



Incidence of Grades of Abruption Placentae and Association with Hypertensive Disorder and Disseminated Intravascular Coagulation

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ABSTRACT

Introduction: Abruption Placentae is one of the most common causes of antepartum haemorrhage. It remains a leading cause of maternal mortality and morbidity till date. This study aims to determine the Incidence of grades of Abruption Placentae and Association of Abruption Placentae with Hypertensive Disorder and Disseminated Intravascular Coagulation.

Methods: The study was conducted in Department of Obstetrics and Gynaecology, Gangori Hospital, SMS Medical College, Jaipur. All pregnant women with >28 weeks period of gestation presenting antenatal clinic with antepartum haemorrhage were included in this study and their association with Hypertensive disorder and Disseminated Intravascular Coagulation were studied and incidence of grade of abruption calculated.

Result: A total of 72 cases of abruption placentae were included in this study out of which 23 were grade 1 [33.33%], 17 were grade 2 [23.62%] and 31 were grade 3 [43.06%]. It was noted that hypertensive disorder was present in 21 cases [29.17%] and disseminated intravascular coagulation developed in 2 cases [2.78%].

Conclusion: Abruption placentae is undoubtedly one of the serious complications of pregnancy and is leading cause of maternal mortality. So, once the diagnosis of abruption is made, management actions taken should be swift and prompt because the key to management is early diagnosis and timely management.

Keywords: Abruption Placentae, Disseminated Intravascular Coagulation

INTRODUCTION

Abruption Placentae is defined as premature separation of normally implanted placenta partially or totally from 24 weeks period of gestation to delivery of baby. It is common and serious obstetrical haemorrhage that occurs in antenatal period.

Abruption Placentae occurs in 0.8-1% of all pregnancies and 1.2% in twin pregnancies. In developed countries, approximately 10% of all preterm births and 10-20% of all perinatal deaths are caused by placental abruption. Also, it has been noted that the rate placental abruption is increasing in some countries¹.

Although there are many risk factors associated with placental abruption but its etiopathogenesis seems to be complex and multifactorial in nature. Placental Abruption is caused by haemorrhage into decidua basalis, resulting in splitting of decidua, leaving a thin layer adhered to myometrium. This process begins as a small hematoma that can increase in size leading to compression of adjacent placenta leading to decreased blood supply to fetus and fetal compromise.

In rare circumstances, the retroplacental bleed may penetrate through the thickness of uterine wall into

the peritoneal cavity, a phenomenon called as Couvelaire uterus.

Abruption begins most likely due to rupture of spiral decidual artery forming a small retroplacental hematoma in initial stage that can slowly increase in size. In rare cases, the bleeding can occur from fetoplacental vessels also. Abnormal trophoblastic invasion, fragility of vessels due to atherosclerosis and vascular malformations predispose to hematoma formation in abruptio placentae.

It has to be noted here that even with continuous bleeding into decidual layers, placental abruption can be revealed type when the bleeding is seen escaping through cervix or concealed type, when the blood is retained between the detached placenta and uterus leading to delayed diagnosis or mixed type [revealed and concealed type].

Grades Of Abruptio Placentae on the basis of severity:

Grade 1 [mild] : Not recognized clinically before delivery, diagnosed by the presence of a retroplacental clot [retrospective diagnosis].

Grade 2 [moderate]: classical clinical signs of abruption are present, fetus is still alive but fetal heart rate abnormalities may be present.

Grade 3 [severe]: In this fetus is dead and coagulopathy may be present. The volume of blood loss is appreciable in this condition.

The primary cause of placental abruption is usually unknown but multiple risk factors identified are hypertensive diseases of pregnancy, advanced maternal age, cigarette smoking, alcohol consumption, cocaine use, short umbilical cord, previous placental abruption, sudden decompression of uterus [eg; premature rupture of membrane, delivery of first twin], prolonged rupture of membranes [24 hrs or longer], retroplacental bleeding from needle puncture [i.e; post-amniocentesis], low socioeconomic status, elevated second trimester maternal serum alpha-fetoprotein.

Although severe preeclampsia is a strong risk factor for abruption, mild preeclampsia have also been linked to placental abruption. Chronic hypertension superimposed with pre-eclampsia is also strongly linked to placental abruption.

The diagnosis of Abruptio Placentae is only clinical. There is no standard diagnostic criteria for placental abruption. Most women present with vaginal bleeding, sudden onset abdominal pain and uterine tenderness. Other findings include non-reassuring fetal heart rate, persistent hypotonus and frequent contractions.

In case of concealed type of abruption, there is no vaginal bleeding and the diagnosis is late and more chances of coagulopathy.

Fatal complications like Disseminated Intravascular Coagulation [DIC], post-partum haemorrhage, shock, renal failure, amniotic fluid embolism, Couvelaire uterus can occur in complicated cases.

Method

The study was conducted in Department of Obstetrics and Gynaecology in Gangori Hospital, SMS Medical College, Jaipur. Cases of abruptio placenta were taken up from the Antenatal clinic itself during our study. All pregnant women presenting with antenatal haemorrhage after 28 weeks period of weeks were included in this study till the desired sample size is reached.

On admission a detailed history was taken regarding presenting complaints, general physical examination, abdominal examination, routine investigations, ultrasonography, per speculum and vaginal examination was also done after excluding placenta previa.

A special focus was given on blood pressure readings and other blood investigations like complete blood count, liver function tests, renal function tests, urine albumin, peripheral blood smear and coagulation profile to diagnose hypertensive disorder of pregnancy. The categorisation of cases on the basis of grades of abruptio placentae was also done.

The patient was also strictly monitored in intrapartum period and peripartum period to check the occurrence of consumptive coagulopathy.

RESULTS:

It was noted that out of 72 cases of abruption placentae, 23 were grade 1 [33.33%], 17 were grade 2 [23.62%] and 31 were grade 3 [43.06%]. In grade 1, 20.83% of cases, in grade 2, 29.41% of cases and in grade 3, 35.48% of cases had hypertensive disorder respectively. Coagulopathy was seen in 2 out of 31

patients of grade 3 abruptio placentae [6.45%]. Thus the overall incidence of hypertensive disorder was 29.17% and that of coagulopathy 2.78%.

Table 1: Incidence Of Grades Of Abruptio Placentae And Its Association With Hypertensive Disorders And Disseminated Intravascular Coagulation.

GRADE	NO. OF CASES OF ABRUPTIO PLACENTAE		NO. OF CASES WITH HYPERTENSIVE DISORDER		NO. OF CASES WITH COAGULOPATHY	
	NO.	%	NO.	%	NO.	%
1.	24	33.33	5	20.83%	0	0%
2.	17	23.61	5	29.41%	0	0%
3.	31	43.06	11	35.48%	2	0%
TOTAL	72	100%	21	29.17%	2	2.78%

DISCUSSION:

Riya Bhattacharya et al ² [2020] conducted a study on “Pregnancy Outcomes in Placental Abruptio in a Tertiary Care Centre in Karnataka” on 64 cases of placental abruptio in retrospective manner. They found out that in 45% of the cases severe pre-eclampsia was the risk factor and DIC was associated with 9.3% of the patients in their study.

Rachel Gomez-Tolub et al ³ [2020] conducted a study on “Placental abruptio as a trigger of DIC in women with HELLP syndrome”. The study population was divided into three groups: (1) comparison group (n=207,266 deliveries); (2) HELLP syndrome without DIC (n=320); (3) HELLP syndrome with DIC (n=21). They found out the rate of HELLP syndrome in their was 0.16% out of which 6.16% had DIC.

Phadtare et al ⁴ [2017] conducted a study on “Maternal and Foetal outcome in Abruptio Placentae” on 100 cases they found out that one

maternal death occurred due to Abruptio Placentae complicated with DIC”.

Samina Naseem Khattak et al⁵ in their study on “Association of maternal hypertension with placental abruptio” that was conducted on 50 cases and 50 controls, they found out that among controls 45[90%] had blood pressures in the normal range. There was statistically significant differences between cases and controls with respect to hypertension ($p < 0.01$). Therefore in their study they concluded that placental abruptio was strongly associated with maternal hypertension.

CONCLUSION:

Abruptio Placentae is a serious and life threatening complication that can lead to maternal mortality if complicated by serious medical condition like DIC. Also the diagnosis of this condition is clinical. So therefore the key to management of this condition is early diagnosis and prompt management. The most notable factor like hypertension should be focused upon early in antenatal period so that high risk pregnancies can be given intensive monitoring and timely management during delivery. Education about the risks of harmful behaviour like smoking is important at the same time. With improved maternal treatment and advanced fetal monitoring, perinatal maternal and fetal mortality and morbidity can be significantly reduced.

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