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Original Research Article

Observational study of abruptio placenta - Fetomaternal outcomes at tertiary hospital

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Abstract

Objectives: To know the fetal and maternal outcomes in cases of placental abruption.
Materials and Methods: A cross-sectional study conducted over a period of 18 months for all the patients who were diagnosed with placental abruption. Abruption was graded as per Geoffrey Sher's classification (1978) which is retrospective grading. All data were retrieved and entered in structured format. The statistical analysis was performed and data were presented as the frequency with proportion (%) for categorical data.
Results: Out of 12599 deliveries during the study period, there were 78 cases of placental abruption with incidence of 0.61%. The age of study group varied from 19 years to 41 years, with a mean age of 27 years. Out of 78 cases, 28 (35.89%) were primigravida and 50(64.11%) were multigravidas. The time of presentation of abruption varied from 20 weeks to 40 weeks. 6(7.69%) cases were under 27 weeks, 26(33.33%) cases were of gestational age 28-32 weeks, 25 (32.05%) cases were diagnosed with abruption at 33-36 weeks and rest 21 (26.92%) cases presented after 36 weeks of gestation. Retrospective categorization according to Geoffrey Sher's Classification, 31(39.74%) cases were classified as grade 1 of placental abruption, 22(28.20%) cases were under Grade 2 and 25(32.05%) cases were of Grade 3. Among the 8 cases delivered vaginally, 3 were live births and 5 were fresh still births. 51 live births and 20 fresh still births were noted in the cases where delivery was by caesarean section. The P value calculated by Chi-Square is 0.0478, we can state that caesarean deliveries have a better live birth rate compared to vaginal delivery.
Conclusion: Placental abruption is still one among the most serious obstetric emergencies. It often presents without warning and the etiology remains obscure in many cases. Providing optimum obstetric care and timely blood and blood products transfusion services significantly decreases maternal mortalities due to placental abruption. Timely sterilization which avoids high parity, proper antenatal care, improving socio-economic status, anticipation among high-risk cases for abruption, timely diagnosis and prompt treatment of all preeclampsia cases with strict surveillance and prompt action at the time of presentation could bring better results while dealing with this morbid condition.

Keywords: Placental abruption, Retrospective, Caesarean deliveries.

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1. Introduction

Placental abruption and placenta previa are the two nightmares which presents in the late second trimester especially after 20 weeks of gestation. Premature separation of placenta from its uterine attachment before the delivery of the fetus is called abruptio placenta.[1] Abruption occurs in 0.6 to 1.2% of all pregnancies, more commonly occurring in term gestations,[2] whereas in India, the incidence varies from 2.5 to 3.8%.[3] In 2009, WHO reported a 2.1% maternal mortality rate and 15% fetal perinatal mortality rate due to placental abruption.[4] The recurrence rate is 11% after 1 episode, which increases to 25% after 2 episodes. Maternal iron deficiency anemia, hypertensive disorders in pregnancy, premature rupture of membranes, intrauterine infections, cigarette smoking, trauma, multifetal pregnancies, polyhydromnios are the few of the known risk factors for placental abruption.[2,5-7] Maternal complications include obstetric hemorrhage, disseminated intravascular coagulation, renal failure, need for blood transfusions, critical care. Maternal death is rare but seven times higher than the overall mortality rate among cases of abruption.[8]

Ultrasonography, even though not a sensitive investigation for the detection of abruption, is still used sometimes due to its high specificity. However, a strong

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clinical suspicion of abruption and timely obstetric intervention will improve maternal and fetal outcome, even in case of negative USG findings.[9] Sono graphically, the retroplacental hematoma may mimic a thickened placenta because the hematoma is isoechoic with placenta. Hypoechoic or heterogenous echogenicity in USG is suggestive of retroplacental hematoma, but it may also mimic as thickened placenta as hematoma is commonly isoechoic to placenta.[10] Perinatal consequences include low birth weight, preterm delivery, asphyxia, stillbirth and perinatal death.[8] Fetal outcomes are worse among the preterm patients with positive USG and intrapartum findings of abruption compared to full term patients with abruption.[9]

There has been an increase in the use of LSCS over recent years in abruptio placentae, resulting in a better obstetric outcome. The present study is done to know the impact of abruption placentae and the effect of various parameters on the fetal and maternal outcome.

2. Materials and Methods

2.1. Study design

This is a cross-sectional observational study conducted over a period of 18 months from January 2021 to June 2022. All the patients who were diagnosed with placental abruption were included in the study. The objectives were to study outcome of pregnancy in terms of maternal and perinatal morbidity and mortality in a patient diagnosed with abruptio placentae. Also, the incidence, clinical profile of patients and effect of duration of perinatal morbidity among the study group.

2.2. Inclusion criteria

All women admitted with per vaginal bleeding with gestational age beyond 20 weeks and clinically diagnosed as abruptio placentae during labor.

2.3. Exclusion criteria

All other causes of APH like placenta previa and other extraplacental causes will be excluded.

Patients were not willing to give consent for inclusion in the study.

Abruption was graded as per Geoffrey Sher's classification (1978) which is retrospective grading.

Grade 1: Retroplacental clot volume was about 150 ml with a favourable perinatal outcome.

Grade 2: Includes classical features of antepartum hemorrhage and fetus life. Retroplacental clot volume 150 – 500 ml with significant high-risk situations of the newborn.

Grade 3: Grade 2+fetal demise and further divided based on the absence or presence of coagulopathy.

All data were retrieved and entered in structured format. The statistical analysis was performed and data were presented as the frequency with proportion (%) for categorical data.

3. Results

Out of 12599 deliveries during the study period, there were 78 cases of placental abruption with incidence of 0.61%. The age of study group varied from 19 years to 41 years, with a mean age of 27 years. Out of 78 cases, 28 (35.89%) were primigravida, 26(33.33%) were 2nd gravidas and rest 24 (30.76%) more than 3rd gravida. The time of presentation of abruption varied from 20 weeks to 40 weeks. 6(7.69%) cases were under 27 weeks, 26(33.33%) cases were of gestational age 28-32 weeks, 25(32.05%) cases were diagnosed with abruption at 33-36 weeks and rest 21(26.92%) cases presented after 36 weeks of gestation (**Table 1**).

Table 1:

S. No	Gestational age at the time of presentation	N= 78	Percentage
1	<27 weeks	6	7.69%
2	28-32 weeks	26	33.33%
3	32-36 weeks	25	32.05%
4	>37 weeks	21	26.92%

The most common presenting symptom among the cases were vaginal bleeding in 83.33%, which was associated with pain abdomen in 64.10%. Clinically, 6 cases were concealed abruption, 15 were revealed and the majority i.e., 57 cases were mixed type of placental abruption. Retrospective categorization according to Geoffrey Sher's Classification, 31(39.74%) cases were classified as grade 1 of placental abruption, 22(28.20%) cases were under Grade 2 and 25(32.05%) cases were of Grade 3 (**Figure 1**).

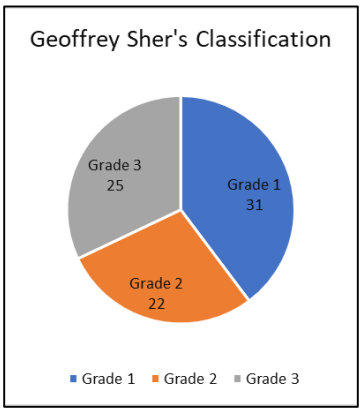

Figure 1

52.56% (41 cases) of the cases were associated with pre-eclampsia, 32.43% (24 cases) had anemia, 17.56 % (13 cases) were associated with both anemia and pre-eclampsia. One case (0.012%) was associated with multi fetal pregnancy.

21(26.5%) cases had postpartum Hemorrhage which was managed by blood and blood products transfusion. The majority of cases (71 cases) were terminated by caesarean section. The amount of blood loss among the ones delivered vaginally was 1200ml on average. Whereas, among the caesarean section group, the average blood loss was 2000ml on an average. Intra-operatively, Couvelaire uterus was seen in 12 out of 71 cases where caesarean section was done. One case went into acute kidney injury needing dialysis which was jointly managed by medicine and obstetrics faculty.

Maternal outcome during the post-natal/post-operative period was uncomplicated in 33 cases, 39 cases had anemia in the postnatal period which needed blood transfusion. 2 cases have a single episode of post-partum eclampsia which was treated as per the hospital protocols. 1 case was re-explored on Day 2 and internal iliac artery ligation was done and managed accordingly. 13(17.56%) cases needed ICU admission for postoperative monitoring. None underwent peripartum hysterectomy. There were no cases of maternal mortalities due to placental abruption during the study period.

Among the 8 cases delivered vaginally, 3 were live births and 5 were fresh still births. 51 live births and 20 fresh still births were noted in the cases where delivery was by caesarean section. The P value calculated by Chi-Square is 0.0478, we can state that caesarean deliveries have a better live birth rate compared to vaginal delivery (**Table 2**).

Table 2:

	Perinatal Outcome		
Mode of Delivery	**Live (n=54)**	**Dead (n=25)**	**P value**
Normal delivery	3	5	0.0478
LSCS	51	20	

Perinatal outcome in this study reported 54 (68.35%) live births and 25 (31.64%) ended up as stillbirths. (n=79). Among the 54 live births, 28 neonates were discharged during the first week, 14 neonates had a NICU stay of 2-4 weeks, 7 were discharged in after 4 weeks of NICU stay. 4 neonates succumbed in 2nd week and one neonate died after 4 weeks in NICU.

4. Discussion

Abruptio placenta is life threatening both to mother and the fetus if not diagnosed and timely managed. Pre-eclampsia being the more common reason for placental abruption, optimum control of the blood pressure will decrease the incidence of abruption.

In the present study, the incidence of placental abruption is 0.61%. The incidence has been reduced over the years when compared to incidence of 1.8% in Krishna Menon's study of 1961,[11] 1.6%% as of P. Renuka and associates in 2016 at Hyderabad,[12] 0.97% in 2019 as per Wankhedkar et al, in 2019,[13] the incidence has been showing a decreasing trend. This may be due to the emerging practice of modern obstetrics in the 21st century.

Multigravidas landing up in placental abruption, which was 64.11% in the present study which correlates with the studies of Sayli et al and Mahopatra and associates of 2019.[13,14] Primigravidas with abruptio placenta were 35.89% in this study which was also correlating with study of Sayli and associates.[13]

Distribution of cases with respect to weeks of gestation at the time of abruption in the present study were 65% between 28-36 weeks, and 27% above 37 weeks. This study correlates with the results of Sayli Wankedkar et al, in which there was an incidence of abruption was 70.9% between 28-36 weeks and 27.3% in 37 weeks and above.[13]

The main etiology recognized was pre-eclampsia/pregnancy-induced hypertension, the incidence in the study was 53%. Reviewing many studies, the incidence of hypertension as an etiological factor for abruption has a wide variation. Also, Sayli et al found a higher incidence in hypertensive patients which were 63% and 58.57% respectively.[13]

In the present study, the majority of the cases were delivered by caesarean delivery (91.02%), which doesn't correlate to the studies of Jessica et al, Kunaal and associates.[14,15] The anxiety of the obstetrician regarding fetal and maternal morbidity in cases of placental abruption and the practice of modern obstetrics in the institute lead to a bias of majority of caesarean deliveries as a method of termination in this study.

5. Conclusion

Placental abruption is still one among the most serious obstetric emergencies and also a serious cause of feto-maternal morbidity and mortality. It often presents without warning and the etiology remains obscure in many cases. Providing optimum obstetric care and timely blood and blood products transfusion services significantly decreases maternal mortalities due to placental abruption. However, the principle challenge to prevent abruptio placenta remains in eliciting the precise history, detecting comorbid conditions especially anemia and hypertensive disorders, timely decision for termination of pregnancy in high-risk cases.

Good obstetric care has to be taken to decrease the overall incidence and severity of the condition as the incidence cannot be completely eliminated. Permanent methods of contraception which avoids high parity, proper antenatal care, improving socio-economic status, anticipation among high-risk cases for abruption, timely diagnosis and prompt treatment of all preeclampsia cases with strict surveillance and prompt action at the time of presentation could bring better results while dealing with this morbid condition.

6. Source of Funding

None.

7. Conflict of Interest

None.

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