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Morbid Adherent Placenta: An Obstetric Emergency and Its Management

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Abstract
Objectives: *The aim of the study was to identify the risk factors predisposing to morbidly adherent placenta and to study the different modes of management and the maternal and neonatal outcome of these patients.*
Methods: *This was a prospective observational study conducted in the department of Obstetrics and Gynaecology at Zenana state hospital, Jaipur from October 15 to September 16.*
Results : *The incidence of morbidly adherent placenta was 0.82 per 1000 pregnancies with patient profile comprising second gravida in the age group 26-30 years; 83% of the patient in this study had previous caesarean section and co-existing placenta previa was diagnosed in 66%. Fifty percent of the women delivered between 36 to 40 weeks. Caesarean section was the mode of delivery in the 90% of the patients. Prophylactic internal iliac artery ligation followed by classical caesarean section, uterine artery ligation was done in17% which preserved the uterus and was associated with blood loss of 1000-2000 ml.*
Conclusion: *Antenatal diagnosis of morbidity adherent placenta allowes for multidisciplinary planning in an attempt to minimize potential maternal or neonatal morbidity and mortality. .*
Keywords: *Previous caesarean section, placenta previa, postpartum haemorrhage.*

I. Introduction

Obstetric haemorrhage is one of the leading causes of maternal deaths in developing nations especially in India. Abnormal placentation (accreta, increta, 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 fetuses [8, 9]. In this study, an attempt has been made to enumerate possible measures to identify the predictors of abnormal placentation during early pregnancy in order to ensure favorable maternal and perinatal outcome.

II. Materials And Methods

This was a prospective observational study conducted in the department of Obstetrics and Gynaecology at Zenana state hospital, Jaipur from October 15 to September 16. The study included all pregnant women, irrespective of parity status, with gestational age more than 26 weeks who had any type of morbidly adherent placenta diagnosed on USG, colour Doppler, MRI or had been diagnosed intra-operatively. All patients included had delivered in this institution. For all cases complete history and physical examination of the patients along with the relevant investigations (ultrasound with colour Doppler and MRI) for diagnosis of morbidly adherent placenta were documented. The parameters studied were the mode of presentation of the patient and longevity of the gestation, history of previous lower segment / classical Caesarean section or other intrauterine operative procedures (dilatation and curettage, manual removal of placenta, myomectomy, etc.), mode of delivery of the current pregnancy, interventional end point (packing / internal iliac artery ligation / uterine artery ligation / hysterectomy), neonatal outcome and duration of hospital stay.

III. Results

During the study period, there were 14600 deliveries of which 12 patients had morbidly adherent placenta giving an incidence on 0.82 per 1000 pregnancies. Being a tertiary care institute, 58% (7) patients were transferred from primary and secondary institutes. The maximum number of women (4, 33%) in this study belonged to the age group 26-30 years and 50% (6) of women were second gravida. 83% (10) had undergone caesarean section of which 60% (6) had 1 previous caesarian section and 40% (4) had 2 previous caesarean section. Rest of the 2 patients who did not have previous lower segment caesarean section 1 patient was a multigravida with previous full term normal vaginal delivery and 1 was a multigravida with previous 2 abortions (with 2 previous emergency curettage for incomplete abortion). Co-existing placenta previa was diagnosed in 66% (8) of the patients. Placenta accreta was found in 50% (6), placenta increta in 25% (3) and placenta percreta 25% (3) in. Diagnosis of morbidly adherent placenta was made antenatal in 66% (8) patients and intra-

operatively in 17% (2). Diagnosis was made by ultrasound with colour Doppler and confirmed with MRI. 50% of the women delivered between 36-40 weeks. 66% (8) of the patients had no complaints and they had planned delivery by multidisciplinary team (an obstetrician, a blood bank team, anesthetist, urologist and a neonatologist).Caesarean section was the most frequent mode of delivery (90%,11) with classical caesarean section (58%,7)being more frequent than lower segment caesarean section (33%,4). The rest 17% (2) of the patients who had full term normal vaginal deliveries were diagnosed with morbidly adherent placenta in the post-partum period.

The average intra-partum blood loss in the patients with morbidly adherent placenta was 1500-2000 ml which was the case in 50% (6) of the patients studied. More than half of the patients (66%, 8) received 1-4 unit of blood. 50% (6) of the patients had undergone caesarean section followed by obstetric hysterectomy and was associated with blood loss of 2-3 liters. Prophylactic internal iliac artery ligation followed by classical caesarean section, uterine artery ligation was done in 17% which preserved the uterus and was associated with blood loss of 1000-2000 ml. There were 17% (2) of the patients who had disseminated intravascular coagulation (DIC) and required ICU admission. Complications were more common in transferred patients as well as those who were operated on emergency basis. There was 1 mortality in this study. The average hospital stay for a women diagnosed with morbidly adherent placenta was 2 weeks and the patients who had surgical site infection had longer duration of hospital stay.75% of the patients had live births and 25% had stillbirths. 50% of the babies were preterm (<37 weeks). 30% had birth weight of 2.2-2.5 kg. 27% of the babies required NICU admission for low birth weight, respiratory distress or neonatal jaundice.

IV. Discussion

Morbidly adherent placenta is one of the most devastating complications in pregnancy [10]. It is characterized by the attachment of placental villi directly to the myometrium, sometimes invading deeper into the uterine wall or surrounding organs. It could be placenta accreta (chorionic villi are in contact with the myometrium), placenta increta (chorionic villi invade the myometrium) or placenta percreta (chorionic villi penetrate the uterine serosa). The bladder is the most common organ involved when there is a placenta percreta. Placenta percreta that invades the urinary bladder is associated with substantial morbidity and mortality of up to 10% [11].

In this study, as well as studies by Aggarwal et al. [12] and Obajimi et al. [13], it is evident that morbidly adherent placenta usually occurs in subsequent pregnancies, explaining the older age group and higher gravidity of the patients. The most important risk factors are previous caesarean delivery, placenta previa, multiparity and advanced maternal age [14]. Up to 88% of the women have concomitant placenta previa [15, 16].

A majority of morbidly adherent placenta are diagnosed during the third stage of labour or during caesarean section which results in adverse consequences including exsanguinating haemorrhage [17]. Silent abnormal placentation was found in 21.2% of peripartum hysterectomy specimens in a study of Suwannarurk et al. [18]. The high rate of antenatal diagnosis of morbidly adherent placenta in this study could be due to the fact that the study was conducted in a tertiary care hospital receiving a large percentage of transferred patients (from peripheral health centers) where diagnostic facilities such as ultrasound with colour Doppler as well as MRI are available during both routine and emergency hours.

Regardless of the management option made, prevention of complications ideally requires a multidisciplinary team approach. Early planning of arrangements of ante partum and intrapartum management is preferable to late planning, when emergency situations are more likely to occur. The recommended management of suspected cases of morbidly adherent placenta is planned preterm caesarian section with the placenta left in situ because attempts at removal of placenta are associated with significant hemorrhagic morbidity [15]. A classical uterine incision, often transfundal may be necessary to avoid the placenta, especially in cases of low lying placenta, and to allow delivery of the infant. Maternal morbidity had been reported to occur in 60% and mortality in up to 7% of women with morbidly adherent placenta [8, 9]. Considering this risk of substantial morbidity (including coagulopathy, severe haemorrhage, infection, sepsis, ureteral injury, and need for blood transfusion / hysterectomy) and mortality, uterus preserving treatment may have a role in carefully selected patients who desire future fertility. Several adjuvant techniques like methotrexate treatment, preoperative internal iliac artery balloon catheterization and / or arterial embolisation are used to reduce intra-operative blood loss and transfusion requirements. When conservative management is successful, it results in gradual resorption of placenta or delayed delivery of placenta.

V. Conclusion

Antenatal diagnosis of morbidity adherent placenta allowes for multidisciplinary planning in an attempt to minimize potential maternal or neonatal morbidity and mortality. Interventional radiological procedures help in preserving the uterus and hence the future fertility career of the patient. Randomized controlled trials and

large cohort studies for the diagnosis and management of morbidly adherent placenta are lacking. Although the gap between the developed and developing nations with regard to maternal mortality and morbidity may have narrowed, but still a lot of dedicated work is required to bridge these differences.

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Table 1 Incidence, demographic profile and risk factors for morbidly adherent placenta

A. Morbidly adherent placenta

	No. of patients	Percentage
Placenta accreta, increta, percreta	12	0.82/1000 pregnancies

B. Age

Age (years)	No. of patients	Percentage
< 20	**2**	**17**
21-25	**3**	**25**
26-30	**4**	**33**
>30	**3**	**25**

C. Registration status

	No. of patients	Percentage
Registered	**3**	**25**
Transferred	**7**	**58**
Unregistered	**2**	**17**

D. Gravidity

Gravida	No. of patients	Percentage
1	**2**	**17**
2	**6**	**50**
3	**4**	**33**

E. Associated risk factor

	No. of patients	Percentage
Previous caesarean section	**10**	**83**
Previous curettage	**1**	**8.5**
Neither	**1**	**8.5**

F. Type of placentation

	No. of patients	Percentage
Placenta previa	**8**	**66**
Accreta	**6**	**50**
Increta	**3**	**25**
Percreta	**3**	**25**

G. Time of diagnosis

	No. of patients	Percentage
Antenatal	**8**	**66**
Intra-operative	**2**	**17**
Post-partum	**2**	**17**

Table 2 Gestational age at delivery

Serial no.	Gestational age (weeks)	No. of patients	Percentage
1.	**26-30**	**3**	**25**
2.	**31-35**	**3**	**25**
3.	**36-40**	**6**	**50**

Table 3 Treatment modality

Serial no.	Treatment modality	No. of patients	Percentage
1.	**Conservative surgery alone**	**2**	**17**
2.	**Conservative surgery followed by hysterectomy**	**1**	**8**
3.	**Hysterectomy without conservative surgery**	**6**	**50**
4.	**No hysterectomy and no conservative procedure**	**3**	**25**

Table 4 Intrapartum blood loss

Serial no.	Blood loss (ml)	No. of patients
1.	**Less than2000ml**	**4**
2.	**2000-3000ml**	**6**
3.	**>3000ml**	**2**

Table 5 Maternal outcome; morbidity and mortality

Serial no.	Outcome	No. of patients	Percentage
1.	**DIC**	**2**	**17**
2.	**ICU admission**	**2**	**17**
3.	**Surgical site infection**	**4**	**33**
4.	**Bladder injury**	**2**	**17**
5.	**Death**	**1**	**8.5**

Table 6 Neonatal outcome

Serial no.	Outcome	No. of patients	Percentage
1.	**Live birth**	**9**	**75**
2.	**Still birth**	**3**	**25**