Fetomaternal Outcome in Antepartum Hemorrhage After 34 Weeks of Gestation

Bijay Kumar Ranabhat,[1] Ganesh Dangal,[2] Sandesh Poudel,[1] Shreeprasad Adhikari,[1] Chiranjivi Khadka[1]

[1]Department of Obstetrics and Gynecology, Paropakar Maternity and Womens Hospital, Kathmandu,Nepal,
[2]Department of Obstetrics and Gynecology, Kathmandu Model Hospital, Kathmandu, Nepal.

ABSTRACT

Background: Antepartum hemorrhage is defined as any bleeding from or into the genital tract during pregnancy, after the period of viability until delivery of the fetus. APH complicates 2-5% of pregnancies and is a primary cause of perinatal and maternal mortality globally. Aim of this study is to evaluate maternal and perinatal outcome in patients with APH at a tertiary care hospital.

Methods: The present study was a cross sectional study conducted in Obstetrics and Gynaecology department of Paropakar Maternity and Women's Hospital, during a period of 5 months from December 2022 to April 2023. 50 cases of APH were enrolled with gestational age ≥ 34 weeks of gestation.

Results: Incidence of APH after 34 weeks of gestation was 0.51%. The most common type of APH was abruption placenta (44%) followed by placenta previa (32%) and undetermined (24%). The age range of 26 to 30 years old accounted for the highest number of APH patients i.e., 21(42%). In placenta previa, 75% and in abruption placenta 63.64% were multigravida. APH was presented mostly between 37-40 weeks. Around 26% of the patients had anemia at the time of admission. Most common mode of delivery was cesarean section (82%). Most common maternal complications were PPH (40%), blood transfusion (28%), DIC (4%), cesarean hysterectomy (4%). Low birth weight and preterm were the most common causes of fetal complications. Maternal mortality was 2% and perinatal mortality was 18% overall.

Conclusions: APH is primary cause of maternal and perinatal morbidity and mortality. In our study, an abruption placenta was the most frequent cause of APH. Cesarean section was the most commonly used mode of delivery. PPH with blood transfusion was the most prevalent maternal complication, while fetal complications included low birth weight and preterm..

Keywords: Abruptio placenta; antepartum haemorrhage; placenta previa.

INTRODUCTION

Obstetric hemorrhage continues to be one of the leading causes of maternal death in underdeveloped nations, accounting for up to half of all maternal deaths worldwide.[1] Antepartum Haemorrhage (APH) comprises approximately 2-5% of all the pregnancies.[2] The known causes of APH include placenta previa, abruption placenta.[3] Placenta previa occurs in 2.8 out of 1000 singleton pregnancies.[4] Abruptio placentae has an incidence of 0.5-1.8%.[4]

Maternal complication includes hypovolemic shock, premature labor, postpartum hemorrhage, retained placenta, acute renal failure. Fetal complications are premature delivery, low birth weight, intrauterine fetal death, congenital malformation and birth asphyxia.[5]

Decent antenatal care, the use of ultrasound for placental localization and the early and timely identification of abruptio placenta, a decent transport facility, better obstetrical facilities, enhanced blood bank facilities, and advanced neonatal care facilities all result in decreased complications.[6] This study was conducted to evaluate the fetomaternal outcome of antepartum haemorrhage.

Correspondence: Dr Bijay Kumar Ranabhat, Department of Obstetrics and Gynecology, Paropakar Maternity and Women's Hospital, Kathmandu, Nepal. Email: ranabhatbijay@gmail.com, Phone: +9779869134276.

METHODS

This is a cross-sectional study conducted at Paropakar Maternity and Women's hospital (PMWH), Thapathali, Kathmandu, during a period of 5 months from December 2022 to April 2023.

Ethical approval was taken from Institutional Review Board (IRB), National Academy of Medical Sciences. Patients with APH who met the inclusion and exclusion criteria were enrolled in the study after providing informed consent.

Pregnant women having singleton pregnancy of more than 34 weeks of gestation presented with antepartum hemorrhage were enrolled in the study. Women with known case of bleeding disorder and genital bleeding from trauma were excluded.

The study included all consenting females who presented with APH in the prenatal OPD and in emergency, over a period of 5 months from December 2022 to April 2023. Only cases of APH after 34 weeks of gestation were enrolled in the study. A thorough medical history was obtained upon admission, encompassing information on past medical and surgical procedures, menstrual history, obstetric history, prior vaginal spotting, and any related pre-eclampsia. The gestational age was established based on her last menstrual period and the first ultrasound.A routine physical and abdominal examination was done to determine the mother and fetal conditions. The quantity and duration of bleeding as well as associated pain were observed. Blood tests included hemoglobin and hematocrit estimation, a full blood count, and renal function test for grouping and cross-matching. To determine the etiology and severity of APH and to estimate the fetal status, ultrasonography (USG) was performed.

The initial management included intravenous fluids and blood products depending on the patient's general condition. Based on the amount of the hemorrhage, fetal and maternal state, and gestational age, the ensuing management was separated into expectant management and definitive management. The fetomaternal outcome in APH was recorded and then analyzed. The data in this study were analyzed using the SPSS 26 statistical software.

RESULTS

Out of total 9742 deliveries, 50 patients of APH after 34 weeks of gestation over a period of 5 months were admitted. The incidence of APH was 0.51%. Majority of cases had abruption placenta (44%) while 32 % had placenta previa and 24% had undetermined type of APH (Table 1). Most of the patients (42%) were in the age group between 26-30 years. APH was more common in multigravida (60%) than in primigravida (40%) (Table 2). Most of the patients 28 (56%) delivered between 37 to 40 weeks of gestation with 63.64% of abruption placenta, 31.25% of placenta previa and 75% of undetermined cases.

Table 1. Patient distribution by type of APH (n=50).

Types	Frequency (Percentage)
Placenta previa	16 (32)
Abruption	22 (44)
Undetermined	12 (24)

Table 2. Gravidity's relationship to APH (n=50).

Gravida	Placenta previa (N=16) Frequency (%)	Abruption (N=22) Frequency (%)	Undetermined (N=12) Frequency (%)	Total (N=50) Frequency (%)
primigravida	4 (25.00)	8 (36.36)	8 (66.67)	20 (40.00)
gravida 2	4 (25.00)	9 (40.91)	3 (25.00)	16 (32.00)
gravida 3	7 (43.75)	2 (9.09)	1 (8.33)	10 (20.00)
gravida 4	1 (6.25)	2 (9.09)	0 (0.00)	3 (6.00)
gravida 5	0 (0.00)	1 (4.55)	0 (0.00)	2 (4.00)
> gravida 5	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)

Table 3. Mode of delivery of all APH cases.

Mode of delivery	Placenta previa (N=16) Frequency (%)	Abruption (N=22) Frequency (%)	Undetermined (N=12) Frequency (%)	Total (N=50) Frequency (%)
EM LSCS	15 (93.75)	17 (77.27)	9 (75.00)	41 (82.00)
Vaginal delivery	1 (6.25)	5 (22.73)	3 (25.00)	9 (18.00)
Instrumental delivery	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)

Among 50 cases of APH, 41 cases (82%) had emergency cesarean delivery and 9 cases (18%) underwent vaginal delivery. 93.75 % of placenta previa were delivered via cesarean section compared to 77.27% and 75% cases of abruption placenta and undetermined respectively (Table 3).

Table 4. Maternal complications of all APH cases.

Maternal complications	Placenta previa (N=16) Frequency (%)	Abruption (N=22) Frequency (%)	Undetermined (N=12) Frequency (%)	Total (N=50) Frequency (%)
Anemia	3 (18.75)	7 (31.80)	3 (25.00)	13 (26.00)
PPH	6 (37.50)	13 (59.01)	1 (8.33)	20 (40.00)
Blood transfusion	5 (31.25)	9 (40.91)	0 (0.00)	14 (28.00)
Placenta accreta spectrum	2 (12.50)	0 (0.00)	0 (0.00)	2 (4.00)
Peripartum hysterectomy	2 (12.50)	0 (0.00)	0 (0.00)	0 (0.00)
DIC	0 (0.00)	2 (9.09)	0 (0.00)	2 (4.00)
MICU admission	3 (18.75)	2 (9.09)	0 (0.00)	5 (10.00)
Death	0 (0.00)	1 (4.55)	0 (0.00)	1 (2.00)

Anemia was present in 26% of cases at the time of admission. 20 (40%) cases had PPH, out of which 14 cases (28%) received blood transfusion. Placenta accreta spectrum was found in 2 cases of placenta previa and peripartum hysterectomy was needed in both cases to stop massive hemorrhage. 2 cases (9.09%) of abruption were complicated by DIC and one of them had mortality. Similarly, 10% cases needed MICU admission because of massive hemorrhage and coagulation failure (DIC) (Table 4).

Table 5. Neonatal complications of all APH cases.

Neonatal complications	Placenta previa (N=16) Frequency (%)	Abruption (N=22) Frequency (%)	Undetermined (N=12) Frequency (%)	Total (N=50) Frequency (%)
Low birth weight	6 (37.50)	7 (31.80)	1 (8.33)	14 (28.00)
NICU admission	8 (50.00)	2 (9.09)	0 (0.00)	10 (20.00)
Prematurity	4 (25.00)	1 (4.55)	0 (0.00)	5 (10.00)
RDS	2 (12.50)	0 (0.00)	0 (0.00)	2 (4.00)
Neonatal jaundice	2 (12.50)	0 (0.00)	0 (0.00)	2 (4.00)
IUGR	0 (0.00)	1 (4.55)	0 (0.00)	1 (2.00)
Birth asphyxia	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Perinatal mortality	3 (18.75)	6 (27.27)	0 (0.00)	9 (18%)

Low birth weight was seen in 28%, with placenta previa and placenta abruption equally contributing. NICU admission

was mainly contributed by neonates of placenta previa (80%). Respiratory distress syndrome was seen in 4% babies which was entirely contributed by placenta previa group. Prematurity was seen in 10%, jaundice in 4% and IUGR in 2% neonates. Among 16 neonates of placenta previa, 3 (18.75%) had NND. There was a total of 2 stillbirths, 4 IUFD and 3 NND. The perinatal mortality rate was 18% (Table 5)

DISCUSSION

Late antepartum hemorrhage continues to be a major concern because it is rather common and can have serious consequences for both the mother and the newborn. . The increased newborn mortality and morbidity associated with APH are mostly attributable to its strong connection with preterm birth. An obstetrician must frequently deal withlife threatening conditions like APH and make timely and wise decisions to terminate pregnancy while considering the wellbeing of both the mother and the fetus without exposing them to undue danger..

The incidence of APH after 34 weeks of gestation in present study is 0.5%, which is significantly less as compared to study done by Gandhi et al (2.8%),[6] Oguejiofor et al (3.4%)[7] and Agrawal and team (6.9%).[8] The decreased incidence observed in this study may be due to high patients flow and high number of deliveries in our centre leading to only small percentage of patients representing antepartum hemorrhage.

The incidence of abruption placenta is 44% in this study, which is similar to the study done by Moussa and team (43.8%),[9] Samal and team (42.2%)[10] and Gandhi and team (47.7%).[6] Similarly, the incidence of placenta previa is 32% which is similar to the study done by Moussa and team (32.3%)[9] and Takai and team (29.9%).[11] The incidence of undetermined cause (24%) of APH in our study is significantly higher than in the study done by Kedar and team (2.2%)[12] and Tyagi and team (1%).[13] The higher incidence of undetermined cause of APH in our study may be due to patients presenting in labor with heavy show misdiagnosed as antepartum hemorrhage.

In the current study, the majority of cases (42%) were in the age framed of 26-30 years in both placenta previa (31.2%) and in abruption placenta (36.3%). This was comparable to the study done by Jharaik and team (40.0%)[14] and Kedar and team (40.4%).[12]

APH was more prevalent in multigravida (60%) than nulligravida (40%) in this study. This was aligned with the research conducted by Samal and team (66% in multigravida and 33% in primigravida),[10] Kedar and team (81% in multigravida and 19% in nulligravida).[12]

More than two thirds of the patients (78.0%) delivered after 37 completed weeks of gestation and 22.0% before the 37 completed weeks. In contrast to present study done by Samal and team, only 14.2% of APH cases delivered after 37 completed weeks.[10] Majumder and team also reported only 17% of delivery after 37 completed weeks.[15] It may be due to the reason that all studies have enrolled the APH cases after 28 weeks of gestation.

Compared to vaginal birth (18.0%), cesarean sections were used to deliver 82.0% of APH cases in the current study. Results of the present study are consistent with the study done by Samal and team (85.3% cesarean delivery and 14.7% vaginal delivery).[10] In another study done by Shrestha and team in Nepal, 92% patient were delivered by caesarean section.[16]

In the present study, incidence of anemia at the time of admission is 26.0%. The result of this study is comparable to the study done by Jharaik and team (32.0%).[14] Higher incidence of anemia was reported in a study done by Majumder and team (75.0%),[15] and Gandhi and team (90%).[6] PPH was reported in 40% cases in the present study. Similar findings were observed in the study done by Tyagi and team who reported that 45% cases had PPH.[13]

In the present study 28.0 % of patients required blood transfusion. Among abruptio placenta patients, 40.9 % patients needed blood transfusion. Among placenta previa patients, 31.2 % of patients needed transfusion. In the study by Shrestha and team in Patan Academy of Health Sciences, 14.3% of patients required transfusion which is low as compared to present study.[16] The reason may be late presentation of patients and it is the most common tertiary referral centre hospital of Nepal.

Two cases of placenta previa (12.5%) needed cesarean hysterectomy in the present study. Both were complicated by placenta accreta syndrome and because of ongoing massive hemorrhage cesarean hysterectomy needed to control the hemorrhage. A retrospective study done by Nathwani, and team also reported 12.8 % of cesarean hysterectomy in placenta previa which is similar to the present study.[17] DIC was reported in 2 cases of abruption (9.1%) in the present study.

MICU admission in the present study was reported in 5

cases (10%). The cause of MICU admission was severe PPH, cesarean hysterectomy and DIC. Kulkarni and team found a higher incidence of MICU admission (44%) than in the present study.[18] One maternal death occurred in the present study belonged to abruption placenta complicated by DIC leading to multiorgan failure.

Among 50 neonates, 44 (88.0%) were live, 4 (8.0%) were IUFD and 2 (4.0%) were stillborn in the present study. Both stillborn and IUFD belonged to placenta abruption. Three neonates of placenta previa had NND. Anjankar and team observed high IUFD (36.5%), stillborn (6.7%) and neonatal death (14.2%) in contrast to present study.[19]

Neonatal complications were most commonly seen in placenta previa group. RDS and NNJ both seen in neonates of placenta previa (4% each). Prematurity was present in 10 % babies of which 80% was contributed to placenta previa. Higher rates of NICU admission and stay were seen with these complications.

The Perinatal mortality observed in our study was 18.0% which is similar to the study done by Kulkarni and team (19%).[18] In a similar study in Nepal done by Shrestha and team in Patan Academy of Health and Sciences, the perinatal mortality was 10.7%.[16]

Due to small sample size and short duration of study period in the present study, it may not represent general population as a whole and not adequate to address all obstetric and neonatal complications and draw significant conclusions. The study focuses only on pregnancy outcome after 34 weeks of gestation, so pregnancy outcome of APH cases in early gestation has not been looked into.

CONCLUSIONS

Antepartum hemorrhage is major cause of maternal and neonatal morbidity and mortality. Placental abruption was the leading cause of APH, followed by placenta previa and unexplained causes, respectively. The commonest age group of APH was 26-30 years and most cases were multigravida. Cesarean section was the commonest mode of delivery. The most common maternal complications were PPH with need of blood transfusion. Most of the neonatal complications were due to low birth weight and prematurity.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

1. Khan KS, Wojdyla D, Say L, Gulmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. Lancet. 2006;367(9516):1066-74 doi: https://doi.org/10.1016/S0140-6736(06)68397-9

2. Ayushma J, Anjali K. Study of obstetric outcome in antepartum haemorrhage. Panacea journal of medical sciences. 2015;5(3):153-7 Weblink

3. Mukherjee S, Bhide AJO, Gynaecology, Medicine R. Antepartum haemorrhage. Obstetrics, Gynaecology & Reproductive Medicine. 2008;18(12):335-9 doi: https://doi.org/10.1016/j.ogrm.2008.09.005

4. Konje OBNaJC. Bleeding in late pregnancy. High risk management options. 2018:1557-81 Weblink

5. Ghanchibhai F, Goyal S, Sharma N, Pargee AJIJoR, Contraception, Obstetrics, Gynecology. Study of fetomaternal outcomes in antepartum haemorrhage at tertiary care centre. International Journal of Reproduction, Contraception, Obstetrics and Gynecology.10(4):1510 doi: https://doi.org/10.18203/2320-1770.ijrcog20211129

6. Gandhi SK, Vamja AP, Chauhan KP. Antepartum hemorrhage and its fetomaternal outcome: a retrospective study. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2020;9(11):4562-66 doi: https://doi.org/10.18203/2320-1770.ijrcog20204811

7. Oguejiofor CB, Okafor CD, Eleje GU, Ikechebelu JI, Okafor CG, Ugboaja JO, et al. A Five-Year Review of Feto-Maternal Outcome of Antepartum Haemorrhage in a Tertiary Center. International journal of innovative research in medical science 2023;8(3):96-101 doi: https://doi.org/10.23958/ijirms/vol08-i03/1637

8. Agarwal S, Singh P, Najam R. Feto-maternal outcome in cases of antepartum hemorrhage at a tertiary care hospital: a retrospective study. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2022;11(3):877 doi: https://doi.org/10.18203/2320-1770.ijrcog20220572

9. Moussa B, Iissa O, Evelyne K, Parfait Y. The Third Trimester Bleeding at the Department of Obstetrics and Gynecology of the Teaching Hospital Souro Sanou of Bobo Dioulasso. About 105 Cases and

of Reproduction, Contraception, Obstetrics and Gynecology. 2017;6(3):1025-9 doi: https://doi.org/10.18203/2320-1770.ijrcog20170578

11. Takai IU, Sayyadi BM, Galadanci HS. Antepartum hemorrhage: A retrospective analysis from a northern nigerian teaching hospital. International Journal of Applied and Basic Medical Research. 2017;7(2):112 doi: https://doi.org/10.4103%2F2229-516X.205819

12. Kedar K, Uikey P, Pawar A, Choudhary A. Maternal and fetal outcome in antepartum haemorrhage: a study at tertiary care hospital. International Journal of Reproduction, Contraception, Obstetrics Gynecology. 2016;5(5):1386-94 doi: http://dx.doi.org/10.18203/2320-1770.ijrcog20161291

13. Tyagi P, Yadav N, Sinha P, Gupta U. Study of antepartum haemorrhage and its maternal and perinatal outcome. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2016;5(11):3972-77 doi: https://doi.org/10.18203/2320-1770.ijrcog20163873

14. Jharaik H, Dhiman B, Verma SK, Sharma A. Consequences of antepartum hemorrhage and its maternal and perinatal outcome. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2019;8(4):1480 doi: http://doi.org/10.18203/2320-1770.ijrcog20191203

AM, Lama S. Antepartum hemorrhage at a tertiary care teaching hospital in Nepal. Journal of Patan Academy of Health Science. 2017;4(2):44-8 doi: https://doi.org/10.3126/jpahs.v4i2.24585

17. Nathwani ND, Vyas RC, Shah SR, Parikh PM. Study on fetomaternal outcome in antepartum haemorrhage. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2020;9(11):4554-57 doi: http://doi.org/10.18203/2320-1770.ijrcog20204809

18. Kulkarni AR, Shirsath AS. Study of antepartum hemorrhage and its maternal and perinatal outcome at a tertiary care hospital. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2021;10(6):2210 doi: https://doi.org/10.18203/2320-1770.ijrcog20212149

19. Anjankar PS, Ramteke S. Maternal and perinatal outcome in antepartum haemorrhage patients attending tertiary care hospital in central India: a prospective observational study. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2022;11(11):2997-3004 doi: https://dx.doi.org/10.18203/2320-1770.ijrcog20222616