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Maternal and perinatal outcome in antepartum hemorrhage

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Abstract
Objectives: Any bleeding from the genital tract during pregnancy, after the period of viability until the delivery of the fetus, is defined as antepartum hemorrhage. The World Health Authority defines antepartum hemorrhage is bleeding after 28 weeks of pregnancy. Maternal and newborn health care are closely linked. Almost 3 million newborn babies die every year and additional 2.6 million babies are stillborn. With improvement in medical facilities, early diagnosis, availability of blood products, anesthesia, hospital deliveries, proper timely reference, proper management of shock along with liberalization of cesarean section, the rate of maternal morbidity and mortality is gradually decline.
Methods: This study of 84 cases of Antepartum hemorrhage cases were admitted during the period of May 2012 to May 2013 in Dhiraj General hospital, a tertiary care hospital situated in rural area of Vadodara. Singleton pregnancy with gestation age 28- 42 weeks patients were included in the study.
Results: In present study incidence of Antepartum hemorrhage is 2.86% and of the 84 cases 44 were of placenta previa and 40 cases were of abruptio placenta. In this study 85.2% were emergency cases. Incidence of APH was 62% in age group of 25-34 years of which 71% were multipara. Ultrasonography was very much useful in diagnosis of placenta previa (100%), while most of cases (70%) o abruptio placenta were diagnosed clinically. At the time of admission 60.7% were anaemic and required blood transfusion. The perinatal mortality rate of abruptio placenta is 72.5% and placenta previa is 27.2%. Neonatal morbidity was high in APH because of prematurity and its complications. This increased the NICU admission.
Conclusion: Awareness of pregnant mothers about the importance of regular antenatal care and easy accessibility to quality antenatal services would go a long way in bringing down the maternal and perinatal morbidity and mortality related with APH. The morbidity associated with placenta previa can be reduced by detecting the condition of placenta in antenatal period by ultrasound and also the correction of anaemia during antenatal period. Intensive family planning programs helps in decreasing cases of APH in relation with age and parity. Efforts should be made to reduce the rate of unnecessary abortion, septic abortions, operative deliveries, because there is greater likelihood of placenta previa in scarred uterus. From present study it can be concluded that APH is still a leading cause of maternal morbidity and mortality in our country.

Keywords: antepartum hemorrhage, placenta previa, abruptio placenta, perinatal mortality

Introduction
The main aim of modern obstetrics is to provide a healthy mother with a healthy child. With the advancement in science, better technologies are available to detect certain adverse conditions pertaining to pregnancies and its complications.
Inspite of modern obstetrical care and increasing awareness of the population regarding the problems related to pregnancy and labor. APH has been one of the most feared complications in obstetrics. According to center for disease control and prevention, hemorrhage was cause of maternal death in about 30% of cases [2].
APH is defined asbleeding from or into the genital tract after the 28th weeks of pregnancy but before the delivery of the baby [1]. Antepartum hemorrhage complicates about 2-5 % of all pregnancies [3]. Placenta previa complicate 0.33% to 0.55% of all pregnancies [4]. One of the causes of APH is placenta previa. When the placenta is implanted partially or completely over the lower uterine segment, it is called placenta previa and accounts for one third of all cases of APH. It is further classified as type I- if implantation is in lower segment but does not reach upto internalos. Type II - placenta reaches the internal os but does not cover it. Type III – placenta covers the internal os. Another cause is abruptio placenta where bleeding occurs due to

premature separation of normally situated placenta and it also contributes nealy one third of cases. Shock and hemorrhage are the chief causes of death in these conditions. Various extra placental causes are cervical polyp, carcinoma of cervix, cervical erosion, local trauma, varicose viensetc forming the another one third. Various fetal complications in patients with APH are premature baby, intrauterine death, birth asphyxia etc. [4]

With the advent of better facilities like USG, higher antibiotics, availability of blood and its products, it is possible to improve the outcome of the patients affected. Maternal mortality due APH has significantly decreased in developed countries to about 6/ 100000 live births due to better obstetrics outcome. In India, maternal mortality is still high is 4.08 /1000 live births [5].

Even if the patient escapes the immediate effects of blood loss, she is still at risk of developing puerperal sepsis. The problem is further worsened if there are associated medical and obstetrical disorders and a nutritionally compromised state as is common a developing country like ours.

Inspite of all the resources and efforts put in by our government and the various NGO's to provide adequate antenatal care at the grass root level, there still remains a high incidence of mortality and morbidity due to APH. To overcome this problem, we need to ensure increased level of awareness and acceptance of antenatal care, better emergency care and referral services at the peripheral level and better transport facilities.

Aims and objectives of study

1. To find out the prevalence of APH
2. To study possible etiological factors of antepartum hemorrhage
3. To analyze outcome in the form of maternal mortality and morbidity
4. To study perinatal outcome in the form of live birth, still birth and early neonatal death
5. To discuss possible preventive measures and future management options.

Study Design

The present study was a prospective study of 84 cases of APH and twice no. of controls who were admitted between May 2012 to May 2013, at Dhiraj General Hospital, a tertiary care center situated in the rural area of Vadodara.

Patients of APH who fulfilled the inclusion and exclusion criteria were included as cases in the study. Out of total 84 patients 44 were diagnosed as placenta previa and 40 patients were diagnosed as Abruptio placenta

Controls: One patient admitted immediately before and one patient following the case, having no APH and satisfying the inclusion and exclusion criteria served as controls. In total 168 patients were taken as control

Inclusion criteria

- Singleton pregnancy
- Gestational age between 28 -42 weeks

Exclusion criteria

- Multiple pregnancy
- Local cause of bleeding per vagina

Any patient of APH coming to OPD, Labor room satisfying above inclusion and exclusion criteria was admitted. After taking informed consent detailed history was taken from the patient, or the relatives if the patient was not in good condition. Data was collected as regards to Age, Parity, Menstrual history, Obstetric history, history of bleeding per vagina, abdominal pain, loss of fetal movement, general examination and systemic examination was carried out. At the time of admission, proper history was taken and examination was done. Patient was also given inj. Betamethasone 12 mg, 2 doses 12 hours apart in case of gestation less than 34 weeks. Patient was kept under observation thereafter. The amount of bleeding was quickly assessed to see if treatment of hypovolemia is urgently needed.

Blood test including CBC, Blood group and Rh type, coagulation profile and hepatorenal status were performed and intravenous drip with crystalloids was started to combat hypovolemia, vital signs and fetal heart sound were monitored. From the information gathered, clinical diagnosis of placenta previa or Abruptio placenta was put. As soon as possible, patient was subjected to USG for localization of placenta and status of fetus. Management of the cases was done according to reason of APH, status of fetus, weeks of gestation and maternal conditions. Nature of delivery was noted. Immediate postpartum maternal condition was monitored for any complications. APGAR of baby was noted. Perinatal morbidity and mortality were noted. The maternal morbidity in form of wound infection, pyrexia, lactation problems ect. were noted.

Results

This study include 84 cases of APH during May 2012 to May 2013 out of 2928 deliveries. Of these 84 cases of APH were treated, which include 44 cases of placenta previa (1.5 %) and 40 of abruptio placenta (1.36 %). (Table –1.)

Table (2) shows the Demographic distributions. Table shows majority of patients (85%) were unregistered and referred cases, compared to 168 control 35 % were booked and 64% were emergency or referred. APH is more common in 26- 34 (62%) age groups which is common reproductive age. Incidence is more in multigravida (71%). Placenta previa occurs mostly during 31 to 36 weeks (34.6%), whereas Abruptio placenta is most common at term (60%). 95 % of patients of placenta previa had vaginal bleeding, while in all cases of abrupto placenta had vaginal bleeding.

Table-3 and 4, shows the associate obstetrics condition. In present study 22.8 % of patients of placenta previa and 25% of patients of abruptio placenta had abnormal presentation. Most of patients 87.9 % were anaemic (<10 gm % -HB) at the time of admission. Blood transfusion was required in many patients and > 4 units were given in 5 patients of placenta previa and in 5 patients of abruptio placenta. Among patients with placenta previa has history of previous abortion or MTP were 31.8% and2.5 % in abruptio placenta. 10 % of patients of abruptio placenta had abnormal DIC profile.

Table 5 shows maternal morbidity in terms of complications and management of APH. Ultrasonography is the most helpful in diagnosis of placenta previa (100 %), while abruptio placenta 70% were diagnosed clinically. In abruptio placenta the rate of c. section was 27.5%, while in placenta previa were 81.9%. there was 01 case of maternal mortality noted in abruptio placenta.

Table 6 shows the perinatal outcome wherein the perinatal mortality rate of abruptio placenta was 72.5% and in placenta previa 27.2 %.

Table 1: Prevalence of APH

	No of cases	Total no of deliveris	%
PP	44	2928	1.5
AP	40	2928	1.36
Total	84	2928	2.86

Table 1(A): Comparison of APH

Study	Abruption	Placenta previa
B. Bako, *et al* [1]	43.6%	50.4%
Archana Maurya, *et al* [9]	27%	71%
Paintin [10]	24.5%	13.8%
Amoma, *et al* [11]	37%	44%
Chakraborthy, *et al* [12]	35%	51%
Jaju KG, *et al* [13]	68.2%	31.8%
Bhandiwad A. *et al* [14]	57.5%	25%
Present study	47.6%	38%

Table 2: Demographic Distributions.

	Placenta Previa	Abruptio Placenta	Total
Booking status			
Booked	4(9.1%)	8(20%)	12(14.3%)
emergency	40 (90.3%)	32(80%)	72(85.2%)
Age (years)			
<18	01 (2.3%)	01(2.5%)	01(2.4%)
18-25	14(31.7%)	11(25%)	25(28.5%)
26-34	25(56.9%)	27(67.5%)	52(62%)
>35	04(9.1%)	02(5%)	06(7.1%)
Parity			
1	10(22.8%)	14(35%)	24(28.5%)
2-4	32(72.6%)	23(57.5%)	55(65.5%)
>4	2(4.6%)	03(7.5%)	05(6%)
Gestational age			
28-30	8(18.2%)	04(10%)	12(14.3%)
31-33	14(31.2%)	06(15%)	20(23.7%)
34-36	15(34.6%)	06(15%)	21(21%)
37-40	03(6.8%)	14(35%)	17(20.2%)
>40	04(9.2%)	10(25%)	14(16.8%)

Table 3: Associated obstetrics conditions

	Placenta previa	Abruptio placenta	total
Malpresentation	10 (22.8%)	10(25%)	20
Anaemia	20(45.5%)	31(77.5%)	51
Previous cs	08(18.2%)	03(7.5%)	13
Pre eclamsia	00	24(60%)	24
Absent fetal heart	10(22.8%)	17(60%)	27
Age >35 years	04(9.1%0	02(5%)	06
Multiparity	34(77.3%)	03(7.5%)	37
Previous abortion or MTP	11(31.8%)	01(2.5%)	12

Table 4: Distribution of Anemia in patients with APH

HB	PP	AP	Total	%
<6 gm%	4	02	06	7.1
6.1 -8 gm%	12	14	26	30.9
8.1 – 10gm%	22	20	42	50
>10 gm%	06	04	10	12
Blood transfusion (>4 units)	05	05	10	10

Table 5: Maternal morbidity in terms of complications

	Placenta previa	Abruptio Placenta	Total
USG diagnosis	44(100%)	12(30%)	56(66.6%)
Clinical diagnosis	00	28(70%)	28(33.4%)
shock	04(9.4%)	04(10%)	08(9.4%)
PPH	02	01	03(3.5%)
DIC	00	04	04(4.7%)
Caesarean section	36(81.9%)	11(27.5%)	47(56%)
Vaginal delivery	08(18.1%)	29(72.5%)	37(44%)
Maternal death	00	01	01

Table 6: Perinatal outcome in APH

Perinatal outcome	PP	AP	Total
Live birth	34(77.3%)	15(37.5%)	49(58.3%)
Still birth	10(22.7%)	25(62.5%)	35(41.6%)
Early neonatal death	02(4.5%)	04(10%)	06(7.1%)
Perinatal mortality	12(27.2%)	29(72.5%)	41(48.7%)

Table 6(A): Comparison study of perinatal mortality with other author

Series	D. Sura in 1985	P. Mehta in 1991	Present
Perinatal Mortality Rate	50.9%	50.5%	48.7%

Table 7: Neonatal Morbidity

Type	PP	AP	Total
Asphyxia	12	08	20 (23.8%)
Septicemia	08	03	11 (13.1%)
Jaundice	15	10	25 (29.8%)
RDS	03	03	06 (7.1%)
Hypoglycemia	00	01	01 (1.2%)

Discussion

In present study, theincidence of APH is 2.86% is comparable to study by Arora *et al* (2.5%). In the study Kwawukume, the incidence of APH was found to be 1.2- 1.8 % [6]. It was reported to be 1.6 % by Bako *et al*. [7]

In present study out of 84 cases of APH 12 (14.3 %) were registered and 72 (85.2 %) were emergency or referred to our hospital. which was comparable to study by Rai *et al* and Baskette *et al* where in unregistered cases were 75%. [15, 16] Among the unregistered cases those patients who do not have regular antenatal visits, will have high incidence of APH. The low rate of registry for ANCs in these patients may be because of low socio economic status and lack of awareness resulting in complications like pre-eclampsia. Early marriages and repeated pregnancies at short intervals may be responsible for APH (85%) of cases in combined age group of 20-34 years. And 71.5 % occurring in multipara patients, which was comparable to Adekantle *et al* with 75.2% [27]. Patients of placenta previa with the bouts of bleeding are more commonly at 31-36 weeks of gestation resulting in preterm delivery. However abruptio placenta is more common around term, comparable with the study by Bhat at el and Mukerjee *at al*. [9] Abnormal presentation was seen in same no of cases in placenta previa and abruptio placenta in present study, Raksha at el found abnormal presentation to be in 25% in placenta previa and 11% in abruptio placenta. Anaemia was found in 60.7% in present study, comparable with study by Chakarborthy *et al* (1993) who reported 60 % anaemia [12], in contrast Sarwar *et al* reported high incidence 96.2% and Bhandi was reported very low incidence 35%.[21, 14] In present study, preeclampsia was found in 60 % of cases, comparable to Archana Maurya *et al* observed 65.4%.[9] In present study 12 cases (33.2%) had previous history of abortion and MTP, which was comparable to Purohit *et al* observed 33% [22]. In contrast Bako *et al* observed only 9.1 %. [7] Previous c. section, abortion, MTP increases the risk of placenta previa because of decreased vascularity seen in fibrosed tissue. Ultrasonography was a useful mode of diagnosis in cases of placenta previa, however abruptio placenta was more commonly diagnosed by clinically.

Cesarean section is necessary in most of placenta previacases (81.9%). This was comparable to study by Chakraborthy *et al* (1993) and Bako *et al* (2012) where 82% and 86% [7, 12]. Cesarean delivery is choice of delivery for major degree of

placenta previa, allowing vaginal delivery with increasing dilatation causes more bleeding. In present study 29 cases (72.5%) with abruptio placenta delivered by vaginally. 11 cases (27.5%) by cesarean, comparable to study by Vaidya *et al* observed 73% abruptio placenta delivered vaginally [20].

In this study postpartum hemorrhage was in 3 cases (3.5%). The study by Chakrabothy *et al* noted 16.2% of incidence of PPH. [12] in abruptio placenta incidence of DIC was seen in 4.7% and couvelaire uterus in 2 cases. There was one death in abruption group. Rai *et al* reported couvelaire uterus in 10.5% of abruptio placenta. [15] In present study 60.6% patients required blood transfusion, which was comparable to the study by William *et al* who reported 52.4% [26]. Along with iv fluids, 10 patients require <4 units of blood transfusion.

In present study, 58.3% of patients with APH had live birth and 41.6 % had stillbith, 7.1 % had neonatal death. This was comparable to the study by Jaju KG *et al* where 45.5% had stillbirth and 4.5 % were neonatal death [13]. Perinatal mortality in placenta previa was 27.3 %. All death occurred in< 37 weeks of gestation age and in abruptio placenta 72.5% was equally distributed each in gestational age < 37 weeks and > 37 weeks. This show that in abruptio placenta the perinatal mortality is not influenced by fetal maturity, but it is related to the degree of separation of placenta. In 1989 Barron stated that perinatal mortality is increased by any kind of bleeding in pregnancy but is highest following abruptio placenta [28].

Conclusion

From the present study can concluded that antepartum hemorrhage is still a leading cause of maternal morbidity and mortality in our country. The commonest mode of delivery is cesarean delivery. In abruptio placenta morbidity was high in form of DIC, renal failure, shock. This was because most of cases were unregistered and presented late and already had complicatios at the time of admission, while placenta previa diagnosis made early with usg before they became symptomatic clinically.

The maternal morbidity has been reduced with regular ANC visits, early diagnosis, correction of anaemia during antenatal period and wider acceptance of expectant line of management in properly selected patients have helped to lower maternal morbidity and mortality. By this mode of management can also reduce perinatal morbidity and mortality also.

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