

A Study of Maternal and Perinatal Outcome in Abruptio Placenta

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Received: May 2020

Accepted: May 2020

ABSTRACT

Background: Placental abruption is a leading cause of vaginal bleeding in the latter half of pregnancy and a significant cause of maternal and perinatal morbidity and mortality. Timely diagnosis and effective intervention are required in these cases to improve maternal and perinatal outcomes. **Aim:** Study was done to find out the incidence, maternal and perinatal outcome in abruption placenta. **Methods:** This was a prospective observational study carried out from October 2017 to 2019. All cases of abruption placenta over a period of 2 years were included. **Results:** Of the Total 140 cases admitted with abruption placenta, the incidence was 0.66 %. Highest incidence (70%) among 21-30 years of age. The most common risk factor identified was a hypertensive disorder of pregnancy (58.57%). Majority with Grade 2 (54.29%) abruption. 72.86% delivered vaginally. The major maternal morbidities were postpartum hemorrhage (35%), shock (15%), sepsis (12.86%), DIC (8.57%), renal failure (5%) and maternal mortality 5.17 %. The majority of babies weighed <2500g. Total perinatal mortality was 55.25 % with intrauterine deaths (30.07%), stillbirths (18.18%), early neonatal deaths (6.99%), and NICU admission (27.87%). **Conclusion:** The incidence of abruption placenta is significantly higher, and early recognition and prompt delivery, timely referral to tertiary care centers, liberal use of cesarean section and blood transfusion reduce both the maternal and perinatal morbidity and mortality.

Keywords: DIC, Perinatal morbidity, Placental abruption, Postpartum hemorrhage.

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INTRODUCTION

Placental abruption complicates about 1% of pregnancies and is a leading cause of vaginal bleeding in the latter half of pregnancy.^[1] Placental abruption is defined as partial or complete separation of normally implanted placenta after 28 weeks of gestation, prior to delivery of the fetus. Abruptio placenta remains a major cause of massive obstetric hemorrhage.^[2-5] Maternal effects of abruption depend primarily on the severity, whereas its effects on fetus depend on both its severity and gestational age at which it occurs.^[6] Risk factors of abruption include hypertensive disorders, prior abruption, smoking, trauma, multifetal gestation, PPROM, hydramnios etc.

Types of abruption based on whether external bleeding is present or not.^[7,8]

Revealed – Following separation of the placenta, blood insinuates downwards between the membranes and the deciduas. Ultimately blood comes out of the cervical canal to be visible externally. This is the most common type.

Concealed- When the blood is retained inside the cavity and not visible externally. This is rare only

Mixed- Here, it is partly revealed and partly concealed. Usually, one variety predominates over the other. This is quite common.

following clinical grading system.

Geoffrey Sher and Statland (1985) proposed the Grade 1-Corresponds to those cases in which the diagnosis of abruption placenta is made retrospectively. Most of the retroplacental clot volume was about 150 ml, fetuses are not at risk and there is a favorable perinatal outcome.

Grade 2-Includes classical features of antepartum hemorrhage and fetus is live. Retroplacental clot volume 150-500ml. 27% of them had clots larger than 500ml. 92% of fetuses had abnormal heart rate patterns. Perinatal mortality is high, especially if delivered vaginally. A palpable rigid uterus represents a significant high-risk situation for the fetus.

Grade 3- Grade2 +fetal demise and further divided based on the absence or presence of coagulopathy.

Grade 3a- without coagulopathy.

Grade 3b – with coagulopathy, virtually all maternal mortalities occur in this group.

Careful management of hemodynamic status and the renal status of the patient is necessary for the good maternal outcome.

The perinatal mortality is approximately 20 fold higher in comparison to pregnancies without abruption.^[7] Abruptio involving more than 50% of the placental surface is frequently associated with fetal death.^[1] Although placental abruption is an important cause of spontaneous preterm birth, it is also often an indication for iatrogenic preterm delivery.^[9] Premature separation of the placenta before delivery may deprive the fetus of oxygen and

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nutrition, leading to long term handicap among survivors.

Management of abruption should be individualized on a case basis, depending on the severity and gestational age at which it occurs. In the case of fetal demise, vaginal delivery is preferable. In case of fetal and maternal compromise, prompt delivery by cesarean section is indicated. DIC should be managed aggressively. If the maternal and fetal status is reassuring, conservative management with a goal of vaginal delivery may be reasonable.

Aims & Objectives

The present study proposes

- To find out the incidence of abruption placenta.
- To find out the outcome of pregnancy and labor
- To evaluate the perinatal outcome

MATERIALS & METHODS

This was a prospective observational study conducted from October 2017 to 2019, at the Department of Obstetrics & Gynaecology, M.K.C.G. Medical College and Hospital Berhampur, Odisha. All cases of abruption placenta over a period of 2 years were included in the study. The antenatal women having vaginal bleeding other than abruption placenta were excluded from the study. Ethical clearance has obtained from M.K.C.G medical college hospital committee. Before recruiting the eligible patient in the study, informed consent was taken from the patient or patients relatives if patient was not in the position to give informed consent. On admission, focussed history was taken, followed by general physical examination, to rule out other causes of vaginal bleeding. In the history, details regarding age, parity, gestational age, no of episodes of bleeding, duration of bleeding, amount of bleeding{no of pads soaked, the passage of clots} was estimated approximately. A review of the prenatal course, especially placental location on prior sonograms, was enquired. Patients were enquired about fetal movements, pain abdomen associated with bleeding. Detailed obstetric history was taken, including previous deliveries, mode of deliveries, associated with the previous history of hypertension, abruption placenta, previous IUFD, or other intrapartum and postpartum period complications. The general physical, systemic and obstetrical examination was carried out. Relevant investigations, such as laboratory tests and imaging were performed. Grading of placenta according to Sher and Statland classification was done.

A maternal outcomes like mode of delivery, induction delivery interval, blood transfusions, ICU admissions complications like postpartum hemorrhage, Couvelaire uterus, renal failure was recorded. The perinatal outcome was recorded like birth weight, APGAR score, and neonatal complications. Examination of placenta for weight,

retro placental clots, vascular attachments, developmental anomalies was done and recorded.

The data was analysed by the Microsoft office Excel 2010 version. The results were expressed as number and percentage for all the qualitative variables. Mean and standard deviation was used for quantitative variables.

RESULTS

During the 2 year study period from 2017 to 2019, 21128 deliveries were conducted in our hospital. Out of these, the total no of cases admitted with abruption placenta were 140 cases, with an incidence rate of 0.66%. The most frequent age group belongs to 21-30 years of age, constituting 70%. 89 cases (64%) of cases were multipara, and 32 cases (32%) cases were primipara. Out of 140 cases, 64% were unbooked, and 36% booked cases. Most of the patients belong to low socio-economic status, accounting for 79.28% and the majority of them were rural dwellers, which constitutes 77.14%.

Table 1: Distribution according to sociodemographic profile

Sl no	Parameters	No of Patients	Percentage
1	Age of the patient (Years)		
	15-20	19	14%
	21-25	42	30%
	26-30	56	40%
	31-35	17	12%
2	Parity		
	Primi	32	23%
	Multi	89	64%
	Grand multi	19	13%
3	ANC status		
	Booked	50	36%
	unbooked	90	64%
4	Socioeconomic status		
	Lower	111	79.28%
	Middle	28	20%
	High	1	0.72%
5	Rural vs Urban		
	Rural	108	77.14%
	Urban	32	22.86%
6	Gestational age(wks)		
	28-32	33	23.57%
	32-36	39	27.86%
	37-40	64	45.71%
	>=41	4	2.86%

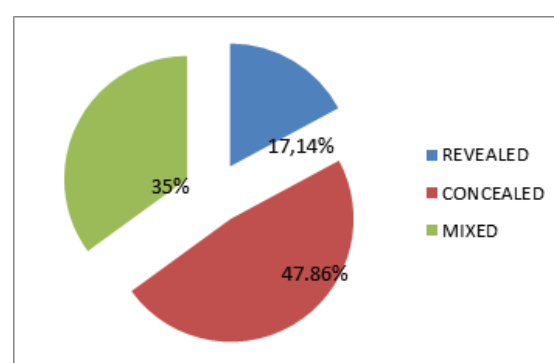


Figure 1: Types of Abruptio Placenta

The most common type of abruptio placenta observed in this study is concealed type, constituting 47.86 %, Revealed abruptio was only 17.14 %.

The most common risk factor for abruptio placenta identified was a hypertensive disorder of pregnancy, constituting 58.57%. Of which, pre-eclampsia contributes highest, which comes 37.14%. Eclampsia contributed 7.14% of the risk, gestational hypertension by 11.43%, and chronic hypertension by 2.86%. 2.86% of cases of abruptio had trauma as a risk factor. 29.29% cases showed no risk factor identified for abruptio placenta. The previous abruptio contributed 5 % of cases in our study. Some patients had multiple risk factors which increased the adverse outcome among them.

Table 2: Risk factors in abruptio placenta

Risk Factors	No of Patients	Percentage
Pre Eclampsia	52	37.14%
Eclampsia	10	7.14%
Gestational Hypertension	16	11.43%
Chronic Hypertension	4	2.86%
Multiple Gestation	3	2.14%
Prom	4	2.86%
Polyhydramnios	4	2.86%
Trauma	4	2.86%
Previous Abruptio	7	5%
Idiopathic	41	29.29%

The majority of the cases had abruptio of Grade 2 constituting 54.29%, according to Sher classification. All the patients admitted to our hospital with an abruptio placenta were anemic. The majority were admitted with severe anemia (<7g%), constituting 60%. Patients with mild anemia constitute 32.14%.

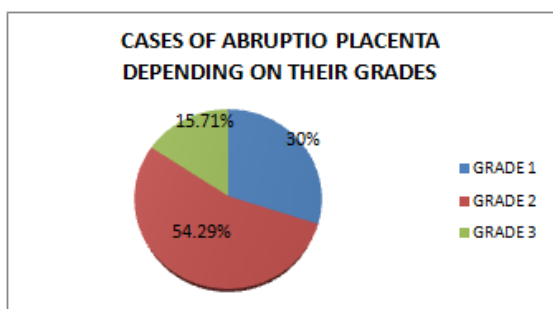


Figure 2: Cases of abruptio Placenta Depending on Their Grades

Most patients (42.86%) delivered within 4 hours of admission where as 4 cases (2.86%) required more than 12 hours' time to deliver from the time of admission to the hospital. Labour was induced for those patients who were not in labor with ARM+ IV oxytocin drip or dinoprostone gel or misoprostol vaginal tablets. The patients who were confirmed to have IUD were allowed to have a vaginal delivery in the absence of any indications for cesarean section.

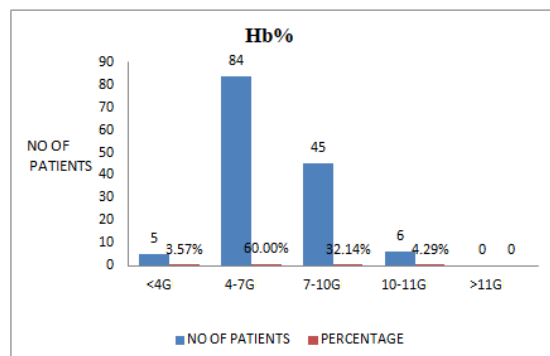


Figure 3: Haemoglobin levels at the time of hospital admission

Table 3: Admission to the delivery time interval in abruptio placenta

Time Interval	No Of Patients	Percentage
<4HR	60	42.86%
4-8 HR	49	35.00%
8-12HR	27	19.29%
>12HR	4	2.86%

The incidence of vaginal delivery is 72.86%, whereas cesarean section was 27.14%. All mortality and morbidity were seen more with longer duration of admission. Most common fetal indication for cesarean section was fetal distress in our study. Others were indicated due to maternal interest, such as in patients with severe hypertensive disorders with an unfavourable cervix, abnormal progress of labor and associated obstetric indications.

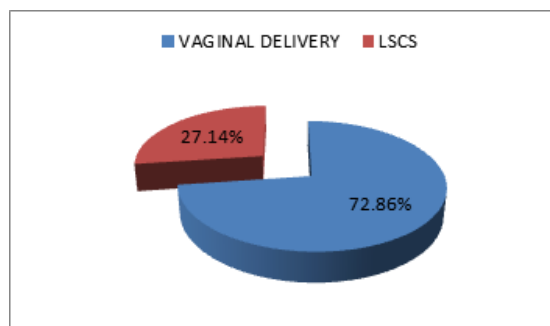


Figure 4: mode of delivery in abruptio placenta in the study.

Out of 140 patients with abruptio placenta, 136 patients (97.14%) required blood transfusion.

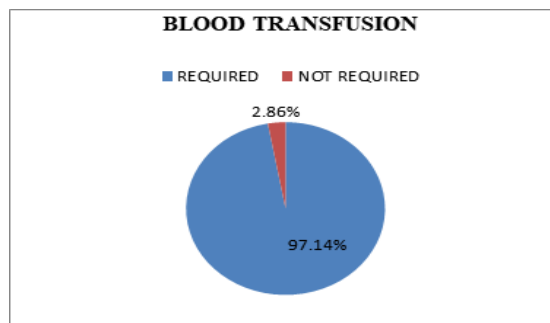


Figure 5: Rate of blood transfusion required in abruptio placenta.

The major maternal morbidity associated with placental abruption in this study was PPH constituting 35%, followed by shock (15%), sepsis (12.86%), DIC (8.57%), renal failure (5%). The high incidence of PPH has been contributed by cases with severe anemia and coagulopathy. One obstetric hysterectomy was done for atonic PPH, which was not controlled by the medical method, in this study. Most of the patients who developed complications required ICU monitoring in the present study. Maternal mortality was present in 5.17% of the cases of abruption placenta.

Table 4: Maternal complications associated with abruption placenta

Maternal Complications	No Of Patients	Percentage
Shock	21	15%
PPH	49	35%
DIC	12	8.57%
Renal Failure	7	5%
Couvellaire Uterus	6	4.29%
Obstetric Hysterectomy	1	0.71%
Sepsis	18	12.86%
Maternal Mortality	8	5.71%

The birth weights of babies majority range between 2000-2499 grams, accounting for 32.87% followed by 1500-1999 grams, constituting 30.07% of cases. The majority of the cases were term gestation >37 weeks in this study, but most of the babies come under the low birth weight.

Table 5: Birth weights of babies in abruption placenta

Birth Weight (Gm)	No Of Babies (143)	Percentage
1000-1499	23	16.08%
1500-1999	43	30.07%
2000-2499	47	32.87%
2500-2999	22	15.38%
≥3000	8	5.59%

Table 6: Perinatal outcome associated with Abruptio placenta

Perinatal Outcome	No of Babies (143)	Percentage%
Live Birth	64	44.76%
NICU Admission	37	27.87%
Intra uterine death	43	30.07%
Still Birth	26	18.18%
Neonatal death	10	6.99%

Table 7: Birth weight and perinatal mortality in abruption placenta

Birth Weight	No Of Babies (143)	Perinatal Mortality(79)	Percentage (55.25%)
1000-1499	23	22	15.38%
1500-1999	43	29	20.28%
2000-2499	47	19	13.29%
2500-2999	22	7	4.90%
≥3000	8	2	1.40%

We noted a poor perinatal outcome in the cases of abruption placenta. 30.07% of babies had intrauterine deaths, 18.18% had stillbirths, 6.99% early neonatal deaths, and 27.87% required NICU admission. Total perinatal mortality in cases of abruption placenta was 55.25% in this study.

Maximum perinatal mortality in abruption (20.28%) was in the babies having birth weights between 1500-1999 grams, followed by 15.38% in the babies having birth weights between 1000-1499grams. Least perinatal mortality was in babies having weights more than 3000 grams.

DISCUSSION

The incidence of abruption placenta in the present study was 0.66%. This incidence was comparable with many studies conducted in America, Europe and Asian countries which are 0.5-1%.^[6,10-12] But many Indian studies conducted show much higher incidence than the present study, which comes between 2-3%.^[13,14] Most of the cases of abruption placenta (70%) were in the group of 21-30 years in the present study, which is similar to 72% abruption in group 21-30 years by Mondal GS, 66% by Lalit.^[15,16]

Most of the patients admitted with abruption placenta in this study belong to low socio-economic status and rural dwellers. These findings correspond to many studies conducted in India.^[13-17] The incidence of the Abruptio placenta is more between the gestational age of 37-40 weeks, which is 45.71%, in our study which is similar to a study conducted by Sindh M, where the incidence is more reported in term pregnancies.^[18] But this is in contrast to some studies conducted by Sonal et al, where the incidence is more in preterm 28-32 weeks.^[19]

The most common risk factor for abruption placenta identified was a hypertensive disorder of pregnancy, constituting 58.57%. Of which pre-eclampsia contributed the highest, which comes 37.14%. These are similar to the observations made by Lalit DK et al.^[16] Pitaphrom et al.^[20] and Lakshmi Ashar.^[21]

In our study, the majority of the cases had abruption of Grade 2 constituting 54.29%, according to Sher classification, much the same compared to study by Menon,^[22] and Hrishikesh pandit.^[23]

The incidence of vaginal delivery is 72.86%, whereas cesarean sections were 27.14%. This observation is similar to the study conducted by Srivastava et al, which showed only 18% cases needed a caesarean section.^[24] Prompt cesarean section resulted in improved perinatal outcome for abruption placenta with a live baby, rather than waiting unduly to achieve vaginal delivery, with the risk of perinatal morbidity and mortality.^[13]

The major maternal morbidity associated with placental abruption in this study was PPH constituting 35%, followed by shock (15%), sepsis (12.86%), DIC (8.57%), renal failure (5%). These

are similar to studies conducted by Atta et al.^[13] and Zakari and Atta et al.^[25] The high incidence of PPH has been contributed by cases with severe anemia and coagulopathy. Maternal mortality incidence was 5.17 % of the cases of abruptio placenta, which was similar to that of Krishna Menon (4.4%) and Mondal G S (6.48%),^[15,22] but much more than Palaniyappan (1.5%), BN Puranthare (0.57%),^[26] Lakshmi Ashar (1.6%).^[21] Maternal mortality is mainly due to the late reporting to the hospital resulting in massive abruptio and shock.

Most of the babies are low birth weight babies which are due to the underlying hypertensive disorders, nutritional deficiency in this study. Total perinatal mortality in the abruptio placenta was 55.25% in this study. This was similar with that of Palaniyappan (60.5%),^[27] but less than that of Puranthare (79.50%) and Lakshmi Ashar (87.80%).^[21,26] Maximum perinatal mortality in abruptio (20.28%) was in the babies having birth weights between 1500-1999 grams. Least perinatal mortality was in babies having weights more than 3000 grams. The increased perinatal mortality of less than 2000 grams was associated with intrauterine growth restriction, prematurity, and the increased severity of abruptio in our study. Similar findings were observed by Abbasi RM et al.^[28]

CONCLUSION

The incidence of abruptio placenta is significantly higher with poor maternal and fetal outcomes. The high incidence of maternal and perinatal mortality was related to lack of health education, successive pregnancies without spacing, illiteracy, poverty, lack of regular antenatal checkups, difficulties in transportation to referral hospital and inadequate neonatal care facilities.

There are no reliable prediction for the timing in pregnancy at which placental abruptio may happen. The condition predisposing it should be carefully evaluated and actively managed in order to reduce the incidence. Early recognition and prompt delivery in cases in which fetus is mature, and in stable cases remote from term, conservative management to enable steroid administration, and timely referral to tertiary care centers, which includes facilities for the care of premature infants and liberal use of the caesarean section with blood transfusion facilities reduces both the maternal and perinatal morbidity and mortality.

Health education among communities and regular antenatal check-up can reduce the number of pregnancies by proper family planning procedures, reduce successive pregnancies without gaping, improvement of nutritional status and hence reduce the incidence of anemia. Can detect the risk factors, It is essential to strengthening the emergency transport facilities from the periphery to tertiary center as a correct intervention at the appropriate

time in these patients is crucial to bring out a good outcome of pregnancy.

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How to cite this article: Mohapatra S, Thanikkal N. A Study Of Maternal and Perinatal Outcome in Abruption Placenta. Ann. Int. Med. Den. Res. 2020; 6(4):OG01-OG06.

Source of Support: Nil, **Conflict of Interest:** None declared