



## A STUDY OF RISK FACTORS AND MATERNAL AND FETAL OUTCOME IN PATIENTS WITH ABRUPTIO PLACENTAE

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### ABSTRACT

**Objectives:** To determine the risk factors and to find out the obstetric and perinatal outcome in patients with placental abruption.

**Study Design:-** Prospective Observational Study.

**Materials and Methods:** The present study was conducted in Department of Obstetrics and Gynaecology, Government Medical College and Rajindra Hospital Patiala from January 2017 to December 2017. All the patients presenting as antepartum hemorrhage in 3<sup>rd</sup> trimester underwent detailed history and examination. Those cases diagnosed as abruptio placentae were included in the study. Maternal and perinatal outcome and risk factors were noted.

**Results:** In the study period 176 patients were diagnosed as abruptio placentae. Incidence of abruption placenta came out to be 3.8%. Most (70.5%) of the cases were unbooked with average age 21-25 years and 67.6% patients were from lower socio economic class. Anaemia was observed in 83.5% of patients, pregnancy induced hypertension in 58.5% of cases, Gestational diabetes mellitus in 5.1% cases and premature rupture of membrane in 13.1%. 57.3% of cases were delivered by LSCS, 38.6% had vaginal delivery and 3.9% underwent assisted breech vaginal delivery. Maternal complications observed were post-partum hemorrhage in 24.4% cases, puerperal sepsis 15.3% cases, hemorrhagic shock in 14% cases, 7.4% cases needed mechanical ventilation, 6.2% cases had disseminated intravascular coagulation and 3.4% cases went into acute renal failure. There were 3(1.7%) maternal deaths. 37.5% babies were born alive, while 62.5% babies were still born. Out of 66 live born (37.5%) babies, 13 babies died due to prematurity thus making total perinatal mortality 69.9%.

**Conclusion:** We observed a higher than expected frequency of abruptio placentae and neonatal mortality in our study population which is of major concern. There is need for mass information regarding the importance of antenatal care and improvement in nutritional status, which may reduce the frequency of maternal and fetal morbidity and mortality associated with abruptio placentae.

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### INTRODUCTION

Abruptio placentae is defined as the partial or complete separation of normally implanted placenta from the uterine wall before parturition.<sup>[1]</sup> Abruptio placentae is a major cause of maternal morbidity and perinatal mortality globally and specially in the developing world. <sup>[1, 2, 3, 4]</sup> Abruptio placentae complicates one in 100-200 (0.5-1%) pregnancies in western population.<sup>[1, 4, 5]</sup> However, rates as high as 4.5% have been reported in developing world.<sup>[2]</sup> Although etiology of abruptio placentae is not fully understood, its generally multifactorial that is impaired placentation, placental insufficiency, intra uterine hypoxia, utero placental under perfusion, hypertensive disorders of pregnancy, non-vertex presentations, polyhydramnios, intra uterine growth restriction, maternal trauma, cigarette smoking, alcohol consumption, cocaine abuse, short umbilical cord, sudden decompression of the uterus, prior fetal demise, nutritional deficiencies like folic

acid, grand multiparity, preterm rupture of membranes, trauma, previous medical termination of pregnancy (MTP) or previous lower segment caesarean section are common risk factors associated with abruptio placentae.<sup>[1, 2, 3, 4, 5, 6, 7, 8]</sup> Abruptio is a significant cause of maternal and perinatal morbidity and perinatal mortality. The majority of perinatal deaths occur in utero, deaths in postnatal period are primarily related to preterm delivery.<sup>[9, 10, 11]</sup>

**Aims & Objectives:** The aim of present study was to determine the risk factors for abruption placentae together with maternal and fetal outcome.

### MATERIAL AND METHODS

The present study was conducted in Department of Obstetrics and Gynaecology in Government Medical College and Rajindra Hospital Patiala from January 2017 to December 2017. This was a prospective observational study. All the

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patients presenting with antepartum hemorrhage in 3<sup>rd</sup> trimester during the study period underwent detailed history and examination. Those cases diagnosed as abruptio placentae were included in the study. Maternal and perinatal outcome and risk factors were noted. All other cases of antepartum hemorrhage like placenta previa, extra placental causes and indeterminate causes other than abruption were excluded from the study. We defined abruptio placentae as complete or partial separation of normally located placenta before parturition. Abruptio placentae was diagnosed based on clinical signs and symptoms of vaginal bleeding, tense and tender abdomen, hypertonic uterus and confirmed at delivery by the local examination of placenta for separation and presence of retro placental hematoma. Maternal high risk factors like pregnancy induced hypertension, gestational diabetes mellitus, polyhydramnios etc. were noted. After initial resuscitation, mode of delivery was decided depending on state of mother and fetus. Maternal morbidity and mortality due to hemorrhagic shock, DIC, ARF, PPH, puerperal sepsis was noted along with post-operative need for mechanical ventilation. Fetal outcome was studied in form of Intra uterine growth restriction, prematurity, Apgar score, birth weight and admission to neonatal intensive care unit. Perinatal mortality which included intrauterine deaths, intrapartum deaths and neonatal deaths were observed.

**RESULTS**

The total number of deliveries during the study period was 4653. Patients with abruptio placentae were 176, giving incidence of 3.8%.

**Table 1** Distribution according to demographic profile and risk factors

Sr. No	Parameters	Number of Patients	Percentage
1.	ANC Status		
	Un-Booked	124	70.5%
	Booked	52	29.5%
2.	Socio economic status		
	Lower	119	67.6%
	Middle	29	16.5%
	High	28	15.9%
3.	Age (In years)		
	21-25	104	59%
	25-30	39	22.2%
	31-35	19	10.8%
	>35	14	7.9%
4.	Parity		
	Primigravida	55	31.3%
	Multipara	112	63.6%
	Grandmultipara	09	5.1%
5.	Gestational Age (Weeks)		
	29-32	34	19.4%
	32-36	123	69.8%
	37 and above	19	10.8%
6.	Medical disorders		
	Anaemia	147	83.5%
	PIH	99	56.3%
	Eclampsia	4	2.2%
	GDM	9	5.1%
	Polyhydramnios	17	9.6%
7.	PROM	23	13.1%
	History of addictions		
	Tobacco chewing and/or smoking	5	2.8%
10.	Obstetrics History of		
	MTP	13	7.4%
	LSCS	21	11.9%
	Abruption	4	2.3%

(ANC-Antenatal care, PIH-Pregnancy induced hypertension, GDM-Gestational diabetes mellitus, PROM-premature rupture of membrane, MTP-medical termination of pregnancy, LSCS-lower segment caesarean section)

Majority of patients (70.5%) were unbooked cases and belonged to lower socio economic status (67.6%). Majority (59%) of cases were between 21-25 years of age group and maximum (63.6%) were multiparous. Mainly abruption was seen in women with 32-36 weeks of gestational age (69.8%). 83.5% patients were anemic. Pregnancy induced hypertension was seen in 58.5% cases. PROM was present in 13.1% of cases and diabetes in 5.1% of cases. 9.6% of cases had polyhydramnios. 5(2.8%) patients had history of tobacco chewing, out of which 2 patients were smoker also.(Table-1)

**Table 2** Mode of delivery and intervention required

Sr. No.	Parameters	Number of Patients	Percentage
1	Mode of delivery		
	Normal vaginal delivery	68	38.6%
	Assisted breech delivery	7	3.9%
	Lower segment caesarean section	101	57.3%
2. (a)	Type of intervention		
	Maternal transfusion		
	1 units of PRBCs and FFP(each)	11	6.2%
	2 units of PRBCs and FFPs (each)	108	61.4%
	3 units of PRBCs and FFPs (each)	41	23.3%
	(b) Obstetric hysterectomy	2	1.1%
	(c) uterine artery ligation	6	3.4%

(PRBC- Packed Red blood cell, FFP- Fresh frozen Plasma)

57.3% cases were delivered by lower segment caesarean section mainly due to fetal distress, failed induction of labour or deterioration of maternal condition. 38.6% delivered vaginally and 3.9% of cases had assisted breech delivery. Out of 176 cases, 160 cases received blood transfusions. Blood transfusions were given in form of PRBCs and FFPs. PRBC and FFP were given in 1:1 ratio to each patient. 61.4% of cases received two units of blood. 23.3% cases received more than 3 units of blood. Total 90.9% of patients received blood transfusion. 2 patients required Obstetric hysterectomy due to massive atonic post-partum hemorrhage. 6 (3.4%) patients required uterine artery ligation to control post-partum hemorrhage. (Table-2)

**Table 3** Showing maternal complications

Sr. No	Maternal Complication	Number of Patients	Percentage
1	PPH	43	24.4%
2.	Puerperal sepsis	27	15.3%
3.	Hemorrhagic shock	14	7.9%
4.	Couvelaire uterus	14	7.9%
5.	Mechanical ventilation	13	7.4%
6.	DIC	11	6.2%
7.	ARF	6	3.4%
8.	Maternal mortality	3	1.7%

(PPH-Post-partum hemorrhage, DIC-Disseminated intravascular coagulation, ARF- Acute renal failure)

Most common maternal complication seen was postpartum hemorrhage in 24.4% of cases. Puerperal sepsis was present in 15.3% of cases. 14 cases of couvelaire uterus were observed during LSCS. All were managed conservatively with uterotonics. 7.9% of patients developed hemorrhagic shock. Disseminated intravascular coagulation was seen in 6.2% of cases. 7.3% of cases needed mechanical ventilation. 6 patients developed acute renal failure, out of which 4 needed dialysis.

There were 3 (1.7%) maternal deaths, out of which 2 cases were received in severe shock with abruption. One patient died due to disseminated intra vascular coagulation and multiorgan failure. (Table-3)

**Table 4** Showing fetal outcome

Sr. No.	Fetal outcome	Number of Patients	Percentage
(N=176)			
1.	Live Babies (APGAR at 1min)	66	37.5%
	1-4	9	5.1%
	5-10	57	32.4%
2.	Still Born Babies		
	Intra uterine death	98	55.7%
	Intra partum death	12	6.8%
	Early neonatal death	13	7.4%
3.	(Out of 66 live babies)		
	Birth weights (Kg)		
	<2.0	102	57.9%
	2.1-3.0	70	39.7%
4.	3.1-4.0	4	2.2%
	Gender		
	Male	91	51.7%
5.	Female	85	48.3%
	Admission to NICU	37	21.0%

37.5% of cases delivered live babies while 62.5% of cases were still born. Out of 37.5% live babies, 37 babies (21%) were admitted to NICU, 13 babies died in early neonatal period due to prematurity, therefore making overall perinatal mortality 69.9%. (Table-4)

## DISCUSSION

Abruptio placentae remains a major cause of perinatal morbidity and mortality. The incidence of abruptio placentae in present study came out to be 3.8% which is comparable with studies of others authors (0.5 -5%).<sup>[2, 12, 13]</sup> This is due to contributing factors like low socioeconomic conditions, ignorance about antenatal care and poor control of predisposing and precipitating factors. Increased incidence was seen in unbooked cases. The same observation is also evident from studies done by Jabeen M *et al* and Sheiner E *et al*.<sup>[13, 14]</sup> Majority of patients were anaemic in present study. These observations are similar to observation made by Jabeen M *et al* and Sarwer I *et al*.<sup>[13, 15]</sup> The high frequency of anemia could be due to pre-existing nutritional deficiency and then superimposed by abruption. The association of anemia, diabetes and hypertension with placental abruption was observed in present study, which is similar to studies carried by Oyelese Y *et al* and Dafallah SE *et al*.<sup>[16, 17]</sup> Altered fetoplacental angiogenesis during early pregnancy in anaemic woman may partially explain this increased risk.<sup>[18]</sup> Hypertensive vasculopathy may affect placental vasculature which may succumb to sudden rise in blood pressure. Diabetes can cause and aggravate the placental dysfunctions thus causing placental abruption.<sup>[19]</sup> PROM is significant underlying cause leading to abruption.<sup>[2]</sup> Smoking, tobacco chewing and previous obstetrics history of LSCS, MTP leads to damage to the endometrium especially basal layer which leads to defective neo-angiogenesis in later pregnancies. So previous LSCS, previous MTP and previous abruption poses significant risk of abruption in subsequent pregnancy.<sup>[20, 21, 22]</sup>

Among maternal complication PPH was commonest, followed by puerperal sepsis, hemorrhagic shock, disseminated intravascular coagulation and acute renal failure, similar type of complications are observed by Pitaphorm a *et al*.<sup>[23]</sup> There

were 3 maternal death giving incidence of 1.7%, which is comparable to observation made by Bibi S *et al*.<sup>[2]</sup> Maternal deaths are mainly due to late reporting of patients to the hospital resulting in massive abruption and shock.

Fetal mortality seems to be due to abruption itself, its risk factors as well as prematurity. The same high mortality is also observed by Abbasi RM *et al*.<sup>[24]</sup> Perinatal morbidity and mortality can be reduced by identification of risk factors, good antenatal care, improved nutrition, careful vigilance of at risk cases and timely decisions.

## CONCLUSION

Abruptio Placentae represents a potentially serious obstetric problem that tends to compromise fetal viability, neonatal mortality and morbidity, and maternal health and well-being. Increased frequency of abruptio placentae is observed in women with low socioeconomic status, no antenatal checkup and poor nutritional status. Mass information regarding the importance of antenatal care of pregnant women and improvement in nutritional status may reduce the frequency of abruptio placentae and thus maternal and fetal morbidity and mortality.

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