

Morbid Adherent Placenta: Morbidity and Mortality Report from a Developing Country

Nusrat Nisar, Saima Ghaffar, Farhat Jokhio

ABSTRACT

OBJECTIVE: To determine the frequency of Morbidly Adherent Placenta (MAP) in pregnant women having history of obstetrical scar and its outcome in perspective of emergency or planned surgery.

METHODOLOGY: This retrospective study was conducted in duration of one year from January to December 2016, in the Department of Obstetrics and Gynecology, Liaquat University of Medical and Health Sciences Jamshoro Sindh Pakistan. All the patients who were pregnant with history of previous scar diagnosed as a case of MAP were included while Primigravida & Placental abruption cases were excluded. Data was analyzed through SPSS Version 21. Mean \pm SD, frequencies & percentages were calculated. Chi-square was used as test of significance.

RESULTS: Total 68 cases of MAP sorted out from the scrutiny of records of 10,000 cases. The mean \pm SD age of all patients was 28.14 \pm 4.57 years ranging from 19 to 38 years. The mean \pm SD gestational age was 31.66 \pm 3.33 weeks. Patients were divided in two groups one who presented in emergency and second group of women diagnosed during antenatal period. The most common types of MAP were Placenta Accreta 30 (44.11%) and Placenta Percreta 29 (42.64%). Incidence of maternal death, surgical & post-operative complications, blood loss, and mean length of hospital stay were significantly less common among antenatal group. (P value = 0.001).

CONCLUSION: Morbidly adherent placenta is relatively less common in our women. Placenta Accreta and Percreta were the frequent types.

KEY WORDS: Morbidly adherent placenta, Morbidity, Mortality, Developing country.

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INTRODUCTION

Morbidly adherent placenta (MAP) is an obstetrical condition of abnormal adherence and in separability of placental villi either wholly or partially to the uterine wall instead of its normal site i-e; decidua basalis¹. It usually leads to severe hemorrhage at the time of delivery resulting in high maternal morbidity and mortality (7%-10% cases), thus making it one of severe life threatening complications of pregnancy^{2,3}. Until 1980's its incidence was very low i-e; 1 in 70,000 births⁴. However; with the rise in the rate of cesarean delivery over past thirty years, the incidence of MAP has progressively increased throughout the world. Recent reports suggest the incidence of MAP varies between 1/210 to 1/2500 births in developed nations^{5,6}. Simultaneously, the rates reported from low resource countries are also very high. In a recent study from Karachi, the MAP incidence recorded was 1.83/1000 deliveries⁷.

Several factors are associated with high incidence of MAP. The main risk factors are previous damage to the protective uterine decidua secondary to cesarean section, myomectomy, repeated uterine curettage⁸. MAP is associated with considerable maternal morbidity i-e; postpartum haemorrhage, disseminated

intravascular coagulation, hysterectomy, bladder and ureteric trauma, acute respiratory distress syndrome and acute tubular necrosis. Blood loss after tried placental removal has been mentioned to be higher than 3000ml in 90% of cases, even when hysterectomy is performed, as many as 90% of patients require transfusion and 40% require >10 units of packed red blood cells. In a bad resource country, it results in high quotes of maternal morbidity and mortality⁹⁻¹¹.

The optimal management of MAP is extremely challenging as most of these cases are diagnosed during labour or cesarean section. A standard care of MAP is planned cesarean hysterectomy with placenta in situ without any attempt of placental delivery. This may limit the extent of maternal morbidity and mortality. The conservative treatment options include methotrexate and if placenta is not possible to remove from uterine wall then second option is cesarean hysterectomy¹⁰ which otherwise can lead to severe maternal consequences like haemorrhage, D&C, hysterectomy, urinary bladder and ureteric trauma¹¹. In Pakistan, obstetrical haemorrhage is one of the leading causes of maternal morbidity and mortality during parturition¹². The women are often anaemic and report to hospital in emergency as unbooked

cases. The rate of caesarean section, myomectomy & hysterectomy are increasing in Pakistan like most other countries. Their long term maternal complications are rarely studied. One such severe complication is MAP. The present study was aimed to find out the frequency of MAP in the local population referred to a tertiary care hospital and to determine the outcome of woman in perspective of emergency or planned surgery in these cases of MAP.

METHODOLOGY

This retrospective cross-sectional study carried out with the help of medical audit over a period of one year from January to December 2016, in the Department of Obstetrics and Gynecology, Liaquat University Hospital Hyderabad / Jamshoro.

Pregnant patients with history of previous scar were included in the study. Primigravida and Placental abruption cases were excluded. All the patients who were diagnosed as a case of MAP were identified from the record books of labour ward, operating room and the ICU. The medical record sheets of all identified cases were reviewed. Demographic data like maternal age, gestational age, parity, residence, antenatal booking status and mode of admission was collected. Woman having ≥ 3 antenatal visits were categorized as "booked cases". Previous history of caesarean deliveries and their number was noted.

Women reaching to emergency room without prior diagnosis of MAP followed by operation in emergency were labeled as emergency cases while those who were admitted through OPD with suspicion and/ or diagnosis of MAP and operated with schedule were labeled as planned cases. Comparison of the two modes was done in relation to other variables.

The surgical notes in particular placental localization, loss of blood, blood transfusion history, the surgical procedure and subsequent management to control hemorrhage was noted. The Intraoperative surgical complications like bladder or bowel injuries were recorded. Critical care assessment, hospital stay, postoperative complications like fever, DVT, wound infection, anemia and maternal outcome were recorded.

Three categories of MAP were defined clinically by operative reports. The exploration was made for term placenta accreta, placenta increta and placenta percreta.

Data was analyzed through SPSS Version 21. In the descriptive analysis, mean and standard deviation Mean \pm SD were expressed on continuous variables like age and parity, while proportions and percentages of categorical variables were calculated. Patients were compared in two groups viz; planned/ scheduled cases (diagnosed antenatal) versus emergency

treatment cases (diagnosed intrapartum). The stratified analysis of maternal age, gestational age, parity & reason for scar (previous surgery like C/ Section, myomectomy, hysterotomy) was done with application of chi-square taking the P value ≤ 0.05 as significant.

RESULTS

There were total 68 cases of MAP sorted out from the scrutiny of records of 10,000 cases. This shows that the annual incidence of MAP was 0.68 % in this center. The mean \pm SD age of all patients was 28.14 ± 4.57 years ranging from 19 to 38 years. The mean \pm SD gestational age was 31.66 ± 3.33 weeks ranging from 28 to 36 weeks. The number of children ranged from 01 to 05 with mean \pm SD parity of 2.22 ± 1.06 . The mean \pm SD duration of hospital stay was 8.07 ± 5.28 days and mean \pm SD duration of ICU stay was 1.23 ± 0.78 days (**Table I**).

When compared patients in two groups viz; antenatal (planned cases) and intrapartum (emergency case), it was found that most of patients had presented in emergency 57 (83.6%) Figure I shows that more patients presenting on OPD basis (antenatal group) were of younger age than the emergency cases and this was also reflected from the mean age \pm SD age difference Figure II. The most common type of MAP in all cases were Placenta Accreta 30 (44.11%) and Placenta Percreta 29 (42.64%). However; in emergency group the cases of placenta Percreta 27 (47.4%) (P value = 0.131; Table II) more frequent than other two types of MAP.

Table II compares the two groups and shows that only 1/3 of cases in antenatal group were booked and in emergency group only 6 (10%) were booked cases (P value = 0.049). All of antenatal group cases belonged to urban areas while in emergency mostly were referred from rural areas (P value = 0.001). It was also significantly noted that none of women in antenatal group had >2 previous Lower Segment Caesarean Section (LSCS) while on the other hand 21.1% and 15.8% women in emergency group had history of 3 and >3 previous LSCS respectively (P value = 0.005). (Table II)

It was noted that in antenatal (planned cases) group mean blood loss was less compared to emergency group (2.2 ± 0.3 versus 2.7 ± 0.7 ; P value = 0.001). Simultaneously, the average need of blood products (RBC, FFP) and mean length of hospital stay was lower among antenatal group. (Table III) Further; incidence of maternal death, surgical and post-operative complications (wound infection, renal failure and anemia) were much more common among intrapartum (emergency cases). (Table III)

TABLE I: BASIC DESCRIPTIVE STATISTICS OF ALL MAP PATIENTS

Characteristic	Minimum	Maximum	Mean	Std. Deviation
Age of patient	19	38	28.14	4.57
Parity	01	05	2.22	1.06
Gestational age in weeks	23	36	31.66	3.33
Duration of hospital stay (Days)	01	18	8.07	5.28
Duration in ICU stay (Days)	01	04	1.23	0.78

FIGURE I: AGE WISE COMPARISON OF MAP

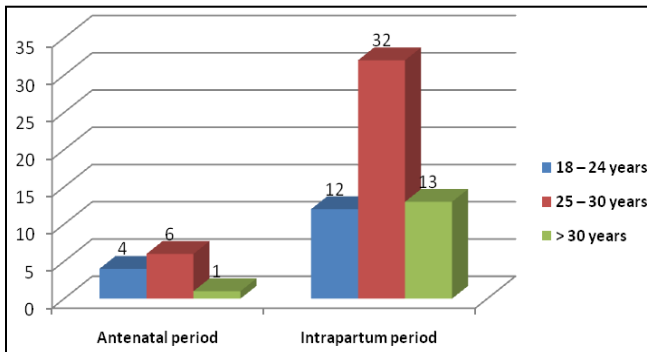


TABLE II: COMPARISON OF REPRODUCTIVE RISK FACTORS FOR MAP IN ANTENATAL AND IN TRAPARTUM PERIOD

Variables	Antenatal period (Planned cases) n (%)	Intrapartum period (Emergency cases) n (%)	P value
Age (years ±SD)	26.0 ± 4.2	28.6 ± 5.0	0.111
Gestational age (weeks ± SD)	31.7 ± 4.1	31.5 ± 3.6	0.880
Parity± SD	1.9 (0.3)	2.4 (1.1)	0.012
Parity groups			
One	1 (9.1)	14 (24.6)	0.002
Two	10 (90.9)	21 (36.8)	
>Two	0 (0)	22 (38.6)	
Booking status			
Un-booked	7 (63.6)	51 (89.5)	0.049
Booked	4 (36.4)	6 (10.5)	
Place of residence			
Urban	11 (100.0)	7 (12.3)	<0.001
Rural	0 (0)	50 (87.7)	
Number of previous LSCS			
One	1 (9.1)	18 (31.6)	0.005
Two	10 (90.9)	18 (31.6)	
Three	0 (0)	12 (21.1)	
More than Three	0 (0)	9 (15.8)	
Clinical diagnosis at delivery			
Placenta Accreta	8 (72.7)	22 (38.6)	0.133
Placenta Increta	1 (9.1)	8 (14.0)	
Placenta Percreta	2 (18.2)	27 (47.4)	

SD, standard deviation

FIGURE II: CLINICAL DIAGNOSIS OF TYPES OF MAP

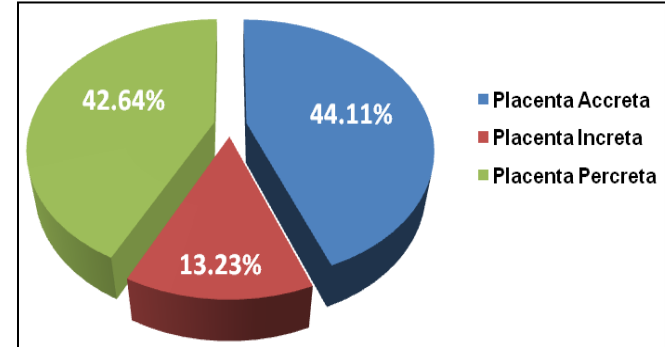


TABLE III: COMPARISON OF COMPLICATIONS DURING ANTENATAL AND INTRAPARTUM PERIOD IN WOMEN WITH MAP

Factors	Antenatal period (Planned cases) n (%)	Intrapartum period (Emergency cases) n (%)	P value
Average blood loss (Mean ± SD liters)	2.2 ± 0.3	2.7 ± 0.7	0.001
Average blood products (mean±SD)			
RBC	3.3 ± 0.5	3.8 ± 0.9	0.069
FFP	4.0 ± 1.1	3.9 ± 1.0	0.870
ICU transfer	5 (45.5%)	25 (43.9%)	0.589
Length of hospital stay in days (mean±SD)	6.8 ± 3.7	8.4 ± 5.4	0.244
Maternal death	2 (18.2%)	15 (26.3%)	0.443
Surgical complications (n=16)			
Urinary tract injury	1 (100.0%)	10 (66.7%)	
Haemoatoma	0 (0%)	1 (6.7%)	NA
Relaparotomy	0 (0%)	4 (26.7%)	
Post-operative complications			
Fever	1 (9.1%)	5 (8.8%)	
Wound infection	1 (9.1%)	6 (10.5%)	NA
Renal failure	-	2 (3.5%)	
Anemia	-	6 (10.5%)	

DISCUSSION

The current study was conducted to measure the magnitude of burden of morbidly adherent placenta and its outcome after emergency or planned surgery. The results show that case rate of MAP was 0.68% among all admitted pregnancies. Although the rate is not high in this population, yet the condition ended up with higher rates of maternal morbidity and mortality. Maternal deaths were 18.2% and 26.3% among planned and emergency cases of MAP. Overall rate of MAP documented ranges from <1% to 2.45% in different regions of the world^{13,4-7}.

An Irish study reported a doubling of rate of MAP in previous caesarean section population¹⁴. This MAP rate is not very high in this population.

The most common type of MAP overall and in antenatal cases in this study was placenta accreta which was 44.11%, however emergency cases had more cases of placenta percreta (47.4%). According to other studies; the frequency of placenta accreta was up to 75%, placenta increta 17% & that of placenta percreta was reported up to 7%^{15,16}. Former literature was more apparent for placenta percreta as far as clinical diagnosis is concerned (P value = 0.013)¹⁷⁻²⁰. Having scar of myomectomy or hysterotomy had more affinity for all three types of MAP. Wu S and coworkers²¹ has reported that 9.8% women who had the history of previous scar in the uterus had suffered from MAP. In the current study, we include only cases having history of scar due LSCS.

In the current study, overall mean age of patients was approximately 28 years. Majority of patients were of age range from 25-30 years in antenatal/ planned treatment group and Intra-partum/ emergency treatment group both. More of the younger age patients had presented in antenatal period while there were more elder age patients in emergency treatment group. With the increasing age, the frequency of Placenta accreta increases while there is rise followed by decrease in the rates of placenta increta and placenta percreta. The likely reason is that aging makes the uterus more flexible and lax which may lead to occurrence placenta accrete. Further elder age women are more likely to be more parous than the younger age women. This fact was also visualized from another finding that women having 1-2 children had low incidence of Placenta accreta and Placenta Percreta.

The antenatal group bled less, needed less blood infusion, had short hospital/ ICU stay and there were fewer surgical/ post-op complications in them. Other studies have also documented the similar picture whereby planned cases of MAP and those diagnosed in antenatal period were managed more favorably and had better outcomes than the emergency presenters. As gestational age increases, individuals with MAP have an increased risk of emergency bleeding.

However; in the current study, there was not any significant difference of gestational age among the emergency and planned cases (P value = 0.880). It is a common finding that women with MAP start bleeding before 37 weeks and urgently need preterm delivery. This study found similar trend as mean gestational age at delivery in all cases was 31.66 weeks.

Rural women as noted in this study are usually prone to MAP and its complication and the reason to this is that they may not recall any intervention in past like myomectomy or D&C. Therefore; screening should be focused to identify suspected MAP among rural women. Finally; this study recommends screening of all pregnant women through Doppler U/S for MAP in order to prevent the maternal & neonatal morbidity and mortality.

There were certain limitations in this study. It was retrospective study with secondary data analysis. The results do not represent the entire population. Further; the outcome of pregnancy was not assessed in this study. Site and size of scar was also not measured which could have come up with more variability of presentations. Yet, the study with all its limitations has highlighted very important aspect of pregnant women who present with scar in uterus. We thus recommend that in future prospective studies with larger samples should be conducted to understand the dynamics of MAP in details.

CONCLUSION

Morbidly adherent placenta is relatively less common condition in our population. Placenta Accreta and Percreta are the frequent types of MAP. Middle age women are more affected. Antenatal diagnosis and planned case management leads to lesser maternal morbidity and mortality compared to intra-partum diagnosis and emergency management. Unbooked case, higher parity, >2 previous CS and rural cases present mostly in emergency. Early recognition of MAP by taking thorough history, US Doppler should be key focus of antenatal care among all women.

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AUTHOR AFFILIATION:

Dr. Nusrat Nisar (*Corresponding Author*)

Associate Professor
Department of OBS & GYNE
Liaquat University of Medical Health Sciences
(LUMHS), Jamshoro, Sindh-Pakistan.
Email: nushopk2001@hotmail.com

Dr. Saima Ghaffar

Senior Registrar
Department of OBS & GYNE
LUMHS, Jamshoro, Sindh-Pakistan.

Dr. Farhat Jokhio

Assistant Professor
Department of Psychology
University of Sindh Jamshoro, Sindh-Pakistan.