

# A Look on Rising Burden of Abruption Placentae in PUMHS Teaching Hospital

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## ABSTRACT

**Objective:** To determine frequency, risk factor and associated adverse feto-maternal outcome of Abruption Placentae (AP).

**Methods:** This was a prospective, cross sectional, observational work performed in the Gyne and Obs department, from Jan 2017 to Dec 2017. We include 113 women with singleton fetus and clinical diagnosis of abruption placentae after 24 weeks. Patient diagnosed with polyhydramnios, multiple gestation and bleeding owing to other causes like placenta previa, vasa previa, local causes like cervical pathology were excluded. Data collected were recorded on predesigned proforma and statistically analyzed.

**Results:** From 4922 deliveries, 113 cases of abruption placenta were identified, giving a frequency of 2.29%. Among risk factors observed, 83% patient were unbooked, 36% in age between 20-30 years, 56% were 2<sup>nd</sup>, 3<sup>rd</sup>, or 4<sup>th</sup> gravida, 43.9% were between 30-35 weeks gestation. 54.39% belong to poor class families. Hypertension was main risk factor observed in 82.46% of cases, 45.6% of the patient presented with pre-eclampsia, among these 37.7% show severe pathology. 91% patient were anemic. Majority of patient (78%) delivered vaginally and rest abdominally. Major complications were preterm labour (67.5%), followed by post-partum hemorrhage (15.8%), maternal shock (6.1%), disseminated intravascular coagulation (DIC) (1.8%), acute renal failure in 2.6%, pulmonary edema (1.8%). We had to perform obstetrical hysterectomy in 4.4% cases to save their life, 3 mothers could not be saved (one was due to PPH and rest 2 were because of severe pre-eclampsia with pulmonary edema and DIC). Perinatal mortality seen in 45.6%, 61% of newborns had APGAR score equal or less than 7, and 70% weighed equal or less than 2.5%.

**Conclusion:** Hypertension, anemia, and poor socioeconomic status seems to be main risk factor in this study. With delayed approach to tertiary care center, life of both mother and fetus is in jeopardy. Hemorrhage, blood transfusion, prematurity of fetus, emergency caesarean section, and hysterectomy are the main factors for feto maternal morbidity.

**Key Words:** Abruption Placentae, Feto-maternal Outcome, Hypertension, Anemia

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## INTRODUCTION:

Abruption placenta, is one of the gravest hemorrhagic complications of gestation and along with low lying placenta and post-partum

hemorrhage comprises meaningfully to the unacceptably high maternal mortality and also is an abysmal threat to fetal life<sup>1,2</sup>.

We can define Abruption placentae once there is premature dispassion of the placenta from the uterine walls before delivery but after 20 weeks of gestation<sup>3</sup>. After multiple terminologies used for Abruption placenta (accidental hemorrhage in 1776 by Edward, concealed accidental hemorrhage by baudelocque in 1819, then Ablatio placentae by holmes in 1901) finally termed as Abruption placentae by Delee. Worldwide its incidence is 1%<sup>3</sup>, but several studies for term pregnancies had been done

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showing range of incidence (0.3% to 2%)<sup>4</sup>, the reported incidence is 5.9 per 1000 births to 6.5 per 1000<sup>5</sup> births., with 2/3 classified as severe, based on associated neonatal, fetal and maternal morbidity<sup>6</sup>.

This is diagnosed clinically as pregnancy after 24 weeks present with painful vaginal bleeding, often escorted by hypertonic contractions, tenderness in the uterus, non-reassuring pattern of fetal heart rate (FHR) and after delivery passage of retro placental clots. Discontinuity of placenta tissue on visual examination is of diagnostic point. The instantaneous source of the premature placental separation is maternal vessels rupture in the decidua basalis, however fetal-placental vessels rupture could be source of it. The loading blood breaches the decidua and splits the decidual thin layer along with placental attachment. Potentially dangerous rapid clinical symptoms of abruption (severe hemorrhage, maternal DIC, FHR irregularities) are probably due to high pressure arterial bleeding in central part of placenta. While venous hemorrhage of low pressure, typically at the periphery of the placenta (marginal abruption), tends to be self-limited and results in a small area of separation and its clinical appearances arise over time (light intermittent bleeding, oligohydramnios, and fetal growth restriction accompanying with redistribution of cerebral blood flow). One of critical situation arises once retro placental blood permeate through the depth of the wall into the peritoneal cavity, a phenomenon known as Couvelaire uterus, resulting weakened myometrium prone to rupture.

The essential management is to reconstruct the circulating volume followed by delivery of fetoplacental unit, often by cesarean section when the diagnosis is obvious and the fetus alive and viable. Aggressive resuscitation and prompt vaginal delivery are the goals when the fetus is dead, this study is done to determine the factors behind this problem and to weigh its associated complication.

## METHODS:

We design prospective observational study, done on patients attending the Department of Obstetrics and Gynecology Unit 1 of the PUMHS SBA, 54 bedded unit-I has approximately 6 to 7000 admission and 4-5000 deliveries per year. The study done in period of one year from 1<sup>st</sup> January 2017 to 31<sup>st</sup> December 2017, on all cases, diagnosed as case of abruption placentae, selected from patients either present with antepartum hemorrhage or retro placental clots observed post-delivery via non probability consecutive sampling technique. Women with singleton, 24 week completed gestation and clinical diagnosis of abruption placenta were selected after approval of the institute of ethical committee and after informed written consent taken from patient. A predesigned proforma filled after completing comprehensive obstetrical clinical workup (including history, general physical examination, abdominal and pelvic examination, relevant investigations). Patients were managed according clinical ground and fetal status. Any maternal complications such as Anemia, hypertension, preterm labour, PPRM, postpartum hemorrhage (PPH), DIC, shock were noted, mode of delivery and perinatal outcome (still birth, low birth weight, APGAR score) were also noted and recorded on proforma and entered into the computer program SPSS version 20 for analysis.

## RESULTS:

Total number of deliveries during the study period was 4922. Patients identified with abrupio placenta were 113, giving a frequency of 2.29%. 83% patient were un-booked. Mostly (36%) women were in age between 20 to 30 years, 56% of the women were 2nd, 3rd, or 4th para. 43.9% of the patient were between 30 to 35 weeks' gestation (Table-I,II,III & Fig. I). 54.39% belong to poor class families (Fig.II). Hypertension was main risk factor observed in study (82.46%) (Fig. III), 45.6% of the patient present with pre-eclampsia, among these 37.7%

show severe pathology. 91% patient were anemic in study (45.6% were moderately anemic, 29.8% were severely anemic while 15.7% patient had hemoglobin less than 4) (Fig IV). 78% patient delivered vaginally, among these 39% needed induction of labour and rest were in labor at the time of admission. Among complications patient developed DIC in 1.8%, pulmonary edema in 1.8%, acute renal failure in 2.6%, shock in 6.1%, post-partum hemorrhage in 15.8%, and underwent

preterm labour in 67.5% (Table IV-VIII). We had to perform obstetrical hysterectomy in 4.4% of the patient to save the life of them (Table IX). 3 mothers could not be saved (one was due to PPH and rest 2 were because of severe pre-eclampsia with pulmonary edema and DIC).

Regarding fetal outcome, perinatal mortality seen in 45.6%, 61% had APGAR score equal or less than 7, 70% weighed equal or less than 2.5% (Table X and Fig V, VI).

**Table-I: Age of the Patient**

	Frequency	Percent	Valid Percent	Cumulative Percent
less than 20	19	17.5	17.5	17.5
20 to 30	41	36.0	36.0	53.5
Valid 30 to40	19	16.7	16.7	70.2
more than 40	34	29.8	29.8	100.0
Total	113	100.0	100.0	

**Table-II: Parity of Patient**

	Frequency	Percent	Valid Percent	Cumulative Percent
Primigravida	16	14.9	14.9	14.9
Valid G2 to G4	64	56.1	56.1	71.1
G5 or more	33	28.9	28.9	100.0
Total	113	100.0	100.0	

**Table-III: Gestational Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
26 29 Weeks	21	18.4	18.4	18.4
Valid 30 35 weeks	50	43.9	43.9	62.3
35 weeks or more	42	37.7	37.7	100.0
Total	113	100.0	100.0	

**Table-IV: Disseminated Intra Vascular Coagulation**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	2	1.8	1.8	1.8
Valid No	111	98.2	98.2	100.0
Total	113	100.0	100.0	

**Table-V: Maternal Shock**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	7	6.1	6.1	6.1
Valid No	106	93.9	93.9	100.0
Total	113	100.0	100.0	

**Table-VI: Pulmonary Oedema**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	2	1.8	1.8	1.8
Valid No	111	98.2	98.2	100.0
Total	113	100.0	100.0	

**Table-VII: Post-partum Hemorrhage**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	17	15.8	15.8	15.8
Valid No	96	84.2	84.2	100.0
Total	113	100.0	100.0	

**Table-VIII: Preterm Labour**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	77	67.5	67.5	67.5
Valid No	36	32.5	32.5	100.0
Total	113	100.0	100.0	

**Table-IX: Obstetrical Hysterectomy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	5	4.4	4.4	4.4
Valid No	108	95.6	95.6	100.0
Total	113	100.0	100.0	

**Table-X: Fetal Weight**

	Frequency	Percent	Valid Percent	Cumulative Percent
2.5 or less	80	70.2	70.2	70.2
Valid > 2.5	33	29.8	100.0	
Total	113	100.0	100.0	

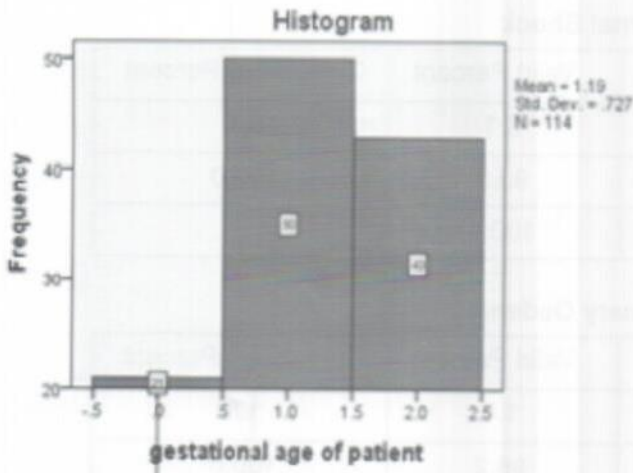


Fig-I: Gestational age of Patient

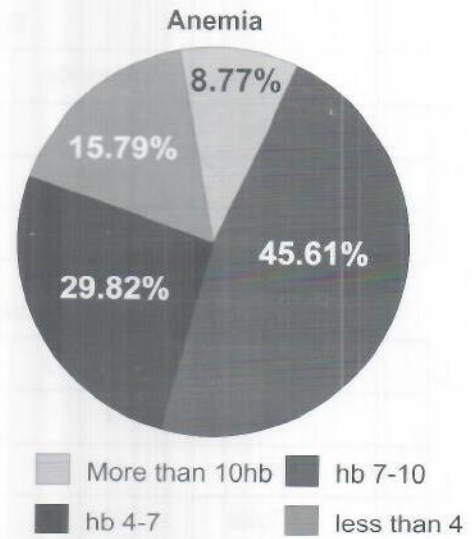


Fig-IV: Anemia in Study population

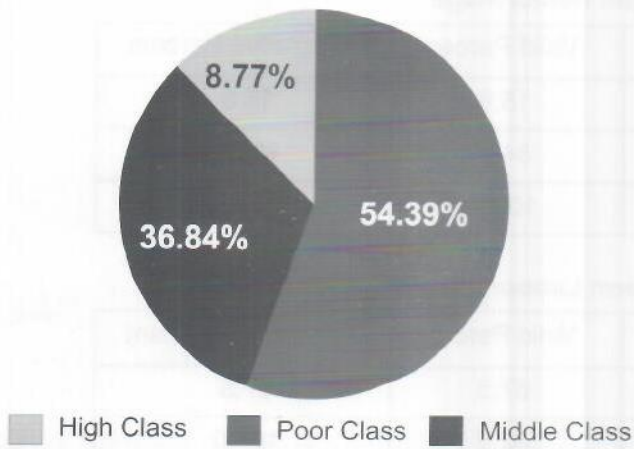


Fig-II: Socio Economic Status

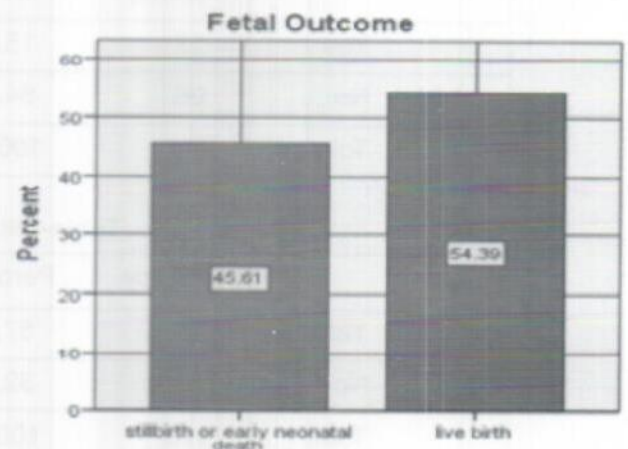


Fig-V: Fetal Outcome

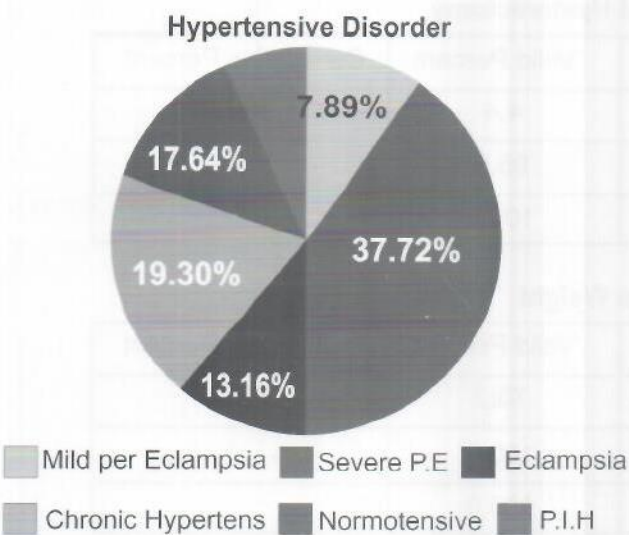


Fig-III: Hypertensive Disorder

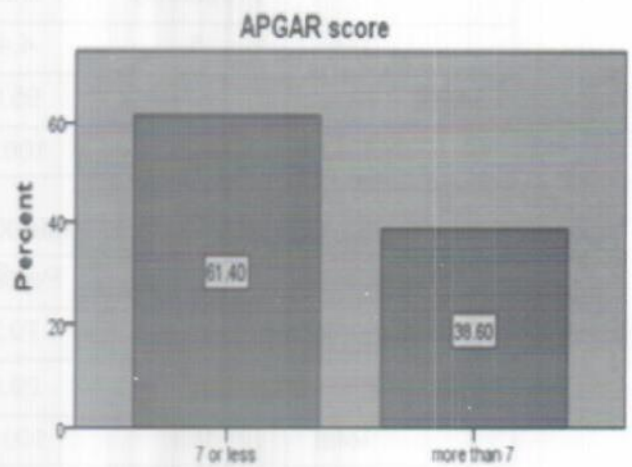


Fig-VI: APGAR Score

**DISCUSSION:**

Abruption placentae is an important entity in obstetrics because of its adverse fetal/maternal outcome, complicating about 1% of the pregnancies. Incidence in our study calculated to be 2.29%, higher when compared to other countries, 0.4% in Sweden, 0.74% in Finland, 0.5% in Parkland Hospital in the United States of America<sup>7</sup>, and about 2% by Saadia<sup>8</sup> et al, in King Edward College in 2003 while studies done in Pakistan showed comparatively higher frequency, 7.18% in Karachi, 4.4% at Ayub Teaching Hospital Abbottabad<sup>9</sup>, 4.5% by Jabeen M, Gul F<sup>10</sup>, 4.7% by Bibi S et al<sup>11</sup>, 3.75% by Hossain N et al<sup>12</sup>.

PUMHS is a tertiary Centre and mostly facing referred complicated cases, either from peripheral primary or secondary health care centers who are mostly under treatment of untrained quacks or health workers throughout their pregnancy journey and present first time to us once pregnancy complicated, secondly most of the patient had not taken formal education thus having no any idea of antenatal checkup. This study also favors this finding as 83% of the subjects were un-booked. Almost same percentage of un-booked cases seen in study conducted by Vijaya P, Usha Rani V<sup>13</sup>. Antenatal checkup aids in constructing wakefulness among the pregnant mothers and thus provide them concept of seeking help from trained birth attendants and not the untrained one whenever they are in need.

36% of the patient are in age between 20 to 30 years in our study, similar finding has been observed in observation by Abbasi RM<sup>14</sup> et al in her work on fetal/maternal outcome among cases of abruption placenta quoted that majority (60%) of their work population were in age between 20 to 30 years. Similar work was seen among study done by Shukkar-ud-din S and Nasser-ud-din et al<sup>15</sup> in their work on abruption placentae. A study from India also quoted 26.5 years of age as mean in their population<sup>16</sup>. While study from west showed association of AP towards age > 35 years.<sup>17</sup>

Multi parity is identifiable risk factor for

AP, as seen in our study that 56% patient are having 2 or more than 2 kids, also supported by other studies<sup>9,4,14,17</sup>. Multi parity mostly contributed owing to early marriages, myths for family spacing in our society and thus indirectly leads to complicated pregnancy.

On analyzing socioeconomic condition of our population, we found 54.39% of the subjects were in low socioeconomic class. Low economic status could endow with malnutrition and chronic anemia and both of these variables could result in poor placental structure formation and literature<sup>18,19</sup> showed that AP could be an acute presentation of such chronic conditions. Work done by Sarwar I<sup>9</sup> et al and by Mumtaz S<sup>20</sup> also supported this finding.

Anemia is a global health problem, with major consequences to human health as well as social and economic development (WHO 2002), and pregnant women are more prone to this entity. Pakistan is under developed country and prevalence of nutritional anemia is estimated to be two-third among them while 50% of them are anemic even before conception.<sup>21</sup> About 91% studied population is having hemoglobin less than 10mg/dl in our study. Study by Baig Ansari also showed the same prevalence<sup>22</sup> multiple studies have been done in Pakistan with prevalence ranging from 50% to 76%.<sup>23,24</sup> Such high prevalence of anemia in our study is not only reflective of bleeding owing to AP but mostly because of underlying chronic malnourishment of our population due to variable factors.

This study supported anemia, as risk factor for AP and short birth spacing, low socioeconomic status, worm's infestations, low levels of education, lack of antenatal visits, multiparity and cultural practices of male priority over females are some factors responsible for anemia and its consequences.

Patient's education, provision of family planning services, anti-malarial and anti-helminthes prophylaxis, food based approaches to increase iron intake through food fortification and dietary diversification are few very important measure to combat with anemia and thus with the

anemia related complication of pregnancy.

77% of the patient deliver preterm, relating with other studies<sup>25,12</sup>. Preterm (spontaneous or iatrogenic) delivery is common in AP, contributing as an independent risk factor for fetal morbidity also supported by other studies<sup>17,26,29</sup>. Anemia could be contributing factor for preterm labor.

Hypertension seems to be main risk factor for abruption placenta in our study, found in about half (45%) of studied population with severe grade in 37.7% of subjects. This relation is also observed by rest of the authors. Sharief and Manther<sup>30</sup> compared occurrence of AP in hypertensive verses normotensive, quoted hypertensive patients are more prone to have AP with severe grades (III). Abdella et al<sup>31</sup> also analyzed the AP prevalence in different grades of hypertension found highest risk with eclampsia (23.6%), followed by chronic hypertension (10%) then pre eclampsia (2.3%).

Other maternal complication observed were post-partum hemorrhage (15.8%), pulmonary edema (1.8%), DIC (1.8%) and maternal shock (6.1%). Little bit less than found in study by pitaphrom A et al<sup>20</sup> who found maternal shock in 19.4% and DIC in 5.8%.

3 patient developed acute renal failure (2.6%), while study by Razia et al<sup>14</sup> showed 6.25%. 3 maternal mortalities seen in study, one due to uncontrolled bleeding while 2 patient brought in very serious conditions with diagnosis of HELLP syndrome with DIC and pulmonary edema at time of admission. This could be due to late referral of these patients. Hossain N et al<sup>12</sup> also showed 2 maternal deaths due to DIC.

Regarding fetal outcome, perinatal mortality seen in 45.6%, 61% had APGAR score equal or less than 7, 70% weighed equal or less than 2.5%. perinatal mortality in our study explained by prematurity complications and also because of in-utero death at the time of admission. This finding also supported by study done on neonatal outcome by konje JC et al<sup>32</sup> and Fretts RC et al<sup>33</sup>. No doubt low birth could be attributed to anemia, chronic malnourishment, low socio economic status and recurrent vaginal

bleeding, probably which initiate in utero damage in form of hypoxic-ischemic changes, start-up by disruption in placental blood flow and gaseous exchange and end up in low birth weight, asphyxiated infant, preterm complication and NICU admission.<sup>34</sup>

## CONCLUSION:

There is a high frequency of abruptio placentae in our setting and the consequences of abruptio placentae for neonatal mortality outcome are alarmingly high. The majority of patients of perinatal mortality presented with intra uterine death so that any management protocol directed at abruptio placentae or its consequences is of little help in preventing perinatal mortality.

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