



MATERNAL AND FETAL OUTCOME AMONG ABRUPTIO PLACENTAE CASES IN A RURAL TERTIARY HOSPITAL IN MAHARASHTRA, INDIA; A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Placental abruption complicates about 2-5% of pregnancies and is a leading cause of vaginal bleeding in the latter half of pregnancy. It is also an important cause of perinatal and maternal mortality and morbidity. The maternal effect of abruption depends primarily on its severity, whereas its effect on the fetus is determined both by its severity and the gestational age at which it occurs. The diagnosis was confirmed on the presence of retroplacental clot, which was used to estimate the amount of bleeding and severity of abruption. Patients were managed according to the fetal and maternal conditions and ultrasonography.

Methods: The study was carried out for a period of one year from 1st July 2018 to 30th June 2019. The study population included all cases of antepartum haemorrhage, confirmed as abruption post delivery were included and other causes like placenta previa, other extraplacental causes were excluded in this study who came to the Department of Obstetrics and Gynaecology during the study period. Subjects selected for the study were all cases diagnosed as having abruption placenta.

Results: Total number of women admitted in labor ward between 1st July 2018 to 30th June 2019 were 8551. Among these 122 had abruption placenta. Majority of patients were in the age group 25-30 years. Incidence was higher in multi-parous. Spontaneous vaginal delivery was the mode in most patients (~69.6%). Major maternal complications seen were anaemia in 33(27%), shock in 18(14.7%), post partum haemorrhage in 10 (8.1%), altered coagulation profile in 4 (3.2%) of patients. 72.97% women delivered alive babies while 27.03% were stillborn.

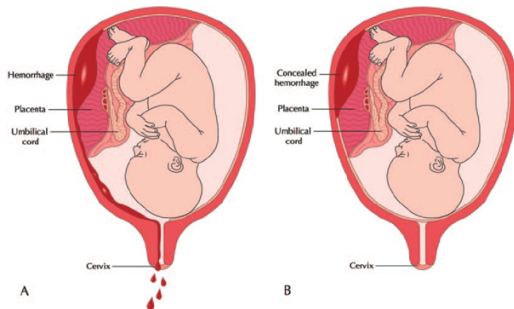
Conclusion: Resuscitation and termination is gold standard treatment for abruption placenta. Abruption placenta is associated with high rate of maternal and fetal morbidity and mortality, Because of this association, the conditions predisposing it should be carefully evaluated in order to reduce the occurrence of placental abruption. Unfortunately neither accurate prediction nor prevention of abruption is possible at the present time. Despite advances in medical technology, the diagnosis of abruption is still a clinical one.

KEYWORDS : Abruption placenta, Retroplacental clot

Introduction:

Antepartum hemorrhage (APH) is a grave obstetrical emergency. It is an important cause of maternal morbidity and perinatal mortality (1). It complicates about 2-5% of all the pregnancies. (2) Placental abruption is defined as the partial or complete separation of a normally implanted placenta from the uterine wall before delivery of the fetus(3). It is among the leading causes of maternal and perinatal mortality and morbidity worldwide. (4, 5).

Types of Abruption Placentae:



- A. Revealed abruption. Blood tracks between the membranes, and escapes through the vagina and cervix.
B. Concealed abruption. Blood collects behind the placenta, with no evidence of vaginal bleeding

WHO 2009 reported 2.1% maternal mortality rate and 15% fetal perinatal mortality rate due to abruption placenta (AP). (6). The incidence of AP in world is 1% and in India is 0.6-1%. Its exact etiology remains obscure, however various risk

factors have been implicated like advanced maternal age, high parity, low socio-economic status, smoking, folic acid deficiency, maternal hypertension, thrombophilia and trauma.(7). The recurrence rate is 11% after one episode, rising to 25% after two episodes. (8).In developing countries, more maternal deaths are said to be caused by pre-existing maternal anemia.(3,9).In developed countries, approximately 10% of all preterm births and 10-20% of all perinatal deaths are due to placental abruption.(10). It deprives the fetus of oxygen and nutrition, leading to both short term and long-term consequences among survivors. (3, 11) This is important as it has been shown that the peak rate of abruption occurs between 24 and 27 weeks' gestation. (12). Small episodes of placental abruption may escape clinical detection and only be diagnosed after routine examination of the placenta. In such cases, the reported incidence is higher. Unlike severe grades, minor, self-limited abruption may have few consequences. A recent, large, population-based Norwegian study demonstrated that folic acid supplementation significantly reduces the incidence of abruption placenta, probably by lowering plasma homocysteine. The risk was further reduced by supplementation with other vitamins, especially in women who smoked (19-33% risk reduction). Abnormalities in circulating angiogenic factors have been reported in diseases with abnormal placentation. Decreased levels of proangiogenic placental growth factor (PLGF) and increased levels of the antiangiogenic ratio soluble tyrosine kinase 1/PLGF were documented in nulliparous women who subsequently developed hypertension and placental abruption.(13) The clinical presentation of AP varies from asymptomatic to fetal death with severe maternal morbidity (3) Placental abruption may be 'revealed' or 'concealed'. The amount of vaginal bleeding correlates with the degree of abruption. Pain over the uterus is a prominent feature. Uterine contractions may start and cause

additional intermittent pain.(4).Backache may be the only symptom, especially when the placental location is posterior.(14)

Severe fetal hypoxia (fetal distress) correlates with the degree of placental separation, and sudden fetal death is inevitably common unless an immediate cesarean delivery is performed. (3, 10) It is rarely for a concealed AP to be associated with fetal death; but the first clinical sign can be abnormal vaginal bleeding due to DIC. In addition, there may be maternal hypovolemic shock and anemia(14). AP may be associated with acute tubular necrosis and acute cortical necrosis, leading to oliguria and renal failure (4).Despite advances in medical technology, the diagnosis of AP is still a clinical one; and characterized by painful vaginal bleeding, abdominal pain with or without history of trauma and unexplained preterm labor, hypotension and anemia(3,4,15) The ultrasonographic appearance of abruption depends to a large extent on the size and location of the bleed, as well as the duration between the abruption and the time of examination. Acute revealed abruption shows no abnormal U/S findings (16).Heavy show sometimes might mimic AP (3).Examination under anesthesia is a good practice but the time taken to organize the team is long and the procedure itself may provoke more bleeding and worsening of the fetus condition resulting into fresh stillbirth, hence double setting is required. (17). The management of AP individualized on a case-by-case basis, depends on the presentation, GA, and the degree of fetal-maternal compromise. Patients with AP have to be delivered and usually no conservative treatment (3,14) The general delivery plan can be categorized into 2:Amniotomy and oxytocin reserved for none severe bleeding with vertex presentation, favorable cervix and adequate pelvis. Amniotomy stimulates the onset of labour and improves uterine contractions pattern; reduces the myometrial intravasation of blood; reduces the pain and shock; and also reduces the incidence of renal failure (3,14, 18).Caesarean delivery is reserved for severe hemorrhage whether the fetus is dead or alive; or living fetus and labour is expected to be longer than 6 hours to avoid worsening of the coagulopathy or any other obstetrics indications [(14,18). Abruptio placenta has significant risk of coagulopathy and hypovolemic shock; hence intravenous access must be established for aggressive replacement of blood and coagulation factors. Blood should be taken for cells blood count, coagulation studies and cross matched. Patient must be catheterized for hourly urine output monitoring.DIC should be managed aggressively with FFP and platelets; and it is important to stabilize the patient and to correct any coagulation derangement before/during surgery to prevent bleeding from surgical incisions [3, 4, 17].

In addition, the uterus should be observed closely to ensure that it remains contracted and is not increasing in size. The uterus may be hypotonic and occasionally hysterectomy may be necessary to achieve hemostasis.

Many challenges during management include availability of blood products like Fresh frozen plasma or fractionated platelets to correct DIC. If not available on time the mother may bleed to death.(3,17).In cases of abruption at term or near term with a live fetus, prompt delivery is indicated. The main question is whether vaginal delivery can be achieved without fetal or maternal death or severe morbidity(3). Unfortunately neither accurate prediction nor prevention of abruption placenta are possible at the present time(3).

MATERIAL AND METHOD:

This study was a prospective observational study conducted in the department of obstetrics and gynaecology, Shri

Vasantrao Naik Government medical college, Yavatmal, Maharashtra for a study period from 1st July 2018 to 30th June 2019. All cases of antepartum haemorrhage, confirmed as abruption post delivery were included and other causes like placenta previa, other extraplacental causes were excluded in this study. As antepartum hemorrhage patients were admitted as emergencies, placental abruption was suspected depending on clinical features of vaginal bleeding, uterine tenderness, hypertonic uterus and diagnosis was confirmed by retroplacental clots. After initial resuscitation with fluids, blood and blood products, mode of delivery was decided depending upon maternal and fetal risk factors. History (regarding age, obstetric details and maternal high-risk factors like PIH, GDM, polyhydramnios), complete obstetrical examination, laboratory reports, delivery details, neonate details, etc. of patients included in study were recorded in pre-designed proforma. Collected data was analysed.

RESULTS:

Total number of women admitted in the labour room between 1st July, 2018 to 30th June, 2019 was 8551. Among these 122 had abruptio placentae.

Majority of women(59) (48.3%) were in the age group of 25-30 years, 42 (34.4%) were in the age group >30yrs, 21(17.3)% were in the age group of <25 yrs. 70(57.3 %) patients in our study were with parity 2 or 3, 45(36.8 %) were primigravida and only 7(5.9 %) patients were multipara. Most common group was of gestational age 34-36 weeks (late preterm group) in 66(54%) patients, followed by gestational age 28-33 weeks (early preterm group) in 23(19%) patients and 33 (27%) patients were > 37 weeks. Haemoglobin estimation on admission was suggestive of 79(64.7%) patients with 6-8 gm % and 20(16.3%) have haemoglobin < 5 gm % while 23(19%) had hb > 8 gm% Most patients had mode of delivery as vaginal 85 (69.6 %), C-section 30(24.5 %) and instrumental 7 (5.9%).

Characteristics	No of cases	Percentage (%)
Maternal age (years)		
<25	21	17.3
25-30	59	48.3
>30	42	34.4
Parity		
Primigravida	45	36.8
Multipara (2-3)	70	57.3
Grand multipara (>3)	7	5.9
Gestational age (weeks)		
28-33	23	19
34-36	66	54
>37	33	27
Haemoglobin levels (gm%)		
>8	23	19
6-8	79	64.7
<5	20	16.3
Mode of delivery		
vaginal	85	69.6
C-section	30	24.5
Instrumental	7	5.9

Major maternal complications seen were anaemia in 33(27%), shock in 18(14.7%), post partum haemorrhage in 10 (8.1%), altered coagulation profile in 4 (3.2%) of patients.

Sr.no	Birthweight	IUFD/stillbirth	With other	Required resuscitation	NICU admission			Total
					Upto 48 Hrs	3-5 days	> 5 days	
1	< 2 kg	14(11.47%)	5(4.09%)	20 (16.39%)	3	7	10	39(31.95%)
2	2-2.5 kg	8(6.55%)	15(12.29%)	24(19.67%)	5	12	7	47(38.51%)
3	>2.5 kg	11(9.01%)	8 (6.55%)	17(13.93%)	10	4	3	36(29.54%)
4	Total	33(27.03%)	28(22.93%)	61(50.04%)	18	23	20	122

Present study noted 27.03% IUDF/ still birth babies, 50.04 % babies needed neonatal resuscitation. Babies requiring neonatal resuscitation were admitted in NICU for observation and for any further management. Total 16.39% babies needed NICU admission for more than 5 days. Majority of them had birthweight less than 2000 gm, premature babies, often associated with IUGR, fetal distress etc. There was 1 maternal mortality. 21 mothers required postpartum blood transfusion mostly due to antenatal anaemia.

DISCUSSION:

Majority of patients were in the age group 25-30 years. This is in contrast to their traditional association with advanced maternal age. This shows that Placental abruption is prevalent in younger obstetric population in contrast to advanced age, due to marriages at younger age.

Most of patients were multi-parous. Mainly the abruption was seen in women with term pregnancy. Regarding mode of delivery, 85 (~69.6%) women delivered spontaneously vaginally, 30 (~24.5%) underwent caesarean section while 7 (5.9%) had instrumental delivery. Major maternal complications seen were anaemia in 33(27%), shock in 18(14.7%), post partum haemorrhage in 10 (8.1%), altered coagulation profile in 4 (3.2%) of patients.

Regarding fetal outcome, 72.97% were born alive and 27.03% were stillbirths, majority were premature. Only 1 maternal mortality was noted due to hypovolemic shock and severe anaemia.

Anaemia is also supposed to be a predisposing factor for abruptio placentae as it alters foetoplacental angiogenesis in early pregnancy. Among medical disorders the hypertensive disorders of pregnancy was the most common associated factor in 51.6% patients.

CONCLUSION:

Resuscitation and termination is gold standard treatment for abruptio placenta. Abruptio placenta is associated with high rate of maternal and fetal morbidity and mortality, Because of this association found between placental abruption and maternal and fetal morbidity and mortality, the conditions predisposing it should be carefully evaluated in order to reduce the occurrence of placental abruption. Unfortunately neither accurate prediction nor prevention of abruption is possible at the present time. Higher maternal and neonatal, mortality and morbidity can be reduced by screening for hypertensive disorders of pregnancy, early diagnosis of abruption and timely management of shock by blood and blood product transfusion.

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