

**MATERNAL AND FETAL OUTCOME IN ABRUPTIO PLACENTA**Fasiha Tasneem<sup>1\*</sup> and Raviraj D. Kumbhar<sup>2</sup><sup>1</sup>Associate Professor, Department of Obstetrics and Gynecology, GMC – Nanded, Maharashtra. India.<sup>2</sup>Resident, Department of Obstetrics and Gynecology, GMC – Nanded, Maharashtra. India.**\*Corresponding Author: Fasiha Tasneem**

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Article Received on 29/01/2023

Article Revised on 19/02/2023

Article Accepted on 12/03/2023

**ABSTRACT**

**Background:** Placental abruption is most important cause of maternal and perinatal mortality and morbidity and perinatal deaths. Approximately 0.51% of the pregnancies are complicated by placental abruption, 10% of all preterm births and up to 1/3<sup>rd</sup> all the perinatal deaths are caused by placental abruption. Advanced maternal age, multiparity, low BMI, abruption in previous pregnancy, preeclampsia, polyhydramnios, intrauterine infection, premature rupture of membranes, abdominal trauma, smoking, drug abuse, pregnancy following assisted reproductive techniques and maternal thrombophilia. **Methods:** This is a prospective analytical study over the period of 18 months. This study includes all cases of abruptio placenta. **Results:** During the of 18 months, out of antepartum haemorrhage cases 102 were noted abruptio placenta, out of this 37.3% were primigravida, 51.3% were multigravida, 10.8% were grand multigravida, 31.4% were pregnancy induced hypertension, 69.6% unbooked cases, 63.6% cases were found in 24-36 weeks of gestation. **Conclusion:** Abruptio placentae is an obstetric emergency, which as the name suggest is truly accidental with few warning signs. the incidence though cannot be eliminated, care should be taken to decrease the overall incidence and severity of the condition. by avoiding high parity by timely sterilization, improving socioeconomic status, proper antenatal care, correction of anaemia, identifying cases of preeclampsia and their effective management anticipation of abruption in high-risk cases, timely admission, strict surveillance, prompt action at the time of occurrence can go a long way in bringing better results in dealing with this grave condition.

**KEYWORDS:** Antepartum haemorrhage, abruptio placenta, preeclampsia, Postpartum haemorrhage.**INTRODUCTION**

Obstetrics is a “bloody business”. Even through the morbidity and mortality reduced dramatically now a days, death due to haemorrhage remains prominent in the majority of cases. Obstetric haemorrhage is responsible for 25-60% of maternal deaths.<sup>[1]</sup>

Antepartum haemorrhage is a major obstetric emergency and it is a leading cause of maternal and perinatal mortality and morbidity. Antepartum haemorrhage is defined as ‘haemorrhage from genital tract after 24 weeks of gestation but before the delivery of baby’. Antepartum haemorrhage can be due to placenta previa, abruptio placenta, vasa previa, indeterminate cause or local genital tract. Placental abruption complicates approximately 2 to 10 per 1000 births.<sup>[17,18]</sup> Perinatal mortality can be as high as 25- 50%, but this rate has improved with better obstetric and neonatal care. Incidence in India varies between 1:50 to 1:500.

**METHODS:** This is a prospective analytical study conducted at study institute. It is a tertiary care institute with primary health centres attached to it in Maharashtra, India. As per universal sampling method patients falling

into inclusion and exclusion criteria during study period were included in our study. In this study period of 18 months, 102 cases were reported at our institute and were included in study.

**Inclusion criteria**

- Pregnant mothers who were suspected diagnosed with abruptio placentae with gestational age more than 24 weeks.

**Exclusion criteria**

- Patient came with per Vaginal bleeding before 24 weeks of Gestational age.
- All other causes of APH like placenta praevia and other extraplacental causes.
- cases without bleeding per vaginam but suspected clinically and confirmed by sonographic evidence as abruptio placentae were also considered.
- Patients with bleeding disorders.

**PLACENTAL ABRUPTION**

Placental abruption, defined as the ‘complete or partial separation of the placenta before delivery’ is one of the

major causes of vaginal bleeding in the second half of pregnancy<sup>[2]</sup>. In the purest sense, the cumbersome-and thus seldom used- term *premature separation of the normally implanted placenta* is most descriptive because it excludes separation of a placenta previa implanted over the internal os<sup>[2]</sup>. It is initiated by haemorrhage into the decidua basalis which results in retroplacental hematoma. The phenomenon of impaired trophoblastic invasion with subsequent atherosclerosis is related and inflammation or infection may be contributory.<sup>[3]</sup>

### RISK FACTORS

Advanced maternal age, multiparity, low BMI, abruption in previous pregnancy, preeclampsia, polyhydramnios, intrauterine infection, premature rupture of membranes, abdominal trauma, smoking, drug abuse, pregnancy following assisted reproductive techniques and maternal thrombophilia.<sup>[4,5]</sup>

### ETIOLOGY

- 1) Hypertensive disease
- 2) Advanced maternal age
- 3) Recurrent abruption
- 4) Preterm premature rupture of membrane (PROM)
- 5) Smoking
- 6) Cocaine abuse
- 7) Traumatic abruption
- 8) Placental anomalies & shortened umbilical cord

### PATHOLOGY

Placental abruption is initially into the decidua basalis. The decidua then splits, leaving this layer adhered to the myometrium. Consequently, the process begins as decidual haematoma and expands to cause separation and compression of the adjacent placenta<sup>[2]</sup>. Phenomenon of impaired trophoblastic invasion with subsequent atherosclerosis is related in some cases of preeclampsia and abruption. Infection and inflammation, trauma may be contributory.<sup>[2]</sup>

Abruptio placenta classified by various authors, the well-known being **Page**<sup>[6]</sup>, **Lunan**

However most commonly used is

- 1) Revealed: bleeding from placental abruption insinuates itself between the membranes and the uterus and then escapes through the cervix causing an external bleeding
- 2) Concealed: the blood does not escape externally but is retained between the detached placenta and uterus.
- 3) Mixed: combination of the above two



**Fig. 1: Clinical picture of Couvelaire uterus.**



**Fig. 2: Clinical picture of retroplacental clot in abruptio placenta case with IUD baby.**

**Page (1954)**<sup>[6]</sup>: proposed the following classification based on the degree of severity

**Grade 0** – Clinical features suggestive of placental separation may be absent

**Grade 1** – Case with external bleeding, uterine tenderness may or may not be present but no maternal shock. Fetal heart beats are good

**Grade 2** – Cases with or without external bleeding, uterine tenderness is present. Foetal distress or foetal death but no maternal shock

**Grade 3** – Cases with or without external bleeding, marked uterine tenderness, fetal death, maternal shock or coagulation defects.

Sher and Statland classified placental abruption into three degrees of severity<sup>[7]</sup>

**Mild (grade 1):** This is not recognized clinically before delivery and usually diagnosed by the presence of a retro-placental clot. This is a retrospective diagnosis.

**Moderate (grade 2):** This is an intermediate grade in which the classical clinical signs of abruption are present but the fetus is still alive. The frequency of fetal heart

rate abnormalities is high.

**Severe (grade 3):** This is the severe grade in which the fetus is dead and coagulopathy may be present. The volume of blood loss is appreciable in this condition.

According to Page<sup>[6]</sup> the effects of placental separation are

1. Degree of shock which is frequently out of proportion to the hypotension.
2. A disseminated 'fibrin embolism'.
3. An in vivo defibrination resulting sometimes in incoagulable blood.
4. An ischaemia of the renal cortex which leads to variable degrees of necrosis.
5. Activation of the fibrinolytic system in the plasma.

**COMPLICATIONS**

Abruptio placenta is the major cause of hemorrhagic shock, DIC, renal failure, ischemic necrosis of organs in the mother. Fetal complications include hypoxia, anemia, growth restriction, prematurity, neurodevelopmental problems and premature death. In spite of increasing awareness about placental abruption, it still largely remains unpredictable and hence unpreventable. Hypertensive disorder of pregnancy is associated with 2.5% to 17.9% of placental separation.<sup>[16]</sup>

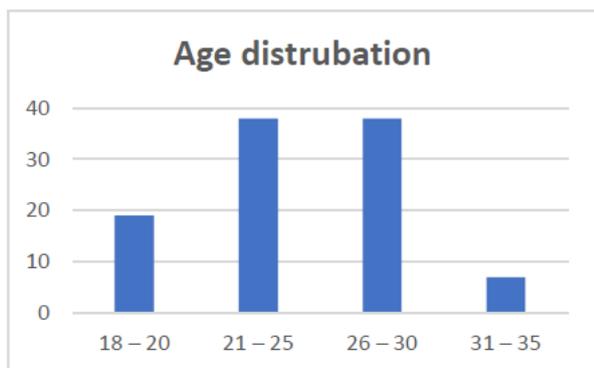
**RESULTS**

In our study from 14675 total number of deliveries 145 were antepartum haemorrhage cases out of that 102 cases were abruptio placenta. Maximum cases were primigravida between age group of 21 to 30 years.

**A. SOCIO DEMOGRAPHIC DATA**

**1) Age Distribution**

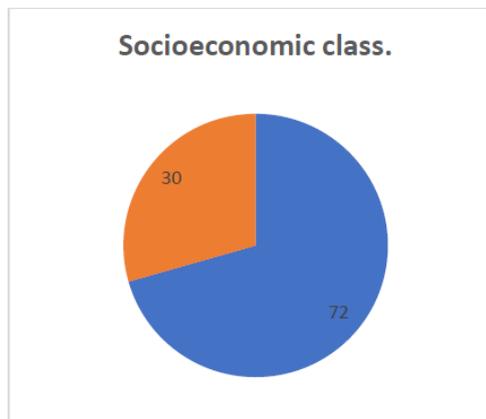
Age group (Years)	Abruptio Placenta	
	No.	%
18 – 20	19	18.6%
21 – 25	38	37.3%
26 – 30	38	37.3%
31 – 35	7	6.9%
<b>Total</b>	<b>102</b>	<b>100%</b>



Majority 68.38% cases were of lower class whereas 31.62% were of lower middle class.

**2) Socio Economic Class Distribution-**

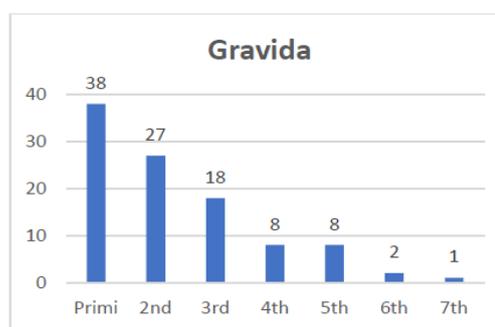
Socio-Economic Class	Abruptio Placenta	
	No.	%
Lower	72	70.6%
Lower Middle Class	30	29.4%
<b>Total</b>	<b>102</b>	<b>100%</b>



Out of 102 cases of abruptio placenta 38 (37.3%) cases were primigravida. 63.6% cases were found in 24-36 weeks of gestation resulting in preterm labour.

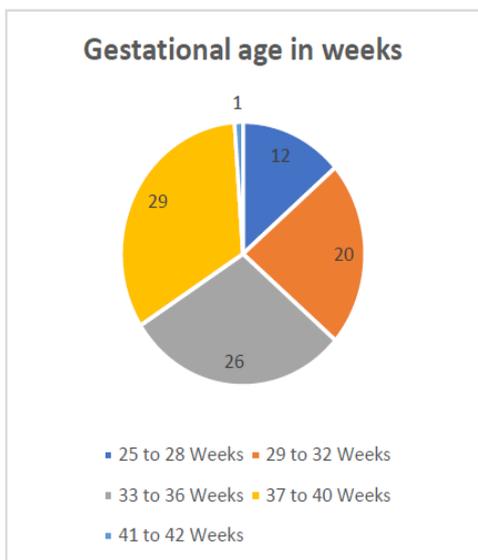
**3) Gravida Status**

Gravida	Abruptio Placenta	
	No.	%
Primi	38	37.3%
2 <sup>nd</sup>	27	26.5%
3 <sup>rd</sup>	18	17.6%
4 <sup>th</sup>	8	7.8%
5 <sup>th</sup>	8	7.8%
6 <sup>th</sup>	2	2%
7 <sup>th</sup>	1	1%
<b>Total</b>	<b>102</b>	<b>100%</b>



**4) Gestational Age in Weeks**

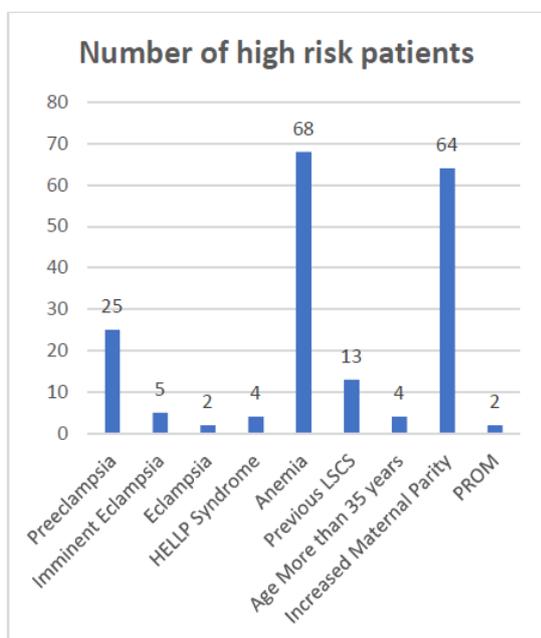
Gestational Age in Weeks	Abruptio Placenta	
	No.	%
25 to 28 Weeks	12	13.7%
29 to 32 Weeks	20	22.7%
33 to 36 Weeks	26	29.5%
37 to 40 Weeks	29	33%
41 to 42 Weeks	1	1.1%
<b>Total</b>	<b>102</b>	<b>100%</b>



Hypertensive disorders during pregnancy with abruptio placenta were associated with 35.3%. In total cases 68 (66.7%) cases were anaemic. 64 (62.7%) had increased maternal parity.

**B. High Risk Factors – Abruptio Placenta**

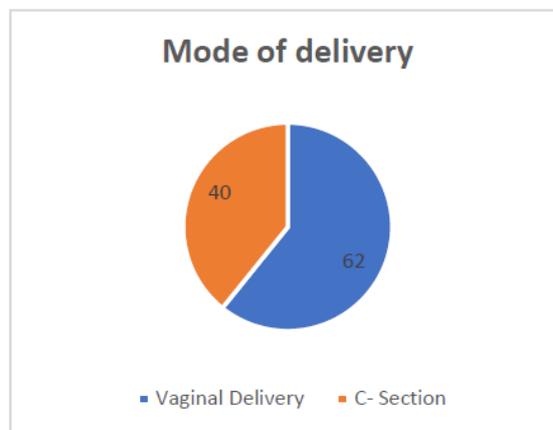
High RiskFactor	Numberof patients	Percentage
Preeclampsia	25	24.5%
Imminent Eclampsia	5	4.9%
Eclampsia	2	2%
HELLP Syndrome	4	3.9%
Anemia	68	66.7%
Previous LSCS	13	12.74
Age More than35 years	4	3.9%
Increased Maternal Parity	64	62.7%
PROM	2	1.96%



Out of total 102 cases, 62 (60.8%) cases delivered vaginally while 40 (39.2%) cases delivered by caesarean section.

**C. Mode of delivery:**

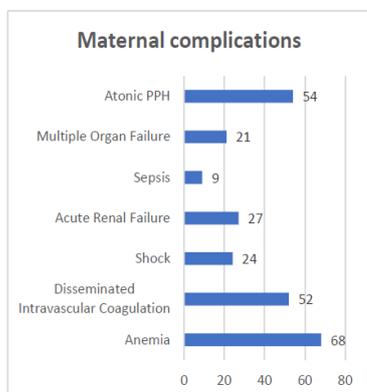
Mode of delivery	Abruptio Placenta	
	No.	%
Vaginal Delivery	62	60.8%
C-Section	40	39.2%
<b>Total</b>	<b>102</b>	<b>100%</b>



DIC occurred in 51% cases, 23.5% had hypovolemic shock, 26.5% cases developed acute renal failure, 8.8% cases had sepsis. 20.6% cases landed in multiorgan failure, Atonic PPH was found in 52.9% cases.

**D. Maternal complications:**

Sr. No.	Complication	No	Percentage
1	Anemia	68	66.7%
2	Disseminated Intravascular Coagulation	52	51%
3	Shock	24	23.5%
4	Acute Renal Failure	27	26.5%
5	Sepsis	9	8.8%
6	Multiple Organ Failure	21	20.6%
7	Atonic PPH	54	52.9%



Out of total cases of abruptio placenta 84.3% cases required blood and bloodproduct transfusion. In surgical management, out of 102 cases of abruptio placenta in 35 cases bilateral uterine artery ligation was done, 11 cases managed with B- lynch suture, 2 cases required internal iliac ligation, 54 cases managed with glove balloon tamponade, 1 case underwent obstetric hysterectomy. In 102 cases, 62(60.8%) cases required ICU admission, 24(23.4%) cases required ventilatory support and inotropic support, 3(2.94%) cases required dialysis, 2(1.96%) cases required CPAP.

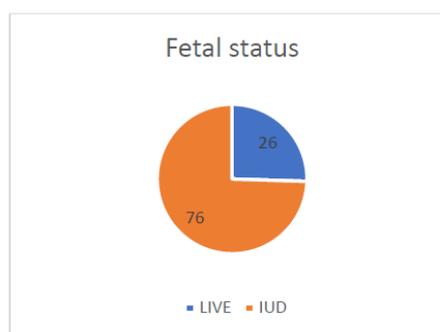
**E. Broad Intervention**

Sr No.	Intervention	No.	Percentage
1	Blood and Blood product transfusion	a) PCV	86 84.31%
		b) FFP	89 87.25%
2	Surgical Intervention	a) Bilateral uterine artery ligation	35 34.3%
		b) B-Lynch	11 10.8%
		c) Internal iliac artery ligation	2 2%
		d) Obstetric hysterectomy	1 1%
3	Glove balloon tamponade	54	52.9%
4	ICU admission	62	60.8%
5	Ventilatory support	24	23.5%
6	Inotropic support	24	23.5%
7	Dialysis required	3	2.94%
8	CPAP required	2	1.96%

Maternal mortality occurred in 19 cases(18.6%) of abruptio placenta.

**F. Maternal death**

Maternal Death	Abruptio Placenta	
	No.	%
YES	19	18.6%
NO	83	81.4%
<b>Total</b>	102	100%



In neonatal outcome, 26 cases had live birth; 76 cases were IUD. Amongst live births, 53.8% required NICU admission.

**G. Fetal complications**

1) Fetal status

Fetal Status	Abruptio Placenta	
	No.	%
LIVE	26	25.5%
IUD	76	74.5%
<b>Total</b>	102	100%

2) NICU admissions

NICU Admissions	Abruptio Placenta	
	No.	%
YES	14	53.8%
NO	12	46.2%
<b>Total</b>	26	100%

**DISCUSSION**

In our study incidence of abruptio placenta was 0.69%, in Sengodan SS et al study it was 0.5%.<sup>[8]</sup> which is similar to study by Wasnik SK<sup>[9]</sup>

In our study 74.6% of the cases of Abruptio placenta was 21-30 age group. As compare to study of Priyanka Tyagi, Nidhi classification 2022. Same findings seen in Maurya A, Arya S<sup>[9]</sup>; Tyagi P et al<sup>[10]</sup> Studies.

In abruptio placenta 37.3% cases were primigravida, 35.3% was with pregnancy induced hypertension. As per the study conducted by Nikita Gandotra, Preeti Sharma et al 45.9% of cases were associated hypertensive disorders in pregnancy.<sup>[11]</sup>

In our study it was observed that the incidence of abruptio placenta was more common in primigravida. 37.3% cases were primigravida, but in Nikita Gandotra, Preeti Sharma and Neha Mahajan<sup>[11]</sup> study which was concordance, had 83.2% cases were multigravida. In Sengodan SS et al<sup>[8]</sup> study 22% cases were primigravida.

In the present study, 63.6% of patients with abruption had a gestational age of 28-36 weeks at the time of admission. Comparable to the present study Bhandiwad A, et al. reported that 52.2% of abruption cases had a gestational age of 28-32 weeks.<sup>[12]</sup>

In the present study, 36 (34.2%) with abruption had hypertensive disorders. This was comparable to the clinical study of antepartum hemorrhage done by Bako, et al., it was reported that 43.8% of patients with abruption had hypertension associated.<sup>[13]</sup>

In the present study, 62 (60.8%) patients with abruption delivered by immediate vaginal delivery, 40 (39%) of abruption group were delivered by LSCS which was compatible with Bako et al reported 63.3% of normal deliveries in patients with abruption.<sup>[13]</sup>

In our study moderate to severe anaemia were seen in 66.7% cases, in study of Dr. RANJANI PRIYAC<sup>[14]</sup>

81.56% cases were anaemic.

In our study 51% cases of abruptio placenta had DIC, in study of Dr. RANJANI PRIYA C<sup>[14]</sup> 21.43% of abruptio placenta had DIC.

In our study 23.5% cases of abruptio placenta landed up in hypovolemic shock which was compared with Sengodan SS et al<sup>[8]</sup> study 10.5% cases had shock.

In our study 26.5% cases had acute renal failure, in Tyagi P et al<sup>[10]</sup> study 10.05% cases of abruptio placenta had acute renal failure.

In this study 8.8% cases of abruptio placenta developed sepsis whereas in Tyagi P et al study 10.05% cases

landed up in sepsis.<sup>[10]</sup>

Atonic PPH seen in 52.9% cases which was compatible with Sengodan SS et al<sup>[8]</sup> study 19.6% cases were reported PPH.

In this study total 84.3% cases of received blood and blood product transfusions, in study of Kulkarni AR et al Total 85% of abruptio placenta cases received blood transfusions.<sup>[15]</sup>

In this study, stepwise devascularization required in 34.3% cases. One case required obstetric hysterectomy.

In our study glove balloon tamponade was done as treatment of PPH and prophylactically to prevent PPH in 54 (52.9%) cases. In Kulkarni AR et al study uterine balloon tamponade done in 8.3% cases.<sup>[15]</sup>

In the present study, 19 (18.6%) cases of abruptio placenta maternal mortality were reported.

In our study 60.8% cases of abruptio placenta cases required ICU admission, 23.5% cases required ventilatory and inotropic support whereas in Tyagi P et al. study 26.31% cases required ICU admission and ventilatory support.<sup>[10]</sup>

In the present study, the 26 (25.5%) reported live births, 76 (74.4%) abruptio placenta had either intrauterine death or stillbirth. In Sengodan SS et al study 69.8% were live births and 30.2% still births.<sup>[8]</sup> However our study perinatal mortality was much higher than in other studies, this is probably due to the high number of patients referred from peripheral centres so that by the time they arrive intrauterine demise has already occurred due to heavy blood loss or severe foetal distress. Further contributing to the high mortality is the fact that 63.3% of abruptio placenta pregnancies had to be terminated preterm out of which 34.1% were terminated between 28 to 32 weeks.

**CONCLUSION**

From this study it was concluded abruptio placentae are a grave and potentially life-threatening condition for mother and foetus which tests the limits of even the best equipped obstetrical and neonatal units, though maternal mortality has been reduced with modern management of antepartum haemorrhage, but morbidity persists due to DIC, shock, Acute renal failure, sepsis but by broad intervention we manage the cases. Perinatal mortality was high because of prematurity.

This study reveals that Severe pre-eclampsia, eclampsia, chronic hypertension, high parity are independent risk factors for abruptio placenta.

Thus, the maternal and foetal mortality and morbidity can be lowered by routine ante-natal check-up, identification of high-risk cases, timely referral, hospital

admission, timely C- section, liberal blood and blood product transfusion, correction of anaemia at tertiary care centre with availability of blood and blood product transfusion and good neonatal intensive care unit.

We would like to recommend that all those cases having high risk factors, like preeclampsia, anaemia, multiparity, should be diagnosed early in ANC period, should be identified and labelled as high-risk pregnancies and should not be kept at peripheral health care centres. Once labelled as high-risk case should be timely referral and timely report to tertiary care centre and pregnancy should be managed throughout their antenatal period at tertiary care level for effective control of preeclampsia and correction of anaemia to avoid placental abruption and prompt resuscitative majors and team efforts by obstetricians, intensivists and neonatologist can reduce maternal and perinatal morbidity and mortality.

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