

Research Article

Maternal and fetal outcome among abruptio placentae cases at a rural tertiary hospital in Karnataka, India: a retrospective analysis

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ABSTRACT

Background: Placental abruption complicates about 1% of pregnancies and is a leading cause of vaginal bleeding in the latter half of pregnancy. It is also an important cause of perinatal 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 two years from 1st July 2012 to 30th June 2014. The study population included all cases presenting with ante partum hemorrhage to the Department of Obstetrics and Gynecology during the study period. Subjects selected for the study were all cases diagnosed as having abruptio placentae.

Results: Total number of women admitted in labor ward between 1st July 2012 to 30th June 2014 was 4956. Among these 138 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 (~74%). Major maternal complication seen was Shock, followed by postpartum hemorrhage, altered coagulation profile and renal failure. Eighty four (62.3%) women delivered alive babies while 52(37.7%) were stillborn. Out of these 86 alive born babies four died in early neonatal period due to prematurity. Overall perinatal mortality was 40.5%.

Conclusion: In our setup, frequency of abruptio placenta is comparable with local and international literature. Abruptio 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: Abruptio placentae, Retroplacental clot

INTRODUCTION

Placental abruption, defined as the premature separation of the placenta, complicates approximately 1% of births.¹ In normal pregnancies, placental separation occurs

immediately after birth, while in pregnancies complicated by abruption, the placenta begins to detach before birth.² Placental abruption is due to the rupture of the uterine spiral artery.³ Bleeding into decidua leads to separation of the placenta. Hematoma formation further separates the

placenta from the uterine wall, causing compression of these structures and compromise of blood supply to the fetus.⁴

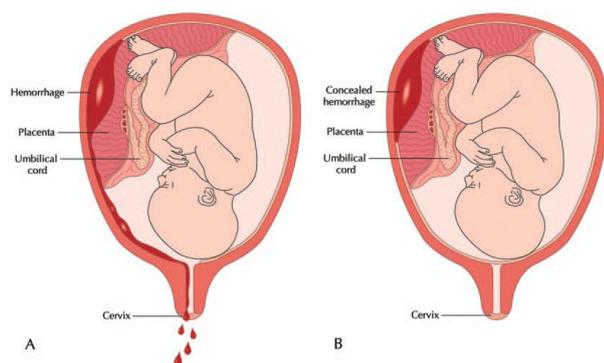


Figure 1: Types of abruption.

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. Illustration: John Yanson. Modified from University Health Care at the University of Utah.

Some of the bleeding of placental abruption usually insinuates itself between the membranes and uterus, and then escapes through the cervix, causing external hemorrhage. Less often, the blood does not escape externally but is retained between the detached placenta and the uterus, leading to concealed hemorrhage. Placental abruption may be total or partial.⁵ This premature detachment commonly produces pain and vaginal bleeding, the clinical hallmarks of placental abruption, and occurs in about 0.6–1.0 percent of pregnancies.⁶ Exact etiology of placental abruption remains unknown, but multiple predisposing risk factors have been identified. These include pregnancy induced hypertension (PIH), advanced maternal age and polyhydramnios.⁷ Maternal risks associated with abruption include massive blood loss, disseminated intravascular coagulopathy, renal failure, and, less commonly, maternal death.^{2,8} Abruption is potentially disastrous to the fetus as well, with perinatal mortality as high as 60 percent.⁹⁻¹²

Abruption placenta is a major cause of maternal and perinatal morbidity and mortality.¹³ Maternal complications include hemorrhagic shock,⁴ disseminated intravascular coagulation,^{4,5} renal failure,^{4,5,14} ischemic necrosis of distal organs e.g. hepatic, adrenal and pituitary, uterine apoplexy or Couvelaire uterus leading to postpartum haemorrhage.^{5,14}

Fetal complications include hypoxia,^{4,15} anaemia,⁴ growth restriction,^{4,16,17} prematurity,^{4,15,17} neurodevelopmental problems¹⁸ and fetal death.^{4,17}

In the developed world, the frequency has been reported from 0.43% to 1.8% with perinatal mortality ranging from 4.4 to 67.3%.¹⁹

The objective of the study was to determine the frequency, obstetrical risk factors and the subsequent foetomaternal outcome in women suffering from placental abruption.

METHODS

The study was carried out at the Department of Obstetrics & Gynaecology, Sri Devaraj Urs Medical College, Kolar, Karnataka; total bed strength is of 38 beds with approximately 2400 deliveries per year.

The study was carried out for a period of two year from 1st July 2012 to 30th June 2014. The study population included all cases presenting with ante partum haemorrhage to the Department of Obstetrics and Gynecology during the study period. Subjects selected for the study were all cases diagnosed as having abruption placenta.

All study subjects underwent a complete obstetrical clinical workup including history, general physical examination, abdominal and pelvic examination. Relevant investigations such as laboratory tests and imaging were performed. Patients were managed according to maternal and fetal condition. 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. All information was gathered on Performa. Results were analyzed by calculating percentages.

RESULTS

Total number of women admitted in labor ward between 1st July 2012 to 30th June 2014 was 4956. Among these 138 had abruption placenta. Majority of women n=68 (49.2%) were in the age group of 25-30 years. 66 (47.8%) women were more than 30 years of age and only four (~3%) patients were less than 25 years. Incidence was higher in multi-parous, being 120 (~87%), while 18 (~13%) patients were primi-gravida. Mainly the abruption was seen in women with term pregnancy i.e. 82(59.4%) and 56(40.6%) were before term. Among 138 patients, 80 were unbooked with no antenatal record indicating preexisting anemia. Fifty eight women had regular antenatal check-up. Out of them, 14 were mildly anemic with hemoglobin between 8-10 mg/dl. Remaining 44 had hemoglobin above 10 mg/dl. Folic acid deficiency as such was not found separately. Pregnancy induced hypertension was seen in ten (7.24%), diabetes in eight (5.8%), multiple pregnancy in eight (5.79%), while 16(11.6%) women were those in whom no risk factor was present. Regarding mode of delivery, 102(~74%) women delivered spontaneously vaginally and 36(~26%) underwent caesarean section. Major maternal complication seen was

Shock in 34(24.6%), followed by postpartum hemorrhage in 18(~13%), altered coagulation profile in ten (7.24%)

and renal failure in six (4.34%) of patients. Eighty six (62.3%) women delivered alive babies while 52(37.7%) were stillborn. Out of these 86 alive born babies four died in early neonatal period due to prematurity. Overall perinatal mortality was 40.5%.

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, 102(~74%) women delivered spontaneously vaginally and 18(~26%) underwent caesarean section. Major maternal complication seen was

Shock rest were postpartum hemorrhage, altered coagulation profile and renal failure. Regarding fetal outcome, 62.3% were born alive and 37.7% were stillbirths, 52.08% were premature. Abruption was not an independent risk factors for poor outcome among infants born before 32 weeks gestation. A premature delivery can increase the fetal morbidity in cases of abruption.²⁰⁻²⁴

CONCLUSION

In our setup, frequency of abruptio placenta is comparable with local and international literature. 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. Despite advances in medical technology, the diagnosis of abruption is still a clinical one. When abruption does occur, there are some strategies that may help minimize the risks of morbidity and mortality associated with this condition.

These include early recognition and prompt delivery in cases in which the fetus is mature and, instable cases remote from term, conservative management to enable steroid administration, allow transfer to a center with facilities for care of the preterm infant.

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REFERENCES

1. Ananth CV, Berkowitz GS, Savitz DA, Lapinski RH. Placental abruption and adverse perinatal outcomes. *JAMA* 1999;282: 1646–51.
2. Cunningham GF, MacDonald PC, Gant NF, et al, eds. Chap 37. Obstetrical hemorrhage. In: Williams obstetrics. 19th ed. Norwalk, CT: Appleton & Lange, 1993:819–51.
3. Eskes TK. Clotting disorders and placental abruption: homocysteine - a new risk factor. *Eur J Obstet Gynaecol Reprod Biol* 2001; 95(2):206-12.
4. Gaufer SV. Abruptio Placentae. [Online webpage] 2001 Mar [cited 2003 Jul 15]; [24 screens]. Available from: URL: <http://www.emedicine.com/emerg/topic12.htm>.
5. Obstetrical Haemorrhage (Chap. 32). In: Cunningham FG, MacDonald PC, Gant NF, Leveno KJ, Gilstrap III LC, Hankins GDV, Clark SL, editors. Williams Obstetrics 20th ed. USA: Appleton & Lange; 1997. p. 746-55.
6. Ananth CV, Savitz DA, Williams MA. Placental abruption and its association with hypertension and prolonged rupture of membranes: a methodologic review and meta-analysis. *Obstet Gynecol* 1996;88:309–18.
7. Sheiner E, Shoham-Vardi I, Hallak M. Placental abruption in term pregnancies: clinical significance and obstetric risk factors. *J Matern Fetal Neonatal Med.* 2003; 13(1):45-9.
8. Brame RG, Harbert GM Jr, McGaughey HS, et al. Maternal risk in abruption. *Obstet Gynecol* 1968;31:224–7.
9. Hibbard BM, Jeffcoate TNA. Abruptio placentae. *Obstet Gynecol* 1966;27:155–67.
10. Williams MA, Lieberman E, Mittendorf R, et al. Risk factors for abruptio placentae. *Am J Epidemiol* 1991;134:965–72.
11. Karegard M, Gennser G. Incidence and recurrence rate of abruptio placentae in Sweden. *Obstet Gynecol* 1986;67:523–8.
12. Ananth CV, Berkowitz TS, Savitz DA, et al. Placental abruption and adverse perinatal outcomes. *JAMA* 1999;282:1646–51.
13. Neilson JP. Interventions for treating placental abruption. *J Obstet Gynaecol* 2001; 21(5): 443-447.
14. Hubbard JL, Hosmer SB. USA. Couvelaire Uterus. *J Am Osteopath Assoc* 1997; 97(9):536-7.
15. Rasmussen S, Irgens LM, Bergsjø P, Dalaka K. The occurrence of placental abruption in Norway 1967-1991. *Acta Obstet Gynaecol Scand* 1996; 75(3): 222-8.
16. Naeye RL, Harkness WL, Utts J. Abruptio placentae and perinatal death: a prospective study. *Am J Obstet Gynaecol* 1977; 128(7): 740-6.
17. Ananth CV, Berkowitz GS, Savitz DA, Lapinski RH. Placental abruption and adverse perinatal outcomes. *J Clin Epidemiol* 1999; 52(5): 453-61.

18. Salma IK, Stephen AW, Carrol P. Pregnancy outcome in severe placental abruption. *Br J Obstet Gynaecol* 2003; 110:679-63.
19. Arulkumaran S, Symonds I, Fowlie A. ed. *Oxford handbook of obstetrics and gynaecology*. 2nd ed. New York: Oxford University Press, 2004.
20. Humayun S, Nahid F. Comparison of pregnancy outcome among placenta previa and abruption. *Ann King Edward Med Coll.* 2005; 11(1):58-9.
21. Pitaphrom A, Sukcharoen N. Pregnancy outcomes in placental abruption. *J Med Assoc Thai.* 2006; 89(10):1572-8.
22. Sheiner E, Shoham-Vardi I, Hadar A, Hallak M. Incidence, obstetric risk factors and pregnancy outcome of preterm placental abruption: a retrospective analysis. *J Matern Fetal Neonatal Med.* 2002;11(1):34-9.
23. Allred LS, Batton D. The effect of placental abruption on the short-term outcome of premature infants. *Am J Perinatol.* 2004; 21(3):157-62.
24. Ananth CV, Getahun D, Peltier MR, Smulian JC. Placental abruption in term and preterm gestations: evidence for heterogeneity in clinical pathways. *Obstet Gynecol.* 2006; 107(4):785-92.

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