Review of Level III Maternal Care in The Patients of Placenta Previa and Its Optimal Outcome: One-Year Experience at Combined Military Hospital Lahore

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ABSTRACT

Objective: To review the cases of placenta previa with its optimal outcome, presented at Combined Military Hospital Lahore.
Study Design: Cross sectional study.
Place and Duration of Study: Department of Obstetrics and Gynaecology, Combined Military Hospital, Lahore Pakistan, from Jul 2018 to Jun 2019.
Methodology: Total forty-six women, with singleton pregnancy and cephalic presentation were included. Women with placental abruption, having some local cause of antepartum haemorrhage, bleeding disorders, with severe medical disorder were excluded. Doppler ultrasound and MRI pelvis were performed to confirm the placenta previa and morbid adhered placenta (MAP).
Results: Mean age of patients was 31.6 ± 3.5 years. Risk factors like previous scar and curettage was observed in 41 (89.1%) and 15(32.6%) patients respectively. On antenatal examination, placenta previa was diagnosed in 38 patients. Obstetrical hysterectomy was performed in 30 (65.2%) cases whereas lower segment caesarean was performed in 16 (34.7%) cases.
Conclusion: Placenta previa is leading cause of maternal morbidity and mortality. Tremendous increase in the cesarean section rate is responsible for increased frequency of abnormally implanted placenta and such cases should be managed at tertiary care hospital to get optimal outcome.

Keywords: Doppler ultrasound, Hysterectomy, Magnetic radio imaging, Maternal outcome, Placenta.

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INTRODUCTION

Placenta previa is the condition in which placenta lies in the lower uterine segment partially or completely covering the internal os.[1] There are three types of placenta previa; complete, partial and low lying.[2] It affects 1 in 200 pregnancies in the third trimester. It is further divided in three categories on basis of its adhesion to uterus and surrounding structures; placenta accrete, placenta increta and placenta percreta.[3,4]

The strongest risk factor for placenta accrete is previous scar.[1,5] Risk of placenta accrete increases from 0.3% with one cesarean to 6.74% with previous five cesarean section.[6] Placenta accrete is more observed in patients with uterine surgery, miscarriage, uterine injuries and increased maternal age.[7]

Level III maternal care is the provision of basic and speciality care along with care of more complex maternal medical conditions, obstetrical complications and fetal conditions. Patients who need this care are cases of placenta previa, morbid adhered placenta, ARDS and severe pre-eclampsia.[8,9]

The purpose of study was to highlight the concept of safe management of high risk patients with placenta previa and MAP(morbid adhered placenta) by involving the MDT (multidisciplinary team) and provision of level III maternal care so that morbidity and mortality related to MAP can be reduced .

METHODOLOGY

This cross sectional study was conducted at the Department of Gynaecology and Obstetric, Combined Military Hospital Lahore from July 2018 to June 2019. Study approval from Hospital Ethical Committee was taken (139/2019).

Inclusion Criteria: Pregnant women, with singleton pregnancy and cephalic presentation were included in the study.

Exclusion Criteria: Women with placental abruption, having some local cause of antepartum haemorrhage, bleeding disorders, with severe medical disorder were excluded.

Total 46 patients were included in this study. Non-probability convenient sampling technique was

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used. All the patients were booked and admitted after the written informed consent. History regarding, parity, obstetrical history and risk factors was taken. Patients were asked about gestational age, fetal movements and vaginal bleeding. All the women were examined for blood pressure, pulse, pallor and body mass index. Detail obstetrical examination including fundal height, fetal heart rate, lie and presentation was carried out. Baseline investigations including blood complete picture, blood group, Rhesus factor, urine routine examination, hepatitis B and C screening were also carried out. Doppler ultrasound and MRI pelvis were performed to confirm the placenta previa and MAP.

Counselling of family was main step prior to the surgery. Patients at time of admission were counselled about complications associated with placenta accrete. Patients were also informed about provision of level-III maternal care. Paediatrician, anaesthetist and ICU staff were informed. Blood products were arranged and high-risk informed written consent was taken.

All the surgical procedures including cesarean section and obstetric hysterectomy with bladder repair and internal iliac ligation were conducted under general anaesthesia. CVP line was maintained along with ART line for continuous monitoring.

Patients were shifted to ICU after surgery for continuous provision of level III maternal care and post-operative monitoring of vitals, bleeding per vagina and fluid intake output.

Information regarding fetal and maternal outcomes, complication and risk factors were documented in the proforma. Data was analysed by using Statistical Package for Social Sciences (SPSS) version 23.00. Quantitative variables were summarised as frequency and percentages.

RESULTS

A total of 46 patients were included in the study. Mean age of patients was 31.6 ± 3.5 years. Most common risk factor was previous scar seen in 41 cases. (Table-I) 30 (65.2%) patients underwent obstetric hysterectomy and PPH was seen in 7 (23.3%) patients and LSCS were performed in 16 (34.7%) patients.

In 38 patients, diagnosis was confirmed by both ultrasound and MRI while in the remaining 8 patients, placenta previa and MAP were seen on the ultrasound prior to surgery.

All the patients were admitted in ICU. Out of 30 (65.2%) patients had obstetric hysterectomy as lifesaving procedure. In two patients placental removal was attempted however, patients ended up into massive haemorrhage and obstetric hysterectomy was performed. All the patient were transfused with more than 6 transfusions. Most common complication was bladder injury secondary to adhesiolysis and dissection during surgery including bladder rent, tear that was observed in 12 (26%) patients. In these patients, catheter was retained for 10 days to facilitate the bladder healing process. Supra pubic catheter was also inserted in 2 cases. In these cases, post operative period was smooth and urinary complication/fistula was not observed. Bladder integrity was also confirmed by CT-Cystogram done on 10th day before the removal of catheter.

Table-I: Maternal parameters measured in the study.

Parameters	n (%)
Age	
Less than 30 years	14 (30.4%)
More than 30 years	32 (69.5%)
Parity	
1	6 (13.1%)
2 or more	40 (86.9%)
Risk factors	
Previous scar	41 (89.1%)
Curettage	15 (32.6%)
None	5 (10.8%)
Antenatally diagnosed	
Yes	38 (82.6%)
No	8 (17.3%)

Minor blood transfusion reaction like fever, rash were also observed in 11 (23.9%) patients, after massive blood transfusions (Table-II).

Table-II: Complications in placenta previa and morbid adherent placenta.

Complications	n%
Bladder injury	12 (26%)
Blood transfusion reaction	11 (23.9%)
Wound infection	2 (4.3%)
Postoperative fever	2 (4.3%)

Wound infection and post-operative fever was noted in 2 patients. 2 (4.3%) patient underwent re-exploration due to intra-peritoneal bleed on the first post-operative day (Table-III). When level three maternal care was provided to patients, outcome was better due to involvement of MDT and availability of ICU, NICU and blood products.

Table-III: Surgical outcomes.

Surgical outcomes	n (%)
Obstetric hysterectomy	30 (65.2%)
Cesarean	16 (34.7%)
Postpartum hemorrhage	7 (15.2%)

DISCUSSION

Pregnancy with placenta previa and MAP is high-risk pregnancy.[10] Significant blood loss that occurs during the delivery secondary to this abnormal placentation, is the main cause of maternal morbidity and mortality. Therefore, it needs proper antenatal diagnosis.[11] Delivery should be conducted with provision of MDT and level III maternal care.[12]

In this study we used ultrasound and MRI to diagnose patients in antenatal period, it was later confirmed after the surgery.

A prospective study on 300 cases was published in 2013 showed that MRI was gold standard diagnostic tool to identify the degree of invasion with 75-100% sensitivity in identifying MAP.[13] Another study by Warshak *et al*, also showed MRI as gold standard showing 88% specificity and 100% sensitivity.[11]

In our study, 41 patients had previous scar as main risk factor for MAP. A study conducted by Zlotin *et al*, proved that one scar doubles the risk of abnormal placentation in subsequent pregnancy.[12] Bowman *et al*, in 2014 emphasized to keep high index of suspicion in patients with previous scar for future placenta previa and MAP.[14]

In our study 2 patients had postoperative fever and two had wound infection. Blood transfusion reaction was observed in 11 patients. A study conducted by Tikannem *et al*, reported that prolonged hospital stay, obstetric hysterectomy and blood loss were main reason for maternal morbidity and mortality.[15]

In our study, all the patients were managed under provision of MDT, level III maternal care. Previous studies showed the importance of liaison with MDT and Level III maternal care to improve maternal outcome.[16,17]

A morbidity of 60% and mortality of 7% was reported in a previous study.[18] There should be detailed and well informed counselling regarding surgical procedure and postoperative complications like prolonged ICU stay , bladder , bowel injuries and need of massive blood transfusions. Patients and their attendants should be informed about the associated high morbidity andmortality with PAS.[19]

Placenta previa is one of the leading cause of maternal morbidity and mortality. Our study showed that the high rate of caesarean section was associated with increased frequency of abnormally implanted placenta. Obstetric hysterectomy was carried out on 30 patients and MAP was leading cause of PPH. Proper antenatal assessment with definite diagnosis of placenta accrete, tertiary care setup and provision of level III maternal care (includes, availability of ICU, MDT and blood product) led to decrease the maternal morbidity and mortality. Every hospital should make their own protocol and follow them.

CONCLUSION

Placenta previa is leading cause of maternal morbidity and mortality. Tremendous increase in the cesarean section rate is responsible for increased frequency of abnormally implanted placenta and such cases should be managed at tertiary care hospital to get optimal outcome.

Conflict of Interest: None.

Authors' Contribution

RS: Direct contribution, VA:, CAA: Intellectual contribution.

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