significant difference in the history of previous caesarean sections among study and control group. Multiparity is shown to be a risk factor for placental abruption [8]. In our series, no difference in incidence of abruption was seen according to parity. Preterm delivery is one of the main risk factor for placental abruption [9]. Our study confirmed that the frequency of preterm delivery was significantly higher in placental abruption group than in the control group. Other studies have reported that a previous history of placental abruption could be a risk factor for its development in current pregnancy [10]. In our

series we got the history of abruption in previous pregnancies in 6.66% cases. Some studies have shown an association between premature rupture of membranes and placental abrupyion [11]. In our study premature rupture of membranes was found in 14.44 % cases.

Pregnancy induced hypertension is a major risk factor for abruptio placentae [12]. In our series, 38.89 % cases had pregnancy induced hypertension. External abdominal trauma was found only in 2.22% cases. None of our cases or controls gave history of smoking or alcohol use. The presence of uterine pain and tenderness traditionally has been considered as a useful criteria for distinguishing abruptioo placenta from other causes of bleeding in pregnancy. 73.33 % cases in our series presented with vaginal bleeding and 74.44 % presented with abdominal pain.

Abruption – delivery interval is thought to be related to the occurrence of complications like coagulation failure and renal failure. In our series, such complications occurred in cases where the abruption – delivery interval was more than 8 hours. Incidence of coagulation failure in the present study is 3.33%. This is comparable with the study conducted by Krauss et al who reported an incidence of 4 % [13].

Placental abruption should be closely monitored and prompt delivery should be carried out in a tertiary care centre with adequate maternal and neonatal intensive care facilities. Despite heightened awareness, placental abruption still remains unpredictable and unpreventable.

Conclusion

Abruptio placentae is common in advancing age, those with previous history of abruption, hypertensive disorders of pregnancy and prematurity. As abruptio placentae is a major risk factor for maternal and fetal morbidity and mortality, efforts should be taken to reduce the risk factors of abruption. All cases with risk factors should be strictly followed up and prompt action should be taken to reduce maternal and perinatal morbidity and mortality.

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