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Maternal Factors and Complications Associated with Morbidly Adherent Placenta: An Experience at a Tertiary Care Hospital in Pakistan

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ABSTRACT

Objective: To identify the risk factors predisposing to the Morbidly Adherent Placenta and to evaluate maternal outcomes in those patients.

Study Design: Cross-sectional study.

Place and Duration of Study: Department of Obstetrics & Gynaecology, Combined Military Hospital, Lahore Pakistan, from Jan to Dec 2021.

Methodology: A total of 18 females with a clinical diagnosis of the morbidly adherent placenta, irrespective of age and several previous scars, having singleton foetuses with more than 26 weeks gestational age, were included in the study. Patients' particulars including demographic data, gestational age, number of previous uterine scars, type of placenta, treatment option and the outcome, were collected.

Results: The frequency of morbidly adherent placenta was 4.06 per 1000 deliveries. The mean age of patients was 31.06±2.48 years, whereas the mean gestational age was 35.5±1.15 weeks. The mean parity was 3.5±0.71. Out of 18 patients with morbidly adherent placenta, 3(16.7%) had four caesarean scars, 8(44.4%) had three previous caesarean scars, and 7(38.9%) had two previous caesarean scars. Associated placenta previa was present in 14(77.8%) patients. Hysterectomy was done in 15(83.3%) patients, while in 3(16.6%) patients uterus was preserved. The bladder was repaired in 12(66.6%) patients with post-op catheterisation for three weeks. There was no maternal mortality.

Conclusion: Previous caesarean scar and placenta previa are major risk factors for the morbidly adherent placenta. Well-established antenatal diagnosis with timely surgical intervention can prevent long-term complications.

Keywords: Caesarean section, Placenta previa, Placenta accreta, Placenta increta, Placenta percreta.

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INTRODUCTION

Over the last two decades, a marked rise in the incidence of Morbidly Adherent Placenta (MAP) has been observed. This has been attributed to the escalation in associated risk factors in developing and developed countries. The steady rise in caesarean deliveries is one of the significant risk factors for MAP.[1] In the preceding 50 years, a tenfold rise in caesarean deliveries has been witnessed, paralleling the incidence of abnormal placentation.[2] The incidence of MAP has increased from 1/2500 to 1/110 deliveries in the last few years.[3]

MAP is commonly associated with placenta previa in women having previous caesarean scars.[4] Other risk factors for MAP include uterine procedures (like dilation, curettage, and myomectomy) & increasing maternal age.[5] The scarred uterus is therefore considered a chief risk factor, almost doubling the incidence of MAP.[6] There is a 5% risk of having MAP in patients with placenta previa with a previous uterine scar, 24% in patients with previous surgery and 67% in patients having previous four caesarean deliveries.[7] Increased incidence of MAP is associated with rising maternal and fetal morbidity and mortality. Documented maternal complications (7-10% cases), including post-partum haemorrhage, coagulopathies like disseminated intravascular coagulation (DIC), acute respiratory distress syndrome, and uterine injury in patients, may land ultimately in hysterectomy.[8]

A multidisciplinary approach is required for managing cases of MAP. Prenatal diagnosis is associated with a good prognosis reducing morbidity to about 50%. However, only half of the cases can be diagnosed prenatally. Different modalities are used, with ultrasound and colour Doppler being the primary diagnosis.[9] Magnetic Resonance Imaging (MRI) having comparable accuracy to USG should be reserved to

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determine the degree of invasion or in cases where USG is inconclusive. Treatment options include a caesarean hysterectomy and a conservative approach (uterine sparing), followed by medical treatment with methotrexate, internal iliac artery ligation, uterine artery embolisation or hysteroscopic loop resection.[10] However, management options vary according to patient and institution protocols. Although much work has been done on MAP, there is still a need to generate local data to rationalise our approach towards patients. Keeping this in mind, we conducted this study to analyse the frequency, associated risk factors and maternal outcomes in our setup.

METHODOLOGY

The cross-sectional study was conducted at Obstetrics and Gynaecology Department, Combined Military Hospital, Lahore Pakistan, from January to December 2021. Ethical approval was taken from Ethical Review Committee (No367/2022) before the start of the study.

Inclusion Criteria: All pregnant females having singleton fetuses with >26 weeks gestational age who had diagnosed MAP on ultrasound, colour Doppler or MRI were included in the study.

Exclusion Criteria: Patients with placental abruption were excluded from the study.

Since the incidence of MAP is extremely low, all patients reported with the condition were included in the study. Non-probability convenience sampling technique was followed. Informed consent was taken from all patients. A pre-designed proforma was used to collect patient data. Data including patient's demographic data, gestational age, number of previous uterine scars, history of any intrauterine procedure, type of placenta, treatment option and the outcome was collected. Optimisation of haemoglobin was done for all patients preoperatively. Patients with percreta were managed with internal iliac artery ligation after the delivery of the baby, while balloon tamponade was done for other types of MAP.

Statistical Package for Social Sciences (SPSS) version 24.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages.

RESULTS

Of 4430 deliveries done at Obstetrics and Gynecology department, Combined Military Hospital, Lahore during the study period, 18 patients were diagnosed with MAP giving rise to a frequency of 4.06 cases of MAP per 1000 deliveries. The mean age of patients was 31.06±2.48 years with an age range of 27 to 39 years, whereas the mean gestational age was 35.5±1.15 weeks with a range of 34 to 37 weeks. The mean parity was 3.5±0.71, while there was no primigravida. Further, it was found that 11(61.1%) out of 18 patients having MAP had placenta accreta, 5(27.8%) had placenta percreta, and 2(11.1%) had placenta increta. Associated placenta previa was present in 14 (77.8%) patients (Table). Out of 18 patients with MAP, 3(16.7%) had four previous caesarean scars, 8(44.4%) had three previous caesarean scars, and 7(38.9%) had two previous caesarean scars (Figure).

Table: Descriptive Statistics of the Patients (n=18)

Characteristics	values
Age in years (Mean±SD)	31.06±2.48
Gestational Age in weeks	
(Mean±SD)	35.5±1.15
Parity (Mean±SD)	3.5±0.71
Type of placentation n(%)	
Placenta Accreta	11(61.1%)
Placenta Percreta	5(27.8%)
Placenta Increta	2(11.1%)
Associated Placenta Previa n(%)	14(77.8%)

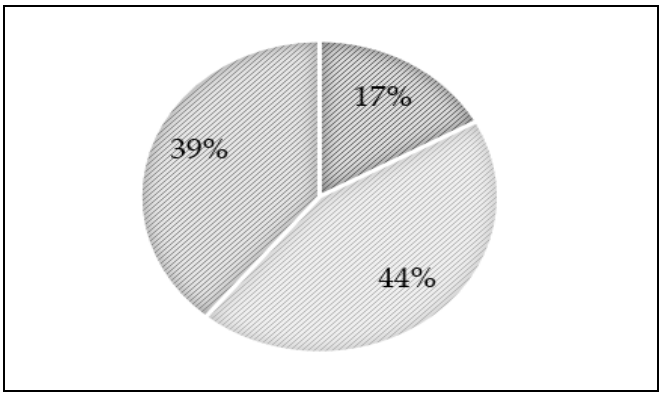

Figure: Number of Previous Scars (3 had four Previous Caesarean scars, 8 Had Three Previous Caesarean Scars, and 7 Had Two Previous Caesarean Scars)

Out of 18 patients, a hysterectomy was done in 15(83.3%) patients. In contrast, in 3(16.7%) uterus was preserved by removing the uterine segment with the morbidly adherent placenta and securing hemostasis by applying spiral cervical sutures. The bladder was repaired in 12(66.7%) patients with post-op catheterisation for three weeks. The average perioperative blood transfusion was three units of packed cells in patients with placenta accrete and increta, four units in patients with placenta percreta, and three units of fresh frozen

plasma (FFP). No post-operative transfusions were given. None of the patients suffered from DIC. There was no maternal mortality.

DISCUSSION

The worldwide incidence of MAP varies among different populations and centres.[11] It is attributed to factors like level of awareness, access to health facilities and institutional protocols.[12] In our studied population, the frequency was 4.06 cases per 1000 deliveries. Combined Military Hospital Lahore, a tertiary care hospital, receives a significant burden of complicated obstetric cases from surrounding peripheral centres causing such a high-frequency rate. Different studies have documented different values. In a local study, Sultana *et al.*[13] came up with 3.63 MAP cases per 1000 deliveries, while Balit *et al*.[14] described an incidence of 1.36 per 1000 deliveries.

The mean gestational age during caesarean section was 35.5±1.15 weeks, while the mean parity was 3.5±0.71. Mean gestational age varies slightly in different studies. In a study by Rac *et al.* the mean gestational age was 33.3±2.8 weeks, while Desai *et al.* reported a mean gestational age of 32.1 weeks.[15,3] The literature has reported that increasing parity increases the chances of having MAP.

Out of 18 patients having MAP, 16.7% had four previous caesarean scars, 44.4% had three previous caesarean deliveries, and 38.9% had two previous caesarean scars. In a previous study, 50% had one previous scar, 30% had two, and 10% had three previous scars.[16] Because of associated morbidity and mortality, managing abnormal placentation even today poses a substantial challenge to obstetricians, with an average of 60% maternal morbidity and 7% mortality.[17] Successful management involves antenatal diagnosis with a multidisciplinary approach. No maternal mortality was found in our study. In our study, 15 patients were managed with obstetric hysterectomy, a conventional approach that has reduced maternal mortality to almost 2% worldwide.[18] However, clinicians may prefer to conserve the uterus, especially in cases where the couple wants to complete their family.[19] In such cases, a systemic methotrexate trial is given after surgery.[20] However, methotrexate was not used in any of the patients in our study, and the uterus was preserved by surgical technique only. In our study, the bladder was injured in 12 patients due to placental invasion of the bladder, followed by bladder repair and post-op catheterisation for about three weeks. This is comparable to a study in which urologic injuries were found in 28.3% of cases.[21] Haemoglobin optimisation was done in all patients in our study to reduce perioperative blood transfusion. A mean transfusion of 3 packed cells was seen in our study.

In a low-resource country like Pakistan, all antenatal patients are not privileged to access healthcare facilities and are not diagnosed antenatally. These patients are at the most significant risk of landing in an emergency and suffering from MAP-associated complications. It is now time to revolutionise our modern practice per international benchmarks, which will evolve our system and benefit patients.

CONCLUSION

Previous caesarean section and placenta previa are major risk factors for the morbidly adherent placenta. It is time to rationalise our practice, educate our patients and provide them access to healthcare facilities. A well-established antenatal diagnosis with timely surgical intervention is crucial in reducing morbidity and mortality in patients with morbidly adherent placenta.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

SR & HT: Conception, study design, drafting the manuscript, approval of the final version to be published.

ST & QN: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

NM & AAK: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Yu Y, Lin F, Dong W, Li H, Zhang X, Chen C. The effectiveness of financial intervention strategies for reducing caesarean section rates: a systematic review. BMC Public Health 2019; 19: 1080. https://doi:10.1186/s12889-019-7265-4.
2. Vora K, Chandana P, Patel A, Jain M. A prospective study of 20 cases of maternal outcome in morbidly adherent placenta in tertiary care hospital. Int J Reprod Contracept Obstet Gynecol 2017; 6(2): 571-574. https://doi:10.18203/2320-1770.ijrcog2017.
3. Desai R, Jodha B, Garg R. Morbidly adherent placenta and it's maternal and fetal outcome. Int J Reprod Contracept Obstet Gynecol 2017; 6(5): 1890-1893. https://doi:10.18203/0122320-1770.ijrcog20171943.
4. Tahir N, Adil M, Afzal B, Kiani S, Kiani R, Khan S. Definitive management of morbidly adherent placenta: analysis of maternal outcomes. Pak Armed Forces Med J 2018; 68(5): 1156-1160.
5. Cheng KK, Lee MM. Rising incidence of morbidly adherent placenta and its association with previous caesarean section: a 15-year analysis in a tertiary hospital in Hong Kong. Hong Kong Med J 2015; 21(6): 511-517. https://doi: 10.12809/hkmj154599.

6. Calì G, Giambanco L, Puccio G, Forlani F. Morbidly adherent placenta: evaluation of ultrasound diagnostic criteria and differentiation of placenta accreta from percreta. Ultrasound Obstet Gynecol 2013; 41(4): 406-412. https://doi: 10.1002/uog.12385.
7. Zhang N, Lou WH, Zhang XB, Fu JN, Chen YY, Zhuang ZG, et al. Vascular complications following prophylactic balloon occlusion of the internal iliac arteries resolved by successful interventional thrombolysis in a patient with morbidly adherent placenta. J Zhejiang Univ Sci B 2017; 18(3): 272-276. https://doi: 10.1631/jzus.B1600315.
8. Panaiotova J, Tokunaka M, Krajewska K. Screening for morbidly adherent placenta in early pregnancy. Ultrasound Obstet Gynecol 2019; 53(1): 101-106. https:// doi: 10.1002/uog.20104.
9. Jalil S, Nausheen S, Akhter AZ. Reducing morbidity and mortality in morbidly adherent placenta: an experience. Pak J Surg 2011; 27(1): 59-63.
10. Shetty MK, Dryden DK. Morbidly Adherent Placenta: Ultrasound Assessment and Supplemental Role of Magnetic Resonance Imaging. Semin Ultrasound CT MR 2015; 36(4): 324-331. https://doi: 10.1053/j.sult.2015.05.007.
11. Bennett MJ, Sen RC. 'Conservative' management of placenta praevia percreta: report of two cases and discussion of current management options. Aust N Z J Obstet Gynaecol 2003; 43(3): 249-251. https://doi: 10.1046/j.0004-8666.2003.00067.x.
12. Ibrahim MA, Liu A, Dalpiaz A, Schwamb R, Warren K, Khan SA, et al. Urological Manifestations of Placenta Percreta. Curr Urol 2015; 8(2): 57-65. https://doi: 10.1159/000365691.
13. Sultana N, Mohyuddin S, Jabbar T. Management and maternal outcome in morbidly adherent placenta. J Ayub Med Coll Abbottabad 2011; 23(2): 14-18.
14. Bailit JL, Grobman WA, Rice MM, Reddy UM, Wapner RJ, Varner MW, et al. Eunice kennedy shriver national institute of child health and human development (NICHD) Maternal-Fetal Medicine Units (MFMU) Network. Morbidly adherent placenta treatments and outcomes. Obstet Gynecol 2015; 125(3): 683-689. https://doi: 10.1097/AOG.0000000000000680.
15. Rac MWF, Wells CE, Twickler DM, Moschos E, McIntire DD, Dashe JS, et al. Placenta accreta and vaginal bleeding according to gestational age at delivery. Obstet Gynecol 2015; 125(4): 808-813. https://doi: 10.1097/AOG.0000000000000674.
16. Pekar-Zlotin M, Melcer Y, Levinsohn-Tavor O, Tovbin J, Vaknin Z, Maymon R. Cesarean scar pregnancy and morbidly adherent placenta: different or similar?. Isr Med Assoc J 2017; 19(3):168.
17. Paneerselvam A, Sundaram A. Fetomaternal outcome in morbidly adherent placenta in a tertiary referral hospital. Int J Reprod Contracep Obstet Gynecol 2017; 7(11): 4541. https://doi:10.18203/2320-1770.ijrcog20184504
18. To WW, Leung WC. Placenta previa and previous cesarean section. Int J Gynaecol Obstet. 1995; 51(1): 25-31. https://doi: 10.1016/0020-7292(95)80004-v.
19. Chaudhari HK, Shah PK, D'Souza N. Morbidly Adherent Placenta: Its Management and Maternal and Perinatal Outcome. J Obstet Gynaecol India 2017; 67(1): 42-47. https://doi: 10.1007/s13224-016-0923-x.
20. Eller AG, Porter TF, Soisson P, Silver RM. Optimal management strategies for placenta accreta. BJOG 2009; 116(5): 648-654. https://doi: 10.1111/j.1471-0528.2008.02037.x.
21. Shabab U, Naqvi Z. Maternal factors and complications associated with morbidly adherent placenta. J Surg Pak 2017; 22(3): 105-108. https://doi:org/10.21699/jsp.22.3.9.

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