

## Incidence of Abruptio Placentae and its Effect on Mother and Foetus

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### Abstract:

#### Background:

**Aim of the study:** To study the incidence of Abruptio Placentae and its effect on mother and foetus.

**Methods:** A retrospective study was conducted over a period of 2 years from June 2017 to June 2019 and 145 cases of antepartum haemorrhage were analysed out of which 50 cases were that of Abruptio Placentae. The study population included all cases presenting with ante partum haemorrhage to the Department of Obstetrics and Gynaecology during the study period. Subjects selected for the study were all cases diagnosed as having abruptio placentae.

**Results:** In our study, from June 2017 to June 2019, the total number of deliveries were 9000. The total number of antepartum haemorrhages were 345 and those of placenta previa were 200. The number of abruptio placentae patients were 145 and out of these only 50 were taken for our study. The incidence of Abruptio Placentae was 1.6% . It is most common in the women of age group 20-25 years. 44% of cases were associated with severe pre-eclampsia. Live births were 48% while stillbirths were 8%.

**Conclusion:** Abruptio placenta is life threatening complication of pregnancy and it is associated with poor maternal and foetal outcome if not managed appropriately. Hence early diagnosis and prompt resuscitative measures would prevent both perinatal and maternal mortality and morbidity.

**Keywords:** Abruptio placenta, Maternal, Mortality, Morbidity, Neonatal, Pre-eclampsia

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Date of Submission: 14-04-2021

Date of Acceptance: 28-04-2021

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### I. Introduction:

**Placental abruption** is the most common cause of antepartum haemorrhage and is defined as is defined as the partial or complete separation of the normally situated placenta, after 28 weeks of gestation and before the delivery of the foetus.<sup>5</sup> It is one of the most common cause of obstetric haemorrhage.

The term Abruptio Placentae is known by different names like **Placental Abruption, Ablatio Placentae, Accidental Haemorrhage.**

Abruptio placentae occurs due to rupture of decidual spiral artery which causes retroplacental hematoma. This hematoma can expand and can lead to complete or partial separation of placenta. In the initial stages of placental separation, no clinical signs or symptoms are seen. If the separation is minimal and does not progress further then it can be only seen as retroplacental clots after the delivery of foetus and placenta. The retroplacental clots are usually dark coloured, clotted blood which can measure as few centimetres. If the process of abruption i e the process of separation of placenta continues it can present as

I. **Revealed:** there is bleeding p/ v

II. **Concealed:** here the retroplacental blood insinuates between the membranes and uterus.

With the concealed haemorrhage, the risk of maternal and foetal hazards increases. Maternal hazards like hypovolemic shock, consumptive coagulopathy, severe anaemia, post- partum haemorrhage, acute kidney injury are common.

The foetal complications include- preterm labour, intra uterine foetal demise, hypoxia, cerebral palsy.

The signs and symptoms of abruptio placentae include abdominal pain associated with hypertonic uterus, uterine tenderness, bleeding p/v, maternal hypovolemia, hypovolemic shock, foetal demise.

The treatment usually includes and depends upon the foetal viability, maternal haemodynamic condition and cervical dilatation. The route of delivery for patients with placental abruption and a viable foetus generally should be by rapid caesarean delivery unless vaginal delivery can be expected promptly. Many

patients with placental abruption already have contractions; therefore, caesarean delivery may not be necessary. Maternal and fetal survival depends on early diagnosis and intervention. The history begins with a review of the prenatal course, especially placental location on prior sonograms and if there is a history of placental abruption in previous pregnancies. History of smoking and potential trauma especially in the abdominal area is important. Assessment of the patient can provide very important clue for diagnosing onset of abruption placenta. The physical examination includes palpation of the uterus for tenderness, consistency, and frequency and duration of uterine contractions. The vaginal area is inspected for the presence of bleeding. Digital examination of the cervix should be delayed until a sonogram is obtained for placental localization and to rule out a placenta previa. If bleeding is present, the quantity and characteristic of the blood, as well as the presence of clots is evaluated. However, the absence of vaginal bleeding does not eliminate the diagnosis of placental abruption.

## II. Methods:

This is a retrospective study done in MGM Medical College and Hospital and Research centre, Kalamboli, India from June 2017 to June 2019. Total number of deliveries from June 2017 to June 2019 were 9000. The total number of Abruption placentae cases were 100 but 50 cases were taken for this study. Details of patients like age, parity, maternal complications and high-risk factors were collected from the case sheets. All the study patients underwent complete obstetric examination and clinical workup like history, general physical examination, abdominal and pelvic examination was done. Around 95% patients were admitted in emergency, abruption placentae was suspected depending upon clinical features like bleeding per vagina, abdominal tenderness and the diagnosis was confirmed by presence of retroplacental clots. After initial resuscitation, mode of delivery was decided depending upon maternal and foetal well being. Relevant investigations were done. Maternal complications that were seen are Disseminated Intravascular Coagulation, Acute Renal Failure, Shock. Foetal outcomes in the form of still birth and perinatal mortality, prematurity and admissions to NICU were assessed.

## III. Results:

Maximum number of cases of Abruption Placentae. The incidence of Abruption Placentae is higher in women less than 25 yrs (Table 1). Maximum no. of cases was seen in Multigravida as compared to primigravida's (Table 2). The maximum no. cases of Abruption Placentae were seen in the gestational age of 31 to 35 weeks gestational age . (Table 3). Most of them were associated with high risk factors such as Anaemia (72%) severe pre- eclampsia (44%). (Table 4)

The complications that were associated with our study were such as post-partum haemorrhage, Acute Renal Failure. Hypovolemic shock, Couvelaire uterus. Among these 24% had Acute renal Failure, 18% had Hypovolemic Shock, and 10% had Post-Partum haemorrhage. (Table 5). Most common mode of delivery was caesarean section (52%). The foetal complications included Low birth weight and NICU Admission for prematurity (40%), still birth (44%).

**Table 1:**

| AGE            | PERCENTAGE |
|----------------|------------|
| 20-25YRS       | 46         |
| 25-30YRS       | 36         |
| 30yrs and more | 18         |

The percentage of abruption placentae cases was higher in the age group of 20- 25 years (46%) and followed by 25-30 years (36%).

**Table 2:**

| PARITY    | PERCENTAGE |
|-----------|------------|
| PRIMI     | 36         |
| MULTIPARA | 62         |

Maximum numbers of cases were multiparas (62%). 36 % patients were Primigravida.

**Table 3:**

| Gestational Age    | Percentage |
|--------------------|------------|
| 25-30weeks         | 12         |
| 31-35 weeks        | 48         |
| More than 35 weeks | 32         |

The incidence of Abruption Placenta was higher in the gestational age of 31 to 35 weeks i.e 48 % and this was followed by gestational age of more than 35 years corresponding to 32% .

**Table 4:**

| High Risk Factors | Percentage |
|-------------------|------------|
| Anaemia           | 72         |
| Pre-Eclampsia     | 44         |
| Polyhydramnios    | 20         |
| Oligohydramnios   | 12         |
| Trauma            | 2          |

The commonest high-risk factor associated with Abruptio Placentae was Anaemia (72%) followed by Pre-Eclampsia (44%).

**Table 5:**

| Maternal complications  | Percentage |
|-------------------------|------------|
| Acute Renal Failure     | 24         |
| Hypovolemic shock       | 18         |
| Post-partum haemorrhage | 10         |
| Couvelaire uterus       | 6          |

The commonest maternal complication seen was Acute Renal Failure (24%) and shock (18%).

**Table 6:**

| Foetal outcome | Percentage |
|----------------|------------|
| Live birth     | 56         |
| IUD            | 44         |

56% had live birth, 44% had IUD baby. Foetal complications included hypoxia, anaemia, growth restriction, prematurity.

#### IV. Discussion

Abruptio Placentae is defined as the partial or complete separation of the normally situated placenta, after 28 weeks of gestation and before the delivery of the foetus. The degree of placental abruption can have minor to major effects on the maternal and perinatal outcome.

Anaemia was defined as Haemoglobin less than 11gm/dl. Severe anaemia was defined as haemoglobin less than 7gm/dl and these cases were excluded.

The **incidence of abruptio placentae** in our study comes to **1.6%** higher than the 0.5-1% incidence rate of AP reported in American, European, and east Asian populations.<sup>61-65</sup>

This was similar to study conducted by **Ananth C V and Saftas and Oslon** where the incidence was **0.6 – 1 %** and **2.5-3.85 %**.<sup>59, 55</sup>

The incidence of abruptio placentae was on the higher side as our study was conducted in a tertiary care hospital with lot of referred patients. The higher incidence of AP in our study may be because of the lower socioeconomic strata with concurrent poor nutritional status of the patients attending our tertiary referral public hospital and is consistent with similar studies reported from other developing countries.

Several preclinical and observational studies have associated micronutrients such as zinc and vitamins with pregnancy complications including placental abruption.<sup>67</sup>

In our study, the maximum number of cases of Abruptio Placentae were in the age group of 20 to 25 years which is similar to studies conducted by Ananth et al in which incidence is higher in patients with age less than 20years and Vrunda Coudhary in which cases of abruption are common in age group below 26 years.<sup>85</sup>

The incidence of abruptio placenta was higher in multiparous patients as compared to primigravida. The percentage of multigravida patients with abruptio placentae in our study was 64 % while primigravida was 36%.

The findings were in agreement with study conducted by ketaki Bhosal et al in which 67% were multipara and primipara accounted for 34%<sup>68</sup>. Laxmi and Purandare showed 78% incidence of abruption in multipara.<sup>69,70</sup> Ananth C V and wilcox in their study observed that the occurrence of abruptio placenta was higher in multigravida as compared to primigravida.<sup>60</sup>

In our study, most of the study population in abruptio placentae cases had gestational age of 31-35 weeks (52%) followed by 36-40weeks (30%), According to study conducted by M Tikkanen, the rate of abruptio placentae was 40-60% before 37weeks of gestation.<sup>36</sup>

In our study, cases of abruption who had associated anaemia had highest percentage of 72% . Out of the various risk factors associated with abruption placentae, the ones that were found influential in this study

turned out to be Anaemia (72%), Severe pre-eclampsia (44%), Polyhydramnios (20%). The results of our study were in agreement with the Alka et al where 80.7% patients with abruptio placentae had anaemia.<sup>84</sup> According to Ketaki Bhosale et al, 96 cases i. e 70.58% cases had anaemia with abruptio.<sup>68</sup> The higher incidence of anaemia could be due to pre-existing nutritional deficiencies and superimposed abruptio. In our study, the incidence, acute kidney injury was observed in 24 % cases of abruptio. This finding was in agreement with the study conducted by Archana Dambal et al in which 9 out of 15 cases had abruptio placentae with acute kidney injury.<sup>80</sup>

This was also followed by higher incidence of hypovolemic shock next to acute kidney injury. In our study, NICU admission was observed in 40% of abruptio cases.

This finding was in agreement with study conducted by Soma Mukherjee et al.<sup>71</sup> In our study, the live born babies were 24 (48%) . out of these, those admitted in NICU for prematurity and low birth weight were 20 (40%). 4 babies (8%) were healthy and were mother side. The dead babies were 22 (44%).

**Table 1: Fetal adverse outcome in abruptio placentae cases:**

| VARIABLES      | NO.OF CASES | PERCENTAGE |
|----------------|-------------|------------|
| NICU ADMISSION | 20          | 40%        |
| MOTHERSIDE     | 4           | 8%         |
| STILL BIRTH    | 4           | 8%         |
| IUFD           | 22          | 44%        |

Out of these, rate of caesarean section was higher in live born babies.

Among these, 28% caesarean rate was in babies admitted in NICU.

6 % babies in admitted in NICU were delivered vaginally.

8 % in babies that were mother side were delivered by caesarean

Section. 8 % babies that were still birth were delivered by caesarean

Section. Out of 22 cases of intrauterine foetal demise, 18 cases (36%)

Were delivered vaginally and 4 cases (8%) were delivered by LSCS.

The findings of our study were in agreement with the study conducted by vrunda Choudhary et al where the number of caesarean section were higher than normal deliveries.

### V. Conclusion:

Placental Abruptio is a complex disease. Although several risk factors are known, the etiopathogenesis is not fully understood and its occurrence often remained unpredictable or unpreventable. In our study The result of the present study shows that the incidence of abruptio placentae is 1.6%. The incidence is higher among younger age group patients, multigravidas. The incidence of abruptio was higher in patients with anaemia followed by severe pre-eclampsia. The commonly seen complication in our study was acute renal failure followed by hypovolemic shock. There was no maternal mortality. The NICU admission, low birth weight and prematurity were higher in cases of abruptio placentae. Regular antenatal check-up, anaemia correction, early diagnosis and identification of gestational hypertension would prevent the maternal and perinatal morbidity and mortality. It should be managed in centres with advanced maternal and neonatal facilities. Though maternal morbidity can be reduced with modern management of abruptio placenta but timely diagnosis and intervention is necessary. Early detection and active management will reduce morbidity and mortality.

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