

Assessment of Morbidly Adherent Placenta's Clinic-Etiologic Profile and Outcomes: An Observational Study

Rashmi Kumari¹, Malvika Kumud²

¹Senior Resident, Department of Obstetrics and Gynecology, Government Medical College and Hospital, Bettiah, Bihar, India

²Associate Professor, Department of Obstetrics and Gynecology, Government Medical College and Hospital, Bettiah, Bihar, India

Received: 13-06-2024 / Revised: 10-07-2024 / Accepted: 25-08-2024

Corresponding Author: Dr. Rashmi Kumari

Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to evaluate the etiopathogenesis of Morbidly Adherent Placenta, its clinical mode of presentation and maternal and fetal outcome with the aim to reduce maternal morbidity and mortality.

Methods: This observational study was done in Obst/Gynae Department for the period of 26 months. There were 42048 deliveries; among these 20 women met the diagnostic criteria of MAP making an incidence of 0.047% over 26 months' study period.

Results: 90% women had history of previous caesarean sections. Placenta Praevia was associated with 60% women. The mean age was 31.4 years and mean parity 2.8. 40% were booked and 60% were unbooked. 60% of women with adherent placenta had accreta; 30% percreta and 10% had increta. Due to massive blood loss 80% cases were given Blood transfusion i.e. 1-5 units of whole blood and 50% were given i.e. 2-6 units of fresh frozen plasma (FFP). 60% women were shifted to ICU with an average stay of 3 days. The main newborn complication was prematurity and the average gestational age in our study was 32.4 weeks. 50% of the newborns were preterm with an average birth weight low birth weight <2500 gm, i.e. 2.2 kg. The perinatal mortality was 10%.

Conclusion: Early antenatal diagnosis of morbidly adherent placenta, proper counselling of patients regarding associated risks followed by well-planned caesarean hysterectomy with non-separation of placenta adopting multidisciplinary approach is the management option to reduce maternal morbidity and mortality.

Keywords: Caesarean hysterectomy, Increta, Percreta, Placenta accrete

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Obstetric haemorrhage is one of the leading causes of maternal deaths in developing nations especially in India. Abnormal placentation (accreta, increta and percreta) has emerged over uterine atony as the leading indication for peripartum hysterectomy. However, these placental abnormalities rarely get detected before delivery. [1-3] Once a rare occurrence, morbidly adherent placenta is now becoming an increasingly common complication of pregnancy, mainly due to the increasing rate of Caesarean delivery over the past 50 years. [4] It is the most frequent indication for peripartum hysterectomy. [5-7] In addition, the incidence of perinatal complications is also increased due to preterm birth and small for gestational age foetuses. [8,9]

Morbidly adherent placenta (MAP) is a severe obstetric complication characterized by the excessive attachment of the placenta to the uterine wall. Placenta accreta, placenta increta,

and placenta percreta are different diseases that fall within a spectrum. [10] Placenta accreta is the predominant form, characterized by the placenta adhering to the myometrium without infiltrating it. Placenta increta refers to the invasion of the placenta into the myometrium, whereas placenta percreta refers to the penetration of the placenta through the myometrium and its attachment to other organs, such as the bladder or bowel. [11] The prevalence of MAP has been steadily rising worldwide, with a documented occurrence rate of 1 in 533 births. [12] The surge in MAP cases may be ascribed to the growing prevalence of caesarean sections, a significant contributing factor. [13] Additional risk factors include placenta previa, maternal age above the average, several previous pregnancies, and prior surgical procedures on the uterus. [14]

Placenta previa is a medical disorder in which the placenta attaches itself to the lower section of the

uterus, either partly or totally obstructing the cervical os. [15] MAP has been identified as a recognized risk factor, with a documented occurrence rate of 3-5%. The coexistence of placenta previa with morbidly adherent placenta presents a substantial hazard to both the mother and the infant, resulting in a documented maternal death rate ranging from 7% to 10% and a perinatal mortality rate ranging from 40% to 50%. [16] The identification of MAP often occurs in the third trimester of pregnancy, however it may also be suspected in the second trimester if there is a prior history of caesarean section or other risk factors. [17] Ultrasound is used to confirm the diagnosis by identifying placental lacunae, the absence of the retro placental clear space, and aberrant vascularity. [18] The care of MAP requires a multidisciplinary approach, including a team of obstetricians, anesthesiologists, neonatologists, and urologists. The primary objective of care is to avoid profound hemorrhage and maintain the integrity of the uterus, if feasible. [19] The optimal method of delivery is caesarean section, when the placenta remains in place and is then extracted in a regulated way after the birth of the baby. [20]

The aim of the present study was to evaluate the etiopathogenesis of Morbidly Adherent Placenta, its clinical mode of presentation and maternal and fetal outcome with the aim to reduce maternal morbidity and mortality.

Materials and Methods

This observational study was done in Obst/Gynae Department of Government Medical College and Hospital, Bettiah, Bihar, India for the period of 26 months. There were 42048 deliveries; among these 20 women met the diagnostic criteria of MAP making an incidence of 0.047% over 26 months' study period.

Demographic data including age, parity, gestational age and previous caesarean delivery or other uterine surgery, details of medical and obstetric history and information on the intraoperative and postoperative events were recorded. In particular, from the surgery report we obtained data on placental location, estimated blood loss, blood transfusion, presence of placenta accreta, procedures needed to control bleeding. Neonatal outcomes were reviewed for birth weights, nursery admission and perinatal mortality.

Results

Table 1: Antenatal profile of patients

Antenatal profile	No. of Patient
No. of patients with previous	18 (90%)
Caesarean section	
No. of Patients with diagnosed MAP in USG	2 (10%)
No. of Patients with placenta praevia	12 (60%)

90% women had history of previous caesarean sections, Placenta Praevia was associated with 60% women.

Table 2: Demographic characteristics

Demographic characters	No. of Patient
Mean age	31.4
Mean parity	2.8
Un-booked	12 (60%)
Booked	8 (40%)
Previous 1 C-S	12 (60%)
Previous 2 C-S	4 (20%)
Previous 3 C-S	2 (10%)

The mean age was 31.4 years and mean parity 2.8. 40% were booked and 60% were unbooked.

Table 3: Type of MAP

Type of MAP	Percentage
Accreta	60
Percreta	30
Increta	10

60% Of women with adherent placenta had accreta; 30% percreta and 10% had increta.

Table 4: Morbidity associated with MAP

Morbidity	No. of Patient
Characteristics no. % hysterectomy	12 (60%)
ICU transfer	16 (80%)
Prolong hospital stay (> than 7 days)	18 (90%)
Blood transfusion	16 (80%)
FFP transfusion	10 (50%)
Bladder repair	2 (10%)
Internal iliac artery ligation	2 (10%)
Mortality(shock)	2 (10%) (due to irreversible haemorrhagic)

Due to massive blood loss 80% cases were given Blood transfusion i.e. 1-5 units of whole blood and 50% were given i.e. 2-6 units of fresh frozen plasma (FFP). 60% women were shifted to ICU with an average stay of 3 days.

Table 5: Neonatal outcome

Neonatal outcome	Percentage
Average gestational age	32.4 weeks
Preterm newborn among live births	10 (50%)
Average birth weight	2.2kg
Baby shifted to nursery	12 (60%)
Perinatal mortality	2 (10%)

The main newborn complication was prematurity and the average gestational age in our study was 32.4 weeks. 50% of the newborns were preterm with an average birth weight low birth weight <2500 gm, i.e. 2.2 kg. The perinatal mortality was 10%.

Discussion

MAP is an abnormal invasion of placental tissue (trophoblast) into outer or inner myometrium or through the serosa of the uterus (termed as accreta, increta, percreta respectively). It is a potentially life-threatening condition responsible for 7-10% of maternal mortality. [21] Morbidly adherent placenta occur when there is partial or total absence of decidua basalis and Nitabuch layer. The incidence of placenta accreta was approximately 1 in 4027 in 1970s, 1 in 2510 in the 1980s, 1 in 533 pregnancies in 1982- 2002 and 1 in 210 in 2006. [22] Marked increased in incidence of MAP is due to increased rate of caesarean sections. The two most important risk factors are an associated previa, a prior caesarean delivery, and more likely a combination of the two. Others risk factors are previous uterine surgery, previous dilatation and curettage, previous history of MRP previous myomectomy, ashermann Syndrome (endometrial defects), submucous leiomyoma, advanced maternal age, multiparity etc). [23]

Women with major placenta praevia who have previously bled should be admitted and managed as in patients from 34 weeks of gestation and delivery by 36 week or earlier if bleeding occur at well-equipped tertiary centres with good NICU backup, blood bank facility, interventional radiologist at time of delivery. [24] 90% women had history of previous caesarean sections. Placenta Praevia was associated with 60% women. The mean age was 31.4 years and mean parity 2.8. 40% were booked

and 60% were unbooked. 60% Of women with adherent placenta had accreta; 30% percreta and 10% had increta. Seago et al demonstrated that planned cesarean hysterectomy in selected patients allows the surgical team to be prepared for complications to prevent morbidities with no demonstrable increase in intraoperative and postoperative complications, when compared with women who undergo hysterectomy within 6 months of cesarean delivery. [25] Robinson et al BK too cites that there is a great benefit of planned as opposed to emergent peripartum hysterectomy. [26] In mothers with placenta previa and a suspected accreta who required peripartum hysterectomy, a scheduled delivery has been associated with shorter operative times and lower frequency of transfusions, complications, and intensive care unit admissions.

Due to massive blood loss 80% cases were given Blood transfusion i.e. 1-5 units of whole blood and 50% were given i.e. 2-6 units of fresh frozen plasma (FFP). 60% women were shifted to ICU with an average stay of 3 days. The main newborn complication was prematurity and the average gestational age in our study was 32.4 weeks. 50% of the newborns were preterm with an average birth weight low birth weight <2500 gm, i.e. 2.2 kg. The perinatal mortality was 10%. The multidisciplinary team including a gynecologic surgeon experienced in pelvic surgery, a blood bank team prepared to administer multiple blood components along with a hematologist if difficulty with blood clotting develops, experienced anesthesiology personnel who are skilled in obstetric anesthesia, skilled urologists in case a bladder resection or repair might be required, experienced intensivists for postpartum care, and an experienced neonatologist in case a baby is very premature. In cases where pelvic artery

catheterizations are used, an experienced interventional radiologist is also required. Additionally, Eller et al [27] showed that delivery at a medical center with a multidisciplinary care team resulted in a more than 50% risk reduction for composite early morbidity among all cases of placenta accreta and a nearly 80% risk reduction.

Conclusion

Early antenatal diagnosis of morbidly adherent placenta, proper counselling of patients regarding associated risks followed by well-planned caesarean hysterectomy with non-separation of placenta adopting multidisciplinary approach is the management option to reduce maternal morbidity and mortality.

References

1. Bajwa SK, Singh ABS. Contemporary issues in the management of abnormal placentation during pregnancy in developing nations: an Indian perspective. *Int J Crit Illn Inj Sci.* 201 3;3(3):183–189.
2. Bauer ST, Bonanno C. Abnormal placentation. *Semin Perinatol.* 2009;33(2):88–96. doi: 10.1053/j.semperi.2008.12.003.
3. Yi KW, Oh M-J, Seo T-S, et al. Prophylactic hypogastric artery ballooning in a patient with complete placenta previa and increta. *J Korean Med Sci.* 2010;25(4):651–655.
4. Hamilton BE, Martin JA, Ventura SJ, et al. Births: preliminary data for 2004. *Natl Vital Stat Rep.* 2005;54(8):1–17.
5. Jagielska I, Kazdepka-Ziemińska A, Tyloch M, et al. Clinical study of perinatal hysterectomy between 2000-2011 in the clinic of obstetrics, gynecological diseases and oncological gynecology in Bydgoszcz. *Ginek Pol.* 2014; 85(3):192–196.
6. Dandolu V, Graul AB, Lyons AMD. Obstetrical Hysterectomy, cesarean delivery and abnormal placentation. *J Matern Fetal Med.* 2012;25(1):74–77.
7. Roethlisberger M, Womastek I, Posch M, et al. Early postpartum hysterectomy: incidence and risk factors. *Acta Obs Gynecol Scand.* 2010; 89(8):1040–1044.
8. Eller AG, Porter TF, Soisson P, et al. Optimal management strategies for placenta accreta. *BJOG.* 2009;116(5):648–654.
9. Sumigama S, Itakura A, Ota T, et al. Placenta previa increta/percreta in Japan: a retrospective study of ultrasound findings, management and clinical course. *J Obstet Gynaecol Res.* 2007; 33(5):606–611.
10. D'antonio F, Palacios-Jaraquemada J, Lim PS, Forlani F, Lanzone A, Timor-Tritsch I, et al. Counseling in fetal medicine: evidence-based answers to clinical questions on morbidly adherent placenta. *Ultrasound in Obstetrics & Gynecology.* 2016 Mar;47(3):290–301.
11. Lu D. Prenatal diagnosis of placenta previa complicated by placenta percreta. *Journal of Diagnostic Medical Sonography.* 2019 Jan;35 (1):70–3.
12. Singh R, Pradeep Y. Maternal and neonatal outcomes in morbidly adherent placenta: a developing country experience. *Tropical Doctor.* 2015 Jul;45(3):183–7.
13. Faiz AS, Ananth CV. Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. *The journal of maternal-fetal & neonatal medicine.* 2003 Jan 1;13(3):175–90.
14. Jain V, Bos H, Bujold E. Guideline No. 402: diagnosis and management of placenta previa. *Journal of Obstetrics and Gynaecology Canada.* 2020 Jul 1;42(7):906–17.
15. Channana P. To examine the association between placenta previa and its impact on maternal and foetal outcomes. *Int J Acad Med Pharm.* 2023;5(4):2095–100.
16. Timor-Tritsch IE, Monteagudo A, Cali G, Vintzileos A, Viscarello R, Al-Khan A, et al. Cesarean scar pregnancy is a precursor of morbidly adherent placenta. *Ultrasound in Obstetrics & Gynecology.* 2014 Sep;44(3):346–53.
17. Garofalo A, Pilloni E, Alemanno MG, Garofalo G, Sciarrone A, Todros T, et al. Ultrasound accuracy in prenatal diagnosis of abnormal placentation of posterior placenta previa. *European Journal of Obstetrics & Gynecology and Reproductive Biology.* 2019 Nov 1;242:86–91.
18. AbdRabbo SA. Stepwise uterine devascularization: a novel technique for management of uncontrollable postpartum hemorrhage with preservation of the uterus. *American journal of obstetrics and gynecology.* 1994 Sep 1;171(3):694–700.
19. Anorlu RI, Maholwana B, Hofmeyr GJ. Methods of delivering the placenta at caesarean section. *Cochrane Database of Systematic Reviews.* 2008(3).
20. Shi J, Dai Y, Zhang J, Li X, Jia S, Leng J. Pregnancy outcomes in women with infertility and coexisting endometriosis and adenomyosis after laparoscopic surgery: a long-term retrospective follow-up study. *BMC Pregnancy and Childbirth.* 2021 Dec;21(1):1–9.
21. Pinas-Carrillo A, Chandharan E. Management of morbidly adherent placenta. *Obstet Gynaecol Reproduc Med.* 2016;26(10): 283–90.
22. Committee on Obstetric Practice. Committee Opinion no. 529. Placenta accreta. *Obstet Gynecol* 2012;120:207–11.

23. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. *Am J Obstet Gynecol.* 1997;177:210-4.
24. Robinson BK, Grobman WA. Effectiveness of timing strategies for delivery of individuals with placenta previa and accreta. *Obstet Gynecol.* 2010;116:835-42.
25. Seago DP, Roberts WE, Johnson VK, Martin RW, Morrison JC, Martin JN Jr. Planned cesarean hysterectomy; a preferred alternative to separate operations. *Am J Obst Gynecol.* 2004;104:537-40.
26. Robinson BK, Grobman WA. Effectiveness of timing strategies for delivery of individuals with placenta previa and accreta. *Obstet Gynecol.* 2010;116:835-42.
27. Eller AG, Bennett MA, Sharshiner M, Masheter C, Soisson AP, Dodson M. Maternal morbidity in cases of placenta accreta managed by a multidisciplinary care team compared with standard obstetric care. *Obstet Gynecol.* 2011;117(2):331-7.