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Original Research Article

Fetomaternal outcomes of abruptio placentae: a tertiary care experience

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ABSTRACT

Background: Abruptio placentae is the premature separation of a normally situated placenta after 20 weeks of gestation and before delivery of the fetus. It is a major cause of antepartum hemorrhage and is associated with significant maternal and perinatal morbidity and mortality. This study aimed to determine the incidence, risk factors, complications and fetomaternal outcomes of abruptio placentae in a tertiary care center.
Methods: This retrospective study was conducted at Bangalore Medical College and Research Institute, Bengaluru, including Vani Vilas Hospital and GOSHA Hospital, from January 2021 to August 2021. Demographic details, obstetric history and maternal risk factors were recorded. Gestational age was determined by last menstrual period and ultrasonography. Diagnosis was based on clinical features and ultrasonographic findings and confirmed by retroplacental clots or hematoma at delivery. Other causes of antepartum hemorrhage were excluded.
Results: The incidence of abruptio placentae was 0.95%. The most affected age group was 20–25 years and 52% were multiparous. Hypertensive disorders of pregnancy were present in 38.46% of cases, with severe preeclampsia in 23.07%. Vaginal delivery occurred in 66.35% cases, while 33.65% underwent cesarean section. Anemia was observed in 52.88% cases. Stillbirth occurred in 56.73% cases. Major maternal complications included postpartum hemorrhage (23.07%), disseminated intravascular coagulation (12.5%) and ICU admission (21.15%).
Conclusions: Abruptio placentae remains a significant contributor to maternal and perinatal morbidity and mortality. Early identification of high-risk pregnancies, timely referral, availability of blood bank facilities and prompt multidisciplinary management are essential to improve outcomes.

Keywords: Abruptio placentae, Antepartum hemorrhage, Hypertensive disorders of pregnancy, Maternal morbidity, Postpartum hemorrhage, Perinatal outcome

INTRODUCTION

Abruptio placenta is the premature separation of the normally implanted placenta after 20 weeks of gestation and prior to the birth of the fetus/fetuses.[1] Abruptio Placenta is a major cause of maternal morbidity and perinatal mortality globally and specially in the developing world.[2] It occurs in about 0.38–1 % of singleton births and the incidence increases among twin pregnancies which is 1 to 2 %.[3,4] The commonly attributed risk factors for abruption placenta include- gestational hypertension, severe pre-eclampsia, prior caesarean section, maternal age>35 years, eclampsia, trauma, smoking, multifetal gestation, previous placental abruption, infections. Grading of severity of abruptio placenta is done according to Sher and Stetland grading.[5] In addition, abruptio placentae accounts for 20–25% of antepartum haemorrhages and it is also associated with increased risk of various complications like disseminated intravascular coagulopathy, severe maternal shock, renal failure, postpartum hemorrhage and maternal death.[6-8] It is also associated with adverse foetal outcomes including LBW, preterm birth, birth asphyxia, fetal distress, low Apgar score, transfer to NICU, stillbirth.[9-11] Our objective was to

determine the incidence of abruptio placentae at our Centre, the feto- maternal outcome and the predictors of maternal and fetal morbidity and mortality and prolonged hospital stay in patients with Abruptio Placentae.

METHODS

This retrospective study was conducted at Bangalore Medical College and Research Institute, Bengaluru, including its attached hospitals, Vani Vilas Hospital and GOSHA Hospital, from January 2021 to August 2021 (8 months). All cases diagnosed with abruptio placentae during the study period were included.

Demographic details including maternal age, parity and associated high-risk factors were recorded from hospital records. Detailed obstetric history was obtained and maternal risk factors such as pregnancy-induced hypertension (PIH), gestational diabetes mellitus (GDM), polyhydramnios and anemia were noted. Gestational age was determined based on the last menstrual period and corroborated by first- or second-trimester ultrasonography. Cases of antepartum hemorrhage due to other causes, including placenta previa and extra-placental causes, were excluded. All patients underwent thorough clinical evaluation, including detailed history, general physical examination and abdominal and pelvic examination.

Placental abruption was suspected based on clinical features such as vaginal bleeding, uterine tenderness, hypertonic uterus and ultrasonographic findings suggestive of abruption. The diagnosis was confirmed by the presence of retroplacental clots or hematoma noted during cesarean section or after delivery of the placenta.

RESULTS

Total deliveries during the study period of 8 months in the hospital were 10858. Total cases of abruption being 104, which makes its incidence 0.95%. Booked cases were 16 (15.38%) and Referred were 88 (84.62%). Maximum cases of abruption were noted in 20 to 25 years age group followed by 25 to 30 years as shown in Table 1. Maximum number of abruptio placenta cases were primigravida as shown in Table 2. Late preterm (33.65%) was the most common gestation age followed by early preterm (26.92%). Frequency based on Sher and Shetland grading to know the distribution of cases depending on severity showed Grade 3A (47.11%) as the most common one followed by Grade 2 (31.73%). 60% of cases showed stillbirths at diagnosis as shown in table 3. Concealed type (67.3%) was more common than revealed type (32.6%) as shown in Table 4. Hypertensive disorder of pregnancy was the most prevalent risk factor accounting for 39.42% of cases, out of which 39.02% were severe preeclampsia as shown in Table 5. Anemia, both severe and moderate anemia, also accounted for considerable number of cases (18.27%). Intrapartum/Intraoperative, retroplacental clots were noted in the majority of the cases. 50-250 grams was the most common finding as shown in Table 6. More than 500 grams retroplacental clots were seen in severe types of Abruptions as per Sher and Shetland i.e., 3A and 3B. Transfusion was given to 62 patients (59.62%)- all the patients belonging to 3A and 3B- PRBC transfusion was given to 59.62% of patients. Out of the 104 cases, 59 cases (56.73%) had still born babies that suggests poor perinatal outcome as shown in Table 7.

Anemia was the most common complication- 55 cases (52.88%), followed by LSCS in 35 cases (33.65%) and atonic PPH in 25 cases (24.08%), with a significant proportion requiring surgical intervention including balloon tamponade and peripartum hysterectomy as shown in Table 8.

Severe maternal morbidity was notable, with ICU admissions 22 cases (21.15%), DIC 13 cases (12.5%) and couvelaire uterus 13 cases (12.5%), while maternal death was reported in 1 case (0.96%). Most women who had vaginal deliveries stayed for more than 3 days (61.5%), while only 4.8% were discharged within 3 days as shown in table 9. Among LSCS/other surgeries, the majority required hospitalization for more than 7 days (31.73%), with only 1.92% staying less than 7 days.

Table 1: Age distribution of abruption cases.

Age (in years)	Prevalence	%
<20	09	8.65
20 to 25	52	50
25 to 30	30	28.85
>30	13	12.50

Table 2: Distribution according to parity.

Parity	Number	%
Primigravida	51	49.03
G2	19	18.26
G3	20	19.23
≥G4	14	13.46

Table 3: Distribution of cases depending on severity.

Grade	Number	%
Grade 1	9	8.65
Grade 2	33	31.73
Grade 3A	49	47.11
Grade 3B	13	12.5

Table 4: Distribution of cases depending on severity.

	Cases	Severity
Concealed	70	Grade 1-1
		Grade 2-7
		Grade 3A-48
		Grade 3B-13
Revealed	34	Grade 1-8
		Grade 2-26
		Grade 3A-1
		Grade 3B-0

Table 5: Associated risk factors.

Risk factor	Frequency	%
HDP	41	39.42
Gestational hypertension	10	
NSPE	6	
SPE	16	
Impending eclampsia	2	
Antepartum eclampsia	3	
HELLP syndrome	3	
Severe anemia	10	18.27
Moderate anemia	9	
Pyrexia	1	0.96
DCDA twin gestation	2	1.92
Prev LSCS	10	9.62
Prev Abruption	2	1.92
Low lying placenta	3	2.88
Rh negative pregnancy	6	5.77
Hypothyroidism	4	3.85
Breech presentation	5	4.81

Table 6: Retroplacental clots intraoperative.

Retroplacental clots weight	Number of cases	%
<50 g	17	16.35
50 to 250 g	55	52.9
250 to 500 g	20 (4 cases-3B, 16 cases-3A, 1 case-2A)	19.23
>500 g	12 (9 cases-3B, 3 cases-3A)	11.54

Table 7: Fetal outcome in cases of abruption.

Fetal outcome	Frequency	%
Stillborn	62	59.62
Live born	42	40.38
Alive and well	20	19.23
LBW	22	19.23
Perinatal death	2	1.923

Table 8: Complications of abruptio placentae cases.

Complication	Frequency	%
Atonic PPH	25	24.08
Medically managed	12	
Surgically managed	6	
Balloon tamponade	3	
Peripartum hysterectomy	4	
LSCS	35	33.65
Anaemia	55	52.88
Couvelaire uterus	13	12.5
ICU admission	22	21.15
DIC	13	12.5
Renal impairment	3	2.88
Scar rupture	2	1.92
MRP	1	0.96
Maternal death	1	0.96

Table 9: Duration of stay.

Type of delivery	Duration of stay (in days)	Frequency	%
Vaginal deliveries	<3	5	4.80
	>3	64	61.5
LSCS/ other surgeries	<7	2	1.92
	>7	33	31.73

DISCUSSION

Placental abruption remains a significant obstetric complication associated with considerable maternal and perinatal morbidity and mortality. In the present study, the incidence of abruptio placentae was 0.95%, which is comparable with previously reported incidences ranging from 0.5% to 0.9% in similar hospital-based studies. Sengodan et al, reported an incidence of 0.5%, while studies by Alka et al, Poovathi et al and Janakiram et al reported incidences of 0.9%, 0.69% and 0.74% respectively, indicating that the occurrence in the population is consistent with previously published data.[12-14] In the study, the most commonly affected age group was 20–25 years followed by 25–30 years, which corresponds to the peak reproductive age group. Similar findings were reported by Sengodan et al, suggesting that placental abruption is more frequently encountered in women during the most active reproductive years rather than being predominantly associated with advanced maternal age.[13] With regard to parity, second gravida constituted a substantial proportion of cases, which is consistent with observations from previous studies by Sengodan et al, Sumangala et al and Poovathi et al. These findings may reflect underlying uteroplacental vascular changes occurring with increasing parity.[10,11,13] The gestational age at presentation in the present study showed that late preterm gestation was the most common period for the occurrence of placental abruption. This observation correlates with findings reported by Alka et al, indicating that placental abruption frequently presents before term and contributes significantly to prematurity-related neonatal complications.[11] In the present study, concealed abruption was associated with more severe maternal and fetal complications, which may be attributed to delayed diagnosis and continued concealed hemorrhage leading to maternal hemodynamic instability and fetal compromise. Similar observations have been reported in earlier studies where concealed abruption was associated with poorer outcomes compared with revealed abruption.[6] Among the various risk factors identified, hypertensive disorders of pregnancy were the most common, followed by previous cesarean section and maternal anemia. This finding is consistent with previous studies which have demonstrated a strong association between hypertensive disorders and placental abruption due to uteroplacental vascular pathology and endothelial dysfunction.[6,9] The size of retroplacental clots observed intraoperatively also showed correlation with the severity of placental separation and clinical outcomes. Larger retroplacental clots were commonly observed in severe grades of abruption, indicating extensive placental detachment and increased risk of maternal hemorrhage and fetal compromise. The perinatal outcome in our study was poor, with stillbirth occurring in 62% of cases, most of which were diagnosed as intrauterine fetal demise at the time of admission. Similar high rates of perinatal mortality have been reported in previous studies, highlighting the acute and catastrophic nature of placental abruption and the importance of early detection and prompt intervention.[8,13] Maternal complications were also considerable in the present study. Postpartum hemorrhage, disseminated intravascular

coagulation and severe anemia were among the most frequently encountered complications, findings that are comparable with those reported in earlier studies.[8,11] The occurrence of two cases of scar rupture in our series emphasizes the increased risk associated with previous cesarean delivery and raises concerns regarding the safety of vaginal birth after cesarean (VBAC) in the presence of placental abruption. A single maternal death was recorded in our study due to severe atonic postpartum hemorrhage complicated by disseminated intravascular coagulation. This highlights the rapid progression of placental abruption into life-threatening maternal complications and underscores the importance of early recognition, prompt management of postpartum hemorrhage and ready availability of blood and blood products in tertiary care centers. Overall, the findings of the present study reinforce the importance of early identification of high-risk pregnancies, timely referral to tertiary centers and multidisciplinary management to improve both maternal and perinatal outcomes in cases of placental abruption.

Limitations

This study has several limitations. It was a retrospective study conducted in a single tertiary care center with a relatively short study duration, which may limit generalizability of the findings. Some clinical details may have been subject to incomplete documentation in hospital records. Additionally, long-term maternal and neonatal outcomes were not evaluated. Larger multicenter prospective studies are required to better understand the predictors and outcomes of placental abruption.

CONCLUSION

Abruptio placentae continues to be a significant cause of maternal and perinatal morbidity and mortality. Hypertensive disorders of pregnancy, previous LSCS, prior history of abruption and high parity were identified as important risk factors in the present study. A high incidence of stillbirth and maternal complications such as PPH and DIC highlights the severe and often catastrophic presentation, particularly among referred cases and concealed abruption. Early identification and optimal management of gestational hypertension and maternal anemia through effective antenatal care may reduce disease severity and improve outcomes. Strengthening referral systems, ensuring availability of comprehensive obstetric, neonatal, intensive care and blood bank facilities and prompt, aggressive management of PPH are essential to reduce preventable morbidity and mortality. Although abruptio placentae is often unpredictable and not entirely preventable, improved risk stratification and timely multidisciplinary intervention can significantly enhance maternal and fetal outcomes.

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