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Feto Maternal Outcomes in Abruptio Placenta

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Abstract: ***Introduction: Abruptio Placenta is a major cause of maternal morbidity and perinatal mortality globally and is of serious concern in the developing world. Materials and methods: A retrospective cohort study was designed and carried out between January and December 2015 in the Institute of Maternal and Child Health (IMCH) attached to GMC, Calicut. Results: We evaluated 140 cases of abruptio placenta during the study period, making its incidence 0.9%. Nearly half the cases were unbooked, with an average age of 27.5 years and nearly three-fourths of the patients were multiparae. Anemia was observed in 63 patients, with 47.8% requiring blood transfusions. Around 60% cases required emergent caesarean sections with more than 90% being managed expeditiously within 10 hours of admission. Abruptio placenta was associated with pre-eclampsia, chronic hypertension, eclampsia, HELLP syndrome, infection, post-partum haemorrhage, shock and transient renal failure. There were no maternal mortalities but abruptio placenta accounted for 30% still births. Other adverse perinatal outcomes included low APGAR, low birth weight and increased need for admission to neonatal ICU. Conclusion:Abruptio placentae continues to be responsible for increased maternal and fetal morbidity. It is neither preventable nor predictable in majority of cases.Early detection and prompt management will reduce morbidity. Joint care by obstetricians, intensivists and neonatologists is required for better maternal and fetal outcome.***

Keywords: Abruptio placenta, antepartum hemorrhage, feto-maternal outcomes,

1. 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. AbruptioPlacenta is a major cause of maternal morbidity and perinatal mortality globally and specially in the developing world.[1,2,3,4] It is a major contributor of obstetric hemorrhage and complicates 0.8-1% of all pregnancies worldwide.[5]

Several risk factors have been associated with abruptio placentae including previous history of small-for gestational age delivery, young or advanced maternal age (<20 years or >=35 years), previous history of abruptio placentae, previous history of caesarean section, maternal headaches/migraine, current diabetes mellitus, multiparity (especially grand multiparity), maternal cigarette smoking, multiple gestations, chronic hypertension, preeclampsia, premature rupture of membranes, thrombophilic disorders, abdominal trauma and polyhydramnios.[6]

The signs and symptoms of Abruptioplacentaevary depending on the severity of bleeding and d egree ofseparation of the placenta.[1,2,3,7] The most common presentations include vaginal bleedi ng, uterine and abdominal pain and tenderness, abnormal uterine contractions, premature labor, maternal instability, fetal distress and fetal death.[1,2,3,7]

The Sher and Shetland Grading (Table 1) is dependent on the clinical picture and has prognostic significance as well as differentiation between a live and dead fetus.

Table 1: Sher and Shetland Grading[8]

Grade 1	– Mild	Not recognized clinically, Diagnosed by retro-placental clots
Grade 2	– Moderate	Clinical signs of abruption(+), fetus alive.
Grade 3	– Severe	Fetus is dead
		A – no coagulopathy
		B – with coagulopathy

Abruptio placentae accounts for 20–25 % of antepartum haemorrhages, and it is also associated with an increased risk of disseminated intravascular coagulopathy, severe maternal shock, renal failure[1,9], postpartum haemorrhage and maternal death[1,10,11]. Furthermore, abruptio placentae has been associated with adverse foetal outcomes including low birth weight, preterm birth, intrauterine growth restriction, birth asphyxia, fetal distress, low apgar score, transfer to neonatal intensive care unit, stillbirth[1,11–13], congenital anomalies and perinatal death ranging from 4.4 to 67.3 %[1,10,14]

We conducted this study with an objective to determine feto-maternal outcomes in cases of abruptio placentae in our tertiary care centre.

2. Methods and Methodology

A retrospective cohort study was designed was carried out in the department of Obstetrics and Gynecology at the Institute of Maternal and Child Health (IMCH), a tertiary care center attached to the Government Medical College, Kozhikode which caters to patient pool from the northern part of Kerala. The study population included all cases of placental abruption, diagnosed and delivered at IMCH, Kozhikode during the study period between 1st January 2015 and 31st December 2015.

Data regarding various associated factors and immediate feto-maternal outcomes were collected by analysing the parturition registers, case sheets and NICU records.

The following clinical information were collected: Maternal age, parity, gestational age at delivery, prior history of abruption, clinical presentation like pain and bleeding, type of abruption – concealed or revealed, amount of retroplacental clots, grade of abrupion according to Sher and Shetland grading, association with hypertensive disorders, mode of delivery, interval between diagnosis and delivery, maternal complications, requirement of blood transfusion

and immediate neonatal outcome. The results of the study were recorded in percentages and frequencies

3. Observations

A total of 15347 deliveries were conducted at our institute during the study period. Of these, 140 cases were diagnosed to have abruptio placenta, an incidence of 0.9% of cases as shown in Fig 1.

Of the cases of AP, 68 (48.6%) cases were booked in our institute and the rest (72, 51.4%) were referred from other centers. As shown in Fig 2,average age at presentation was 27.5 years (SD ± 5.6) with most of them aged between 20-30 years (90, 64.3%). Patients aged <20 were 8(5.7%) and those aged >35 were 20(14.3%).

Seventy eight (56%), 39 (28%) and 23 (16%) cases were multiparae, primi and grand-multiparae respectively.
Most patients (85, 60.7%) delivered between 28 and 37 weeks of gestation, with 42 (30%) cases delivering between 37-40 weeks. Nine cases (6.4%) were post-term and 4 cases (2.9%) delivered <28 weeks.

Three patients (2.1%) had a prior history of abruption, with one patient having a history of recurrent abruption. In all these cases, abruption occurred at an earlier gestational age in the reviewed pregnancy. The patients had varied presentation with vaginal bleeding being the main presentation (45%) and 14% having pain. 22% patients presented with both. Other presentations included pallor (43, 30.7%), tense and tender uterus (28, 20%), features of shock and pre-ecclampsia (12, 8.5% each). The height of uterus was corresponding in 108 cases (77.1%), with increased and decreased fundal height in 8 cases (5.7%) and 24 cases (17.1%) respectively.Abruption was revealed in 83 cases (59%) and concealed in the rest (57, 41%). Couvelaire uterus was seen in 7 cases (5%). Ninety-one cases (65%) had retroplacental clot measured at 50-250gms, with 27 cases (19.3%) and 22 cases (15.7%) having 250-500gms and more than 500gms clots respectively.

As can be seen from Fig 3,the patients were graded using the Sher and Shetland grading, with 50 cases (35.7%) each of grade 1 and grade 2 abruption, 37 cases (26.4%) of grade 3A and three cases (2.1%) of grade 3B abruptio placenta.

There was no association with hypertension in 104 cases (74.2%).

The Table 1 shows the association with hypertensive disorders of pregnancy. The hypertensive disorders seen in the rest of the patients included 14 cases (10%) of severe pre-eclampsia, 13 cases (9.3%) of gestational hypertension, 4 cases (2.9%) of HELLP Syndrome, 3 cases (2.1%) of chronic hypertension and 2 cases (1.4%) of eclampsia. Table 2 highlights other associations observed with abruptio placenta which included 22 cases (15.7%) of previous Caesarean section, 9 cases (6.4%) of gestational diabetes mellitus, 8 cases (5.7%) of oligamnios, 5 cases (3.5%) of IUGR, 4 cases of (2.8%) of malpresentation, 3 cases (2.1%) each of placenta previa, polyhydramnios, PPROM and twins, and uterine anomaly.

Figure 4 shows the mode of delivery in cases of abruption studied. While 81 cases (57.9%) were delivered by caesarean section, 58 cases (41.4%) could be delivered vaginally. One case (0.7%) required hysterotomy. Ninety percent (126 cases) could be delivered between 2-10 hours after diagnosis, with 74 cases (53%) being delivered between 2-6 hours after diagnosis. Few cases (10, 7%) were delivered in < 2 hours after diagnosis and fewer still (4 cases, 3%) being delayed beyond 10 hours.

Table 3 highlights the associated complications.Anemia was the most common maternal complication (63, 45%) with infection (5 cases, 3.2%), disseminated intravascular coagulation (5 cases, 3.2%), post-partum hemorrhage (4 cases, 2.9%), hypovolemic shock (3 cases, 2.1%), and transient renal impairment (2 cases, 1.4%) making up the rest. Fortunately, no maternal deaths were seen in the study period. Sixty-seven cases (47.8%) required blood transfusion, with 5 cases (3.5%) requiring more than 10 units of blood.

Table 4 shows the fetal and neonatal outcomes.In terms of perinatal outcomes, 43 out of 143 (30.1%) cases had still birth. Of the remaining 100 live births, 22 cases (22%) had low APGAR score at 1 and 5 minutes, 45 cases (45%) had low birth weight (LBW) and 37 cases (37%) required admission to the neonatal intensive care units. There were 4 neonatal deaths and abruptio placenta accounted for a perinatal mortality of 470/1000 live births.

4. Discussion

The incidence of AbruptioPlacentae in our study was 0.9%. This is consistent with findings from other studies where the incidence was found to be 0.5-1% in American, European and Asian populations. [1,4,5,15,16]

Interestingly in our study, 104 patients (72.4%) had no association with hypertension. This may be due to the fact that most patients would have been having ongoing bleeding that masked the underlying hypertension[17]. Our study is otherwise in general agreement with other reports of the association of increased risk of abruptio placenta that occurs with chronic hypertension and pre-eclampsia/eclampsia. Incidence of eclampsia, chronic hypertension and pre-eclampsia of 23.6, 10 and 2.3% respectively have been reported previously and is consistent with our results.[17]

There is a certain increased risk of placental abruption in women with history of previous caesarean section. This corroborates with other reports, though it is not as high as reported by Nayama[18] et al and Wandabwa[19] et al.

The incidence of abruptio placenta was found to be higher in women with high parity. This is in line with many other studies[20,21,22]. It is also established that the incidence of placental abruption increases with increasing maternal age. This finding needs attention, given that more women are now deferring pregnancy into their late 30s and early 40s.

Previous studies have reported smoking and alcohol consumption as potential risk factors for placental abruption[5,23]. However, this could not be established in our

study as the number of subjects that had either habit was too little to influence the outcome.

Other associations with abruptio placenta noted in our study were HELLP syndrome, gestational diabetes mellitus, oligamnios, IUGR, malpresentationsetc are corroborating with previous studies reporting similar incidences.

Maternal and fetal morbidity and mortality are reported to be increased in most previous studies on abruptio placenta[2,19,20,25]. Our study is well in line with the same observation.

Anemia was the most common maternal complication (45%). However, whether this was a cause of abruption or a consequence of it could not be established as more than 50% cases were not booked at our hospital and did not have other antenatal records. This finding not only highlights the increased bleeding with abruption but also that it is aggravated by chronic maternal malnutrition that is prevalent in our population.

Nearly 50% of the cases required blood transfusion, with 5 patients requiring more than 10 units. This included transfusions for correction of anemia, DIC and ongoing blood loss.

Rate of caesarean section was high in our study (57.9%) in the interest of better maternal and fetal outcome. There was a general consensus for early intervention, with 90% of the cases delivered within 10 hours of admission. The risks and benefits of conservative management versus expeditious delivery in abruptio placenta needs to be optimized for better maternal and fetal outcome[2,24].

While, fortunately, there were no maternal deaths, abruptio placenta is not without its complications, with DIC, PPH, infection, shock and renal impairment making up the morbidities.

The fetal outcome was more grave, with abruptio placenta accounting for 30% of still birth, and adding to the burden of perinatal mortality, which was prohibitively high at 470/1000 live births. This is consistent with the reports[1,2,23] from other government hospitals in developing countries. In addition, there were low APGAR, low birth weight and increased rate of admission to the neonatal ICU that added to the perinatal morbidity.[2,6,7,14]

5. Conclusions:

- Abruptio placentae continues to be responsible for increased maternal and fetal morbidity.
- It is neither preventable nor predictable in majority of cases.
- Early detection and prompt management will reduce morbidity.
- Joint care by obstetricians, intensivists and neonatologists is required for better maternal and fetal outcome.

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Figures and Tables:

Table 1

Association of hypertension	No. of Cases
No HTN	104 (74.2%)
Severe PE	14 (10%)
Gestational HTN	13 (9.3%)
HELLP Syndrome	4 (2.9%)
Chronic HTN	3 (2.1%)
Eclampsia	2 (1.4%)

Table 2

Association	No. of Cases (%)
Previous CS	22(15.70%)
Gestational Diabetes	9(6.40%)
Oligamnios	8(5.70%)
IUGR	5(3.50%)
Malpresentation	4(2.80%)
Placenta Previa	3(2.10%)
Polyhydramnios	3(2.10%)
PPROM	3(2.10%)
Twins	3(2.10%)
Uterine Anomaly	3(2.10%)

Table 3

Complication	*No. of Cases (%)*
Anaemia	63 (45%)
Infection	5 (3.6%)
DIC	5 (3.6%)
PPH	4 (2.9%)
Hypovolemic Shock	3 (2.1%)
Transient renal impairment	2 (1.4%)

Table 4

Outcome	*No. of Cases (%)*
Still Born	43/143 (30.1%)
Low APGAR	22/100 (22%)
LBW	45/100(45%)
NICU Admissions	37/100 (37%)
Neonatal Deaths	4/100 (4%)
Perinatal mortality	470/1000 live births