

Study of Maternal Morbidity Associated with Morbidly Adherent Placenta

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Abstract: *Background and Aims: Morbidly Adherent Placenta (MAP) is associated with severe morbidity like severe postpartum haemorrhage (PPH), probable need for massive blood transfusion and invasive procedures such as hysterectomy. We reviewed all cases of MAP in our institute between May 2015 to July 2019. The main objectives of the study were to determine the incidence, risk factors and both fetomaternal outcome in these women. Material and Methods: This was a retrospective study done in the department of Obstetrics and Gynaecology, Father Muller Medical College, Mangalore from May 2015 to July 2019. There were 12 women with MAP during this period. Results: In the present study, there were a total of 12 cases of MAP over 5 year period with incidence of MAP being 0.017%(1/983 live births). The mean age of the women was 31 years. Among 12 women, 10(84%) were multigravida, 7 (58 %) were within 28 weeks to 37 weeks period of gestation(POG). Risk factors associated with MAP included 11(90%) cases had a history of previous lscs with 7(58%) having history of previous 2 lscs, placenta previa in 4 cases (32%) among whom 3 had previous 2 lscs. In 3(25%) subjects, peripartum hysterectomy was planned electively while emergency hysterectomy was done in 8 (75%). In addition to hysterectomy, bladder repair was done in 6 (50%) cases and bilateral uterine artery ligation was done in 3 (25%). Majority of the cases needed massive blood transfusion (50%). Elective cases were found to have lesser intraoperative complications, need for blood product transfusion and postoperative complications compared to emergency cases. 6 (50%) patients needed ventilatory support and recovery was good. 50% of the subjects developed disseminated intravascular coagulation which was managed with transfusion of cryoprecipitate and fresh frozen plasma along with other blood components. One woman was treated medically with methotrexate injection 65 mg (1mg/kg) IM. There were no maternal deaths. Conclusions: Early antenatal diagnosis of MAP, proper counselling of patients regarding associated risks followed by well-planned caesarean hysterectomy with no attempt at placental delivery, adopting a multidisciplinary approach is the management option to decrease the maternal morbidity and mortality. Therefore, it is recommended that women suspected to have placenta accreta should be transferred to major centers for delivery which have access to large blood banks, prompt availability of well trained surgeons and experienced intensive care units. Alternative approaches, such as leaving the placenta in situ without hysterectomy, have increased risks and should be adopted only for selective patients.*

Keywords: morbidly adherent placenta, peripartum hysterectomy

1. Introduction

Morbidly Adherent Placenta (MAP) is an abnormal invasion of placental tissue (trophoblast) into outer or inner myometrium or through the serosa of the uterus. This can be a serious life threatening condition for the mother. MAP is classified into 3 types based on the degree of penetration of chorionic villi and by the area of involvement of the placenta:

- Accreta (75%): Attachment of the placenta to the myometrium.
- Increta (17%): Extension of the placenta into the myometrium
- Percreta (7%): Extension of the placenta upto the uterine serosa.¹

Clinical consequences can be catastrophic including uterine perforation, infection, massive haemorrhage requiring massive blood transfusion, hysterectomy and multiple injuries including bladder and ureteric injury and fistula formation.

Incidence of morbidly adherent placenta (MAP) in India in 2016 was found to be 1.32 per 1000 pregnancies. [2] Oflate there is a drastic increase in the incidence of MAP due to the alarming rise in the incidence of caesarean sections. History of placenta previa and caesarean section, more frequently

seen as a combination are two most significant risk factors for MAP. Other risk factors which may contribute to the increase in incidence of MAP are previous uterine surgery, previous dilatation and curettage, history of manual removal of placenta, previous myomectomy, Asherman syndrome (endometrial defects), presence of submucous leiomyoma, advanced maternal age, multiparity etc. [3]

Proper antenatal ultrasound can be used to establish the diagnosis and guide clinical management. Transvaginal ultrasound has made the diagnosis more accurate and easy (sensitivity 87.5%, specificity 98.8%, positive predictive value 93%).¹ Second and third trimester gray-scale sonographic characteristics include uterine wall discontinuity, placental vascular voids, Swiss cheese like appearance near the site of placental attachment, absence of a clear margin between the myometrium and the placenta, extension of the placenta into the bladder and hypervascularity in Doppler ultrasound. [4]

MAP is associated with severe morbidity like severe postpartum haemorrhage (PPH), probable need for massive blood transfusion and invasive procedures such as hysterectomy [4]. A team approach including experts from various specialities is always necessary and a planned elective surgery may save the day.

2. Methodology

This was a retrospective study done in the department of Obstetrics and Gynaecology, Father Muller Medical College, Mangalore from May 2015 to July 2019. There were 12 women with MAP during this period. The medical records of all the 12 women were reviewed. The main objectives of the study were to determine the incidence, risk factors and both fetomaternal outcome in these women. Demographic data, clinical characteristics, operative details and outcome were reviewed. The risk factors were analysed. The maternal morbidity and fetal outcome associated with MAP were assessed.

3. Results

Table 1: Demographic data

Feature		Number of cases
Maternal age (yrs)	<30	3 (25%)
	>30	9 (75%)
Gravida	Gravida-1	1 (8%)
	Gravid-2	1 (8%)
	Gravida ≥3	10 (83%)
Gestational age (weeks) at presentation	<20	2 (17%)
	20-28	1 (8%)
	28-37	7 (58%)
	37-40	2 (17%)
ANC care	Booked	6 (50%)
	Unbooked	6 (50%)
Risk factor	Previous 1 LSCS	4 (33%)
	Previous 2 LSCS	7 (58%)
	H/O dilatation and curettage	3 (25%)
	Placenta praevia with previous 1 lscs	1 (8%)
Comorbidities	Placenta praevia with previous 2 lscs	3 (25%)
	Moderate anaemia	2 (17%)
	Pre eclampsia	1 (8%)
	Gestational diabetes mellitus	1 (8%)
	Rh negative pregnancy	1 (8%)

Table 2: Clinical Characteristics

		Number of cases
Presenting complaint	Bleeding per vagina	6 (50%)
	Referred for tertiary care	4 (33%)
	Pain abdomen	1 (8%)
	Giddiness, Syncope	1 (8%)
Clinical condition on arrival	Stable	10 (83%)
	Unstable (Tachycardia and hypotension)	2 (17%)
Mode of termination	Elective	3 (25%)
	Emergency	8 (67%)
Haemoglobin at presentation (gm/dl)	<8	2 (17%)
	8-10	5 (42%)
	>10	5 (42%)
Mode of diagnosis	USG	10 (83%)
	MRI	2 (17%)
Placenta	Accreta	2 (17%)
	Increta	4 (33%)
	Percreta	6 (50%)

Table 3: Maternal outcome

		Number of cases
Management	Conservative	1 (8%)
	Surgical	11(92%)
Morbidity	Injuries	
	Bladder	6 (50%)
	Bowel	0
	Repeated admission	1 (8%)
Mortality		0

Table 4: Maternal complications

		Number of cases	
		Elective	Emergency
Hysterectomy		3(25%)	8(67%)
Additional procedure needed	Bladder repair	2(17%)	4(33%)
	Bilateral uterine artery ligation	2(17%)	1(8%)
Massive blood transfusion		1(8%)	5(42%)
DIC		1(8%)	5(42%)
Postoperative hospital stay(days)	<7	1(8%)	0
	7-14	2(17%)	3(25%)
	>14	0	6(50%)
Postoperative complications	Ventilator support	2(17%)	4(33%)
	Acute kidney injury	0	1(8%)
	Pleural effusion	0	1(8%)

Table 5: Fetal outcome

	Number of cases
Abortion	3 (25%)
Live birth	8 (67%)
Intrauterine death	1 (8%)

	Number of cases	
Birth weight of the baby	<1.5 kg	1 (8%)
	<2.5 kg	3 (25%)
	2.5-3.5kg	5 (42%)
NICU admission	6 (50%)	

In the present study, there were a total of 12 cases of MAP over 5 year period with incidence of MAP being 0.017%(1/983 live births). The mean age of the women was 31 years. Among 12 women, 10(84%) were multigravida, 7(58%) were within 28 weeks to 37 weeks period of gestation (POG). Among all women who underwent electively planned peripartum hysterectomy, 66% were above 34 weeks POG, whereas in emergency group, 73% were less than 34 weeks POG. 6(50%) were booked in our institute and remaining 6(50%) were referrals.

Risk factors associated with MAP included 11(90%) cases had a history of previous lscs with 7(58%) having history of previous 2 lcs, placenta previa in 4 cases (32%) among whom 3 had previous 2 lscs. 6(50%) patients presented with c/o bleeding per vagina and 4 (33%) came for safe confinement who were referred from outside. 2 (16%) were hemodynamically unstable at the time of admission and required resuscitation.

In 3 (25%) subjects, peripartumhysterectomy was planned electively while emergency hysterectomy was done in 8 (75%). All electively planned hysterectomies were diagnosed as placentaaccreta either on USG or magnetic resonance imaging. Abdomen was opened by Pfannenstiel incision in all cases and uterus was opened by Kerr's incision, hysterectomy was done with placenta in situ in

these cases. All patients were managed by a team of senior obstetrician, anesthetist, blood bank officer, pediatrician and urologist. At the time of presentation, 7(58%) had haemoglobin less than 10gm/dl. MRI was done only for 2 which, showed retro placental loss of space and placenta reaching upto uterine serosa.

In addition to hysterectomy, bladder repair was done in 6 (50%) cases and bilateral uterine artery ligation was done in 3(25%). Majority of the cases needed massive blood transfusion (50%). 50% of the subjects developed disseminated intravascular coagulation which was managed with transfusion of cryoprecipitate and fresh frozen plasma along with other blood components.

Table 4 shows that elective cases were found to have lesser intraoperative complications, need for blood product transfusion and postoperative complications compared to emergency cases. 6 (50%) patients needed ventilatory support and recovery was good. There were no maternal deaths reflecting that the decision was do neat the right time. 50% of case shad to stay in the hospital for more than 14 days. 6 out of 8 neonates needed NICU admission.

One woman was nulliparous who had intrauterine death at 28 weeks. She underwent induced abortion outside and was referred to our hospital in view of secondary postpartum haemorrhage and adherent placenta. She was treated medically with methotrexate injection 65mg (1mg/kg)IM. She had repeated admissions later in view of sepsis and anaemia. At present, she is doing good and is being treated for infertility.

4. Discussion

The incidence of MAP in our study was 0.017% (1/983 live births) with a total number of 11,798 deliveries during the study period which was lower than a study by Atal Bihariet al [5] (1.14 per 1000 pregnancies). The mean age of patients in our study was 30 years. This was similar to a study conducted by ranjana et al [1] who found a mean age of 31 years in their study. The optimum time for a planned delivery for a patient with placenta accreta is around 34–35 weeks following a course of corticosteroid injection. This optimizes outcome for the mother, as 93% of patients with placenta accreta report haemorrhage after 35 weeks and planned delivery has been associated with shorter intraoperative times, lower frequency of transfusions and lower ICU admission. [6, 7]. In our study, 90% cases had a history of previous lscs. Among them, 4(33%) cases had history of previous lscs with placenta previa. Ranjana et al's [1] study found that 90% cases had a history of previous LSCS. Whereas, the study by Atal Bihariet al [5] showed that 61.90% of MAP subjects had previous caesarean section associated with placenta previa. Krishna voret al [8] in their paper had studied 20 cases of morbidly adherent placenta over one-year span, they also found in their study that the most common cause for morbidly adherent placenta was previous caesarean scar with placenta previa (85%). In their study, majority subjects were with placenta accretain contrast to our study, which had more number of placenta percreta (50%), 10% of their cases needed bladder repair as there was invasion of bladder in adherent placenta. There

was no maternal mortality in our study which signifies the prudent management at the right time.

Among the 12 women, majority (10) were of gravida 3 or more which was similar to the study by Atal Bihariet al⁵ who found that 13(61.90%) were of gravid 3 or more. This might be due to increased risk of MAP in patients with previous LSCS. A strong suspicion of MAP in those with history of previous LSCS helps in proper diagnosis. The incidence rate of MAP can be reduced by making an effort to reduce the primary caesarean section.

We found in our study that peripartum hysterectomy was done in 11 cases (92%). Among them along with peripartum hysterectomy, 6 cases (50%) were associated with bladder repair, 3 cases (25%) had bilateral uterine artery ligation. Atal Bihariet al [5] had found caesarean hysterectomy with internal iliac artery ligation in 5 (23%) and caesarean hysterectomy with bladder repair in 5 (23%) subjects. In our study, more patients required bladder repair which might be due to more cases of placenta percreta as compared to placenta accreta in other studies.

The successful management of placenta accreta includes early diagnosis which helps in planning the management strategy. It becomes easier to organize a multidisciplinary care team approach with skilled surgeon and urologists, fetomaternal experts, well trained nursing staff, experienced blood bank team, well qualified anesthesia team, knowledgeable intensivists, and interventional radiologists. MAP is directly related to frequency of caesarean section. Every effort should be made to reduce the percentage of primary caesarean section so that morbidity and mortality related to MAP can be reduced. If caesarean rates continue to increase, the annual incidence of placenta previa and placenta accreta will increase and in turn, morbidity and mortality will also rise substantially [9].

5. Conclusion

Early antenatal diagnosis of morbidly adherent placenta, proper counselling of patients regarding associated risks followed by well-planned caesarean hysterectomy with no attempt at placental delivery, adopting a multidisciplinary approach is the management option to decrease the maternal morbidity and mortality. Therefore, it is recommended that women suspected to have placenta accreta should be transferred to major centers for delivery which have access to large blood banks, prompt availability of well trained surgeons and experienced intensive care units. Alternative approaches, such as leaving the placenta in situ without hysterectomy, have increased risks and should be adopted only for selective patients.

6. Strengths of the Study

Proper records were available for assessment of risk factors and intraoperative findings. Data for comparison of elective vs emergency procedure were available.

7. Limitation of the Study

It was a retrospective study hence, followup of the patient was not possible. Sample size was small.

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