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A study on maternal and perinatal outcome of abruptio placentae in a tertiary Centre

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Abstract
Background: Placental abruption refers to partial or complete separation of the placenta prior to delivery of the fetus.
Methods: It was a retrospective study carried out between March 2019 and March 2020 at SMGS Hospital Jammu in which case records of all cases of abruption were analyzed.
Results: Incidence of Abruptio placenta in our study was 2.33. It was most common in the women of age group 20-25yrs. 45.9% of cases were associated hypertensive disorders in pregnancy. Live births were 68.9% while stillbirths were 31.1%. PPH occurred in 20.2% of cases. DIC accounts for 15% of the maternal complications. Birth asphyxia, hyperbilirubinemia and neonatal sepsis were commonest complications in our study.
Conclusion: Abruptio placentae is associated with poor maternal and fetal outcome. Hence early diagnosis and prompt resuscitative measures would prevent both perinatal and maternal mortality and morbidity.

Keywords: Abruption, maternal morbidity, perinatal mortality

Introduction
The term abruption placenta is a Latin word, meaning rending as under of the placenta. The term accidental hemorrhage is also used to describe it as this event takes place without any expectation. Placental abruption is the most common cause of antepartum hemorrhage and is defined as premature separation of normally implanted placenta [1]. The diagnosis is typically reserved for pregnancies over 20 weeks of gestation. It is a serious obstetric condition that increases maternal and neonatal morbidity and mortality [2].
Placental abruption complicates approximately 2 to 10 per 1000 births [3, 4]. 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. It may be an asymptomatic case where the diagnosis is done by the presence of a retro placental clot post-partum (4.5%) or presenting as sudden collapse of pregnant women with either overt or covert bleeding with fetal compromise.
Primary cause of abruption is not known but the main precipitating and predisposing factors of abruption are age, parity, anemia, poor nutrition, pregnancy induced hypertension, eclampsia, gestational diabetes mellitus, premature rupture of membrane, previous medical termination of pregnancy [5]. Placental abruption may be total or partial, causing pain and vaginal bleeding-which are the hallmarks of placental abruption. 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 [6].
The major clinical findings are vaginal bleeding and abdominal pain, often accompanied by hypertonic uterine contractions, uterine tenderness, and a nonreassuring fetal heart rate pattern.
The major contributing factors in our country are lack of antenatal care, low socio-economic status, anemia, etc. [2, 6].

Material and Methods
This is a retrospective study by analyzing the records of abruption placenta in SMGS hospital for a period of 1 year from March 2019 to March 2020. From those case records, details regarding the age of the patient, parity and maternal high-risk factors were collected.

Inclusion criteria

Pregnant mothers who were diagnosed with abruptio placentae.

Exclusion criteria

All other causes of APH like placenta praevia and other extraplacental causes.

All cases of per vaginum bleeding after 20 weeks of gestation with clinical symptoms and signs suggestive of accidental hemorrhage were included. Additionally, cases without bleeding per vaginum but suspected and confirmed by sonographic evidence as abruptio placentae were also considered. Only confirmed cases were studied and results were tabulated.

Results

Total number of deliveries from MARCH 2019 to MARCH 2020 was 23409 and total number of abruptio placenta cases were 546.Hence incidence of abruption in our study was 2.33.

81.9% of the patients who were diagnosed with abruption were unbooked cases in our study. (Table 1)

Table 1: Booked /Unbooked Status

Booked/unbooked	Number	Percentage
Booked	99	18.1%
Unbooked	447	81.9%
Total	546	100

Table 2: Age and Apbruption

Age (years)	Number	Percentage
20-25	294	53.8%
25-30	71	13%
30-35	142	26%
>35	39	7.2%
Total	546	100

Most of the abruptio placenta cases were between 20 to 25 years (53.8%). Next most common age group was between 30 to 35 years) (26%). Least incidence was seen among the age group >35 years. (Table 2)

Table 3: Parity and Abruption

Parity	Number	Percentage
Primigravida	92	16.8%
Multigravida	454	83.2%

In our study, abruption was high in multiparous women (83.2%) while 16.8% patients were primigravida. In the present study, Hypertension in pregnancy was the most common risk factor of the abruptio placentae accounting for 45.9% of total cases. Second most common risk factor was history of previous abruption constituting 20.1% of total cases followed by previous history of LSCS (17.9%). Other risk factors in our study were oligohyramnios (8.05%), tobacco (4.9%), multiple pregnancy (4.2%), Premature rupture of membranes (2.9%). Many patients had more than one risk factor.

Table 4: Risk factors

Risk factors	Number	Percentage
Hypertensive disorders	251	45.9%
H/O Abruption	110	20.1%
Previous LSCS	98	17.9%
Oligohydramnios	44	8.05%
H/0 tobacco chewing	27	4.9%
Multiple pregnancy	23	4.2%
PROM	16	2.9%
H/O abortion	16	2.9%
Fibroid	14	2.5%
Trauma	12	2.1%
Uterine anomalies	12	2.1%
Hypothyroidism	12	2.1%
Polyhydramnios	5	0.9%

Table 5: Association with hypertensive disorders in pregnancy

Association with PIH	Number	Percentage
Severe	110	20.1%
Eclampsia	82	15%
Gestational hypertension	59	10.8%
Normal blood pressure	295	54.1%
Total	546	100

Out of 546 patients of abruption in our study,251 patients (45.9%) had hypertensive disorders in pregnancy.2 0.1% of patients had severe hypetention,15% had eclampsia and 10.8% had gestational hypertension.295 patients of abruption had normal blood pressure (54.1%). (Table 5)

The most frequent symptomatology found in present study was vaginal bleeding in 72.1%. 37.9% had uterine tenderness and 45.9% had uterine hyper tonicity. Backache was present in only 13.9% of our patients. Fetal distress in the form of poor beat-to-beat variability, post contraction deceleration, persistent bradycardia was noted in 57.8% of the cases. 16 patients had still births.

Table 6: Symptoms and Signs

Symptom	Number	%
Vaginal bleeding	394	72.1%
Uterine tenderness	207	37.9%
Uterine hypertonia	251	45.9%
Fetal distress	316	57.8%
Backache	76	13.9%
Intra uterine death	16	2.9%

54% of the cases presented as Grade I abruptio placentae, which is the commonest presentation in present study. 31.8% of the cases were of grade II and 6.1% of grade 3 Abruptio placentae. (Table 7)

Table 7: Grades of Abruption

Grade	Number	Percentage
0	44	8.1%
1	295	54%
2	174	31.8%
3	33	6.1%
Total	546	100

68.9% of patients with abruption had live births and 31.1% had still born babies in our study. (Table 8)

Table 8: Perinatal Morbidity

Fetal outcome	Number	Percentage
Still births	170	31.1%
Live births	376	68.9%
Total	546	100

Birth asphyxia, hyperbilirubinemia and neonatal sepsis were commonest complications in our study.21 live born babies required NICU admissions. There were 12 neonatal deaths, 8 out of them were due to prematurity. The mean birth weight in our study was 1.7 Kg. Perinatal mortality and morbidity were more in low birth weight babies which was found to be strongly associated. (Table 9)

Table 9: Neonatal complications

Symptom	Number
Birth asphyxia	35
Hyperbilirubinemia	30
Sepsis	29
RDS	4
NICU Admission	21
Anemia	28

Maternal complications associated with Abruption in our study were Postpartum haemorrhage (PPH) (20.2%), Disseminated Intravascular Coagulation (DIC), Acute renal failure (ARF), Shock, Pulmonary edema, Infection. Among which postpartum hemorrhage contributed the majority of complications (20.2%). (Table 10)

Table 10: Maternal Complications

Complications	Number	Percentage
PPH	110	20.2%
DIC	83	15%
ARF	65	12%
Pulmonary odema	59	10.8%
Shock	50	9.2%
Infections	48	8.8%
Others	131	24%

Discussion

Placental abruption is one of the serious complications of pregnancy, as it leads to both poor maternal and fetal outcome. In developing world, increased frequency of the condition remains a cause of medical concern. Incidence observed in present study was 2.33 that was higher than studies conducted by Wasnik SN *et al.* [7] (0.5), P Renuka *et al.* [8] (1.64) and Tambawaala Z *et al.* [9] (0.51). Abruption in our study was found to be more common in age group of 20-25 years (53.8%), followed by 31-35 years (26%) similar to the study conducted by P Renuka *et al.* [8] which was also finding of various studies like Poddar *et al.* [10] and Gopalkishna *et al.* [11].

Unbooked status has been cited as an individual risk factor and this study also found unbooked status to be very high in abruption (81.9%). In our study, maximum incidence of abruption placentae was seen to be before 36 weeks of gestation which is in keeping with other studies like Khosla *et al.* [12], Muhammad S *et al.* [13] etc.

Hypertension was most common risk factor associated with placental abruptio (45.9%) in our study which is similar to studies of P Renuka *et al*[9] and Sengodan SS *et al.* [14] Hypertensive women have a fivefold increased risk of severe abruption compared with normotensive women. Antihypertensive therapy does not appear to reduce this risk in women with chronic hypertension [15]. The combination of cigarette smoking and hypertension has a synergistic effect on risk [16]. 20.1% of the patients with abruption had history if previous abruption in our study. According to statistics, previous abruption is the strongest risk factor for abruption, with recurrence risks of 10- to 15-fold higher, and as high as 93-fold higher (95% CI 62-139) than in women with no previous abruption [17].

The most frequent symptomatology found in present study was vaginal bleeding in 72.1% patients.37.9% had uterine tenderness and 45.9% had uterine hyper tonicity in our study similar to study conducted by Tambawaala Z *et al.* [9] Vaginal bleeding ranges from mild and clinically insignificant to severe and life-threatening. Blood loss may be underestimated because the blood may be retained behind the placenta and thus difficult to quantify. The amount of vaginal bleeding correlates poorly with the degree of placental separation and does not serve as a useful marker of impending fetal or maternal risk.

Among the maternal complications, Postpartum Hemorrhage (PPH) was commonest followed by Disseminated Intravascular coagulation (DIC), Acute Renal Failure (ARF), shock, pulmonary edema and infection. PPH occurred in 20.2% of patients in our study, 19.6% in study conducted by Sengodan SS *et al.* [14], wheareas study by Talpur NN *et al.* [18] reported PPH in 28% of patients. DIC was associated with 15% of the patients in our study. Sengodan SS *et al.* [14] observed DIC in 16.7% of his study patients with severe abruption and fetal demise which is comparable to our study. Pulmonary edema occurred in 10.8% of patients in our study which is comparable to study by Sengodan SS *et al.* [14] and Subramaniyan V *et al.* [19].

The mean birth weight is found to be 1.7 Kg in our study. High perinatal morbidity and mortality apart from abruption placentae was due to low birth weight related to preterm birth in and NICU admission. Birth asphyxia, hyperbilirubinemia and neonatal sepsis were commonest complications in our study. There were 12 neonatal deaths, 8 out of them were due to prematurity. Placental abruption is implicated in up to 10 percent of preterm births [20]. Preterm birth may be iatrogenic due to the nonreassuring fetal or maternal condition, or it may be related to preterm labor or preterm prelabor rupture of membranes [21].

Routine antenatal check-up, correction of anemia, timely referral, timely caesarean section, liberal blood and blood components transfusion and good neonatal intensive care unit will help further to lower the perinatal and maternal morbidity and mortality [14].

Timely diagnosis and expert management bexperienced clinicianat all levels will help in improving maternal and foetal outcome in cases of abruptio placentae.

Conclusion

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. Antenatal care which identifies the risk factors like hypertention in pregnancy plays an important role in decreasing the incidence of abruptio placenta and improving the maternal and fetal outcome. Maternal and fetal complications can be minimized provided patients report in time, so that prompt, judicious and definite measures can be undertaken expeditiously and correct treatment instituted.

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