Original Article

Frequency of Morbidly Adherent Placenta in Previous Scar: An Experience in a Tertiary Care Hospital

Shahida Sultan[1], Syeda Sitwat Fatima[1] and Amna Fareed[2]

ABSTRACT

Objective: The purpose of the present study was to determine the prevalence of different morbidly adherent placenta in previous scar.

Study Design: A retrospective cohort study

Place and Duration of Study: This study was conducted at the Labour Room of Obstetrics & Gynecology Department at Lady Reading Hospital, Peshawar from January 2022 to December 2022.

Materials and Methods: All the singleton pregnancy with gestational age >26 weeks, previous history of caesarean sections, myomectomy, hystrotomy, and placenta previa were included. Types of morbidly adherent placenta, period of gestation, age, duration of scarred uterus, frequency of previous scars, parity, total blood loss, complications, and types of procedure done were recorded for each individual. SPSS version 27 was used for data analysis.

Results: The overall mean age 28.62±5.72years. Out of 231 patients, the incidence of morbidly adherent placenta (MAP) was 12.1% (n=28). Of the 28 cases of MAP, the incidence of Placenta accreta, placenta increta, and placenta percreta 15 (6.5%), 7 (3%), and 6 (2.6%) respectively. Age-wise distribution of patients were as follows: 2 (0.9%) in 20-25 years, 19 (8.2%) in30-35 years, and 7 (3%) 35-40 years. Among total MAP cases, the incidence of single, double, thrice, and fourth cesarean section was 4 (1.7%), 6 (2.6%), 8 (3.5%),and 10 (4.3%) respectively. Majority of the females 5.6% (n=13) had parity 4followed by parity 3 in 3.5% (n=8), parity 2 in 1.7% (n=4), and parity 5 in 1.3% (n=3) cases. The number of cases with blood loss >2000 ml and >3000 ml were 10 (4.3%) and 18 (7.8%) respectively. About 21 (9.1%) patients were shifted to ICU. Massive blood transfusion>10 units of packed cells were major complications found in 17 (7.4%) cases followed by bladder injury 13 (5.6%), DISC 6 (2.6%), reopening 6 (2.6%), and acute renal injury in 4 (1.7%).

Conclusion: The present study reported that the frequency of morbidly adherent placenta was 12.1% in females with previous scars. MAP is a very rare condition having ten times more frequency in females who had prior history of scar. Placenta accreta was the most prevalent type of MAP due to shorter duration and prior scarred uterus.

Key Words: Morbidly adherent placenta, complications, previous scar

Citation of article: Sultan S. Fatima SS. Fareed A. Frequency of Morbidly Adherent Placenta in Previous Scar: An Experience in a Tertiary Care Hospital. Med Forum 2023;34(7):202-206. doi:10.60110/medforum.340747.

INTRODUCTION

Morbidly adherent placenta (MAP) is a potentially fatal disease that is frequently associated with major postpartum hemorrhage (PPH) and hysterectomy in some cases.[1,2]

[1.] Department of Gyn and Obs, Lady Reading Hospital, Peshawar.
[2.] Department of Gyn and Obs, Muhammad Teaching Hospital, Peshawar.

Correspondence: Syeda Sitwat Fatima, Assistant Professor, Gyn Obs Lady Reading Hospital, Peshawar
Contact No: 0333 9301667
Email: smkakakhel@hotmail.com

Received: February, 2023
Accepted: April, 2023
Printed: July, 2023

The syndrome causes significant maternal morbidity and mortality, as well as significant socioeconomic costs due to the necessity for invasive surgical intervention, prolong hospitalization, and ICU admission. According to the most recent statistics given by the Centres for Disease Control and Prevention (CDC), 31.7% of births in the United States were via CS, and 86.7% of women had a previous CS record. The CS rate has risen from 20.7 to 31.7%.MAP in future pregnancy is the most commonly identified outcome of C-section delivery, and additional risk factors include D&C and myomectomy.[3] In general, women can be diagnosed with MAP after 28 weeks of pregnancy.[4] In Pakistan, the incidence of MAP was around 4.74 per 1000 births.[5]

MAP is categorized into three types according on whether the uterine wall is adherent to the inner or outer myometrium: placental accrete, placental increta, and placental percereta.[6] The most common kind of MAP is placental accrete (75%), which may be detected early using colour Doppler ultrasonography and lead to

therapy with methotrexate or caesarean hysterectomy (if the placenta cannot be removed from the uterine wall) [7] MAP has severe morbidities from large blood transfusions, urological damage, and a high risk of infection.[8] A morbidly adherent placenta poses a significant risk to the pregnant woman and her feotus. It might result in massive blood loss, with disastrous consequences. This issue has been on the rise for a variety of causes.[9,10] The effective therapy of a morbidly adherent placenta requires the engagement of a professional team, with a strong emphasis on prenatal diagnosis and preparation for surgical management in skilled hands. For these cases, the most skilled team should be available.[11] In a local investigation, the frequency of morbidly adherent placenta in scarred uterus was determined to be 1.83/1000 births, which was lower than the previous study's reported frequency of 1/274.8 deliveries. 78% of such individuals received hysterectomy. A morbidly adherent placenta was discovered in 6% of instances in a research.[12] Patients frequently complain of stomach pain, shock, and bleeding. Morbidly adherent placenta is a medical emergency that increases the risk of maternal and neonatal morbidity.[13] Colour Doppler Ultrasound has a good sensitivity and specificity for detecting MAP.[14] Methotrexate is a conservative therapeutic option, and if the placenta cannot be removed from the uterine wall, the second choice is caesarean hysterectomy, which can result in severe maternal effects such as hysterectomy, hemorrhage, urinary bladder, ureteric trauma, and D&C.

MATERIALS AND METHODS

This retrospective cohort study was carried out on 231 females admitted in the labour room of Obstetrics & Gynecology Department at Lady Reading Hospital, Peshawar from January 2022 to December 2022. All the singleton pregnancy with gestational age >26 weeks, previous history of caesarean sections, myomectomy, hystrotomy, and placenta previa were enrolled. Patient with prior history of pelvic inflammatory diseases (PID), IUCD insertion, placental abruption, dilatation and curettage, and primi-gravida were excluded. The WHO sample size calculator was used for the calculation of sample size 231 by taking following criteria: Confidence interval 95%, margin of error 3.5%, expected prevalence of MAP 8%.[9] Types of morbidly adherent placenta, period of gestation, age, duration of scarred uterus, frequency of previous scars, parity, total blood loss, complications, and types of procedure done were recorded for each individual. SPSS Version 27 was used to enter and analyze the data. Quantitative variables were such as age, duration scarred uterus, and POG were expressed as mean and standard deviation whereas Qualitative variables were described as frequency and percentages. Post-stratification Chi-square test was done for the analysis of categorical variables with a P value of 0.05 considered significant.

RESULTS

The overall mean age 28.62±5.72years. Out of 231 patients, the incidence of morbidly adherent placenta (MAP) was 12.1% (n=28). Of the 28 cases of MAP, the incidence of Placenta accreta, placenta increta, and placenta percreta 15 (6.5%), 7 (3%), and 6 (2.6%) respectively as depicted in Figure-1. Age-wise distribution of patients were as follows: 2 (0.9%) in 20-25 years, 19 (8.2%) in 30-35 years, and 7 (3%) 35-40 years.

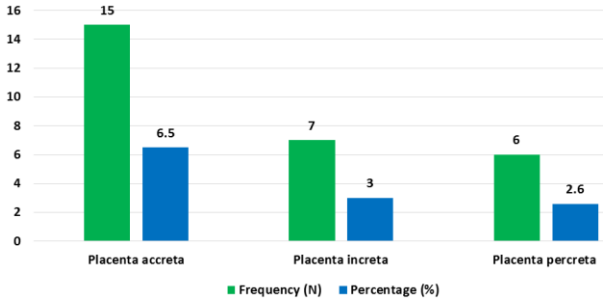

Figure No. 1: Types of MAP (n=28)

Table No. 1: Distribution of patients based on their age and period of gestation (N=28)

Groups	Frequency (N)	Percentage (%)
Age group (years)		
20-25	2	0.9
30-35	19	8.2
35-40	7	3
Period of gestation (weeks)		
26-30	0	0
31-35	6	2.6
36-40	22	9.5
Duration of scarred uterus (years)		
Up to 2	4	1.7
2-3	6	2.6
3-4	16	6.9
4-5	2	0.9

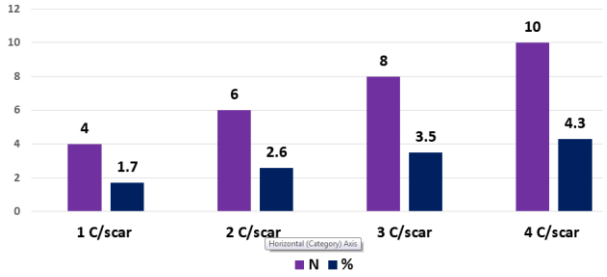

Figure No. 2: Number of scar in MAP patients (N=28)

Table-I represents the distribution of patients based on their age, POG, and duration of scarred uterus. Among total MAP cases, the incidence of single, double, thrice, and fourth cesarean scar was 4 (1.7%), 6 (2.6%), 8 (3.5%),and 10 (4.3%) respectively illustrated in Figure-2. Majority of the females 5.6% (n=13) had parity 4 followed by parity 3 in 3.5% (n=8), parity 2 in 1.7% (n=4), and parity 5 in 1.3% (n=3) cases. Table-II shows the parity and total blood loss of MAP females. The number of cases with blood loss >2000 ml and >3000 ml were 10 (4.3%) and 18 (7.8%). About 21 (9.1%) patients were shifted to ICU.

Table No.2: Parity and total blood loss of MAP female (N=28)

Parameters	Frequency (N)	Percentage (%)
Parity		
2	4	1.7
3	8	3.5
4	13	5.6
5	3	1.3
Total Blood loss (ml)		
>1000	0	0
>2000	10	4.3
>3000	18	7.8

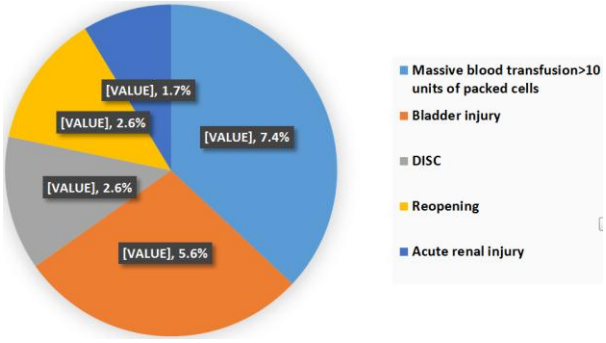

Figure No. 3: Complications associated with MAP (N=28)

Table No. 3: Types of procedure done in MAP female

Procedure	N (%)
Subtotal abdominal hemorrhage (STAH)	15 (6.5)
Total abdominal hysterectomy (TAH)	13 (5.6)
Bladder repair	13 (5.6)
Internal iliac ligation	9 (3.9)
Reopening	6 (2.6)

Massive blood transfusion>10 units of packed cells were major complications found in 17 (7.4%) cases followed by bladder injury 13 (5.6%), DISC 6 (2.6%), reopening 6 (2.6%), and acute renal injury in 4 (1.7%) as depicted in Figure-3. Subtotal abdominal hemorrhage (STAH) was the procedure done in majority of females 6.5% (n=15) followed by Total abdominal hysterectomy (TAH) 5.6% (n=13), bladder repair 5.6% (n=13), internal iliac ligation 3.9% (n=9), and reopening 2.6% (n=6) as shown in Table-3.

DISCUSSION

The present study mainly focused on the incidence of MAP among women with history of previous scar and found that Placenta accrete was the most prevalent type of MAP followed by placenta increta, and placenta percreta. The overall frequency of MAP in scar women was 28 (12.1%). Morbidly adherent placenta is related with significantly increased rates of maternal morbidity and mortality caused by cesarean complications and hemorrhage.[15] According to prior studies, the incidence of MAP is continuously growing due to an increase in the frequency of caesarean sections.[16,17] There is a 12.1% chance of placenta previa in women who have had a previous caesarean procedure, and the risk increases with the number of previous caesarean sections. Other key risk factors mentioned in the literature include a history of curettage and grand multi-parity.[18,19] The incidence of MAP was significantly associated with shorter period of up to two years of scar.

The surgical technique is immediate caesarean hysterectomy, which avoids placental removal during the operation.[20,21] Otherwise, surgical therapy carries a substantial risk of catastrophic hemorrhage due to rich collaterals and profuse neovascularization in turn cause the exceeding of the hemostasis accessible efficiency with existing procedures.[22] According to certain studies, the need of MAP early diagnosis could be effectively done by counselling and action at initial stages, averting uterine loss or complications, while the care of high risk individuals is a particular concern.[23,24] The suspected MAP should be investigated in 2nd trimester with known risk factors related to vacuum evacuation and pregnancy termination.

A placenta that is adhered to the prior scar from a caesarean operation is a risky condition with disastrous consequences. It has a significant impact on the mother because of its link with sequels such as hemorrhage during birth and thereafter.[25] Keeping a high index of suspicion for morbidly attached placentas can help save a mother's life. This aids in the diagnosis of the illness by collecting a medical history and doing an ultrasound. Grey scale ultrasonography and colour Doppler examination are both quite reliable in predicting placenta accreta sonographic patterns.

Uterine operations, prior caesarean sections, IVF pregnancy, and rising mother age are all risk factors for poor placental adherence. Avoiding these risk factors will almost probably result in a lower rate of morbidly adherent placenta.[26,27] Richa et al[28] discovered a link between placenta previa and caesarean section. The number of cases of improperly attached placenta

increased according to the number of caesarean sections performed. Another research found placenta accreta in 39% of women who had previously undergone two caesarean procedures.[29]

It has also been reported that in instances with placenta Previa[30] around 75% of cases of morbidly adherent placenta are seen. Obstetricians must have a strong suspicion for placenta accreta in the presence of both risk factors, prior caesarean section and placenta previa.[31] More occurrences of placenta previa and improperly attached placenta are emerging as the prevalence of caesarean section rises. Chaudhari et al[32] found placenta accreta in 27.27% of individuals who had more than two C-sections. Another finding is that the degree of defective placental adhesion rises with the number of caesarean sections performed. Another research revealed the same results.[33]

CONCLUSION

The present study reported that the frequency of morbidly adherent placenta was 12.1% in females with previous scars. MAP is a very rare condition having ten times more frequency in females who had prior history of scar. Placenta accreta was the most prevalent type of MAP due to shorter duration and prior scarred uterus.

Author's Contribution:

Concept & Design of Study:	Shahida Sultan
Drafting:	Syeda Sitwat Fatima, Amna Fareed
Data Analysis:	Amna Fareed
Revisiting Critically:	Shahida Sultan, Syeda Sitwat Fatima
Final Approval of version:	Shahida Sultan

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Nissa FU, Dars S, Awan S, Mumtaz F. Frequency of morbidly adherent placenta in previous scar. J Liaquat University Med Health Sciences 2019;18(02):94-8.
2. Ahmad NA, Haider FA, Akhtar FA, Rasheed TE, Haider Sa KM. Frequency of Morbidly Adherent Placenta in Previous Scar. PJMH S 2020;14(4):105254.
3. Mohamed MH, Attia AM. Prevalence and Types of Abnormally Adherent Placenta in Women with CS. Al-Azhar Int Med J 2022;3(11):77-82.
4. Lee MM, Yau MBC, FHKCOG FO. Incidence, causes, complications, and trends associated with peripartum hysterectomy and interventional management for postpartum haemorrhage: a 14-year study. Hong Kong J Gynaecol Obstet Midwifery 2013;13:52-60.
5. Abbas S, Shaikh F, Nabila Hasan S. Fetomaternal Outcome in Morbidly Adherent Placenta. Pak J Med Health Sciences 2023;17(01):139-.
6. Khalid U, Gul PI, Mazcuri M, Qureshi MA, Riaz S, Saleem M. Incidence of Fetomaternal Outcomes in Cases with Morbidly Adherent Placenta. Biological Clin Sciences Res J 2023;2023(1):264.
7. Alamo L, Vial Y, Denys A, Andreisek G, Meuwly JY, et al. MRI findings of complications related to previous uterine scars. Eur J Radiol Open 2018;5:6-15.
8. Balan R, Radu VD, Giușcă SE, Costache C, Ristescu C, Puia D, et al. A rare cause of massive hematuria: placenta percreta with bladder invasion. In Vivo 2021;35:3633-3639.
9. Booker W, Moroz L. Abnormal placentation. In "Seminars in perinatology" Elsevier;2019.p.51-59.
10. Davidson C, Denning S, Thorp K, Tyer-Viola L, Belfort M, Sangi-Haghpeykar H, et al. Examining the effect of quality improvement initiatives on decreasing racial disparities in maternal morbidity. BMJ Quality Safety 2022;31:670- 678.
11. Elbery S, Mahmoud M, Mansour A, Rashed M, Salem H. Incidence and Risk Factors of Morbidely Adherent Placenta in Cases with Previous Caesarean Section in Benha University Hospital. Benha J Applied Sciences 2020;5:341-346.
12. El-sayed F, Abd-Elhasib El-Nafrawy A, Abdelsalam Ramadan M, Soliman Abdelallim R. Effect of Applying Prenatal Care Protocol for Pregnant Women with Placenta Accreta on Maternal and Neonatal Outcomes. J Nursing Science Benha University 2022;3:571-588.
13. Kingdom JC, Hobson SR, Murji A, Allen L, Windrim RC, Lockhart E, et al. Minimizing surgical blood loss at cesarean hysterectomy for placenta previa with evidence of placenta increta or placenta percreta: the state of play in 2020. Am J Obstet Gynecol 2020;223:322-329.
14. Main EK, Chang SC, Dhurjati R, Cape V, Profit J, Gould JB. Reduction in racial disparities in severe maternal morbidity from hemorrhage in a large-scale quality improvement collaborative. Am J Obstet Gynecol 2020;223: 123. e1-123. e14.
15. Maqsud M, Aiman Z, Ayub N, Tufail N, Waris N, Jabeen F. Placenta previa and its effects on feto-maternal health at a Tertiary Care Hospital. J Society Obstetricians Gynaecologists Pak 2020; 10:30-34.
16. Memon E, Ashfaq S, Naqvi KZ, Sultan S, Aziz S, Irfan SM. Maternal Outcome in Morbidly Adherent Placenta in Obstetrics Patients. J Society Obstetricians Gynaecologists Pak 2017;7:85-88.
17. Nieto-Calvache AJ, López-Girón MC, MessaBryon A, Ceballos-Posada ML, DuqueGalán M, Ríos-Posada JGet al. Urinary tract injuries during treatment of patients with morbidly adherent

placenta. J Maternal-Fetal Neonatal Med 2021; 34:3140-3146.
18. Panaiotova J, Tokunaka M, Krajewska K, Zosmer N, Nicolaides K. Screening for morbidly adherent placenta in early pregnancy. Ultrasound Obstet Gynecol 2019;53:101-106.
19. Wasim T, Bushra N, Riaz S, Iqbal HI. Fetomaternal outcome in patients with placenta previa. Pak J Medical Sciences 2020;36:952.
20. Elnakib S, Abdel-Tawab N, Orbay D, Hassanein N, Medical and non-medical reasons for cesarean section delivery in Egypt: a hospital-based retrospective study. BMC Pregnancy Childbirth 2019;19(1):1-11.
21. Rossi AC, Lee RH, Chmait RH. Emergency postpartum hysterectomy for uncontrolled postpartum bleeding: a systematic review. Obstetrics Gynecol 2010;115(3):637-44.
22. Yeung EH, Saha A, Zhu C, Trinh MH, Hinkle SN, Pollack AZ, et al. Placental characteristics and risks of maternal mortality 50 years after delivery. Placenta 2022;117:194-9.
23. Mohamed MH, Attia AM. Prevalence and Types of Abnormally Adherent Placenta in Women with CS. Al-Azhar Int Med J 2022;3(11):77-82.
24. Shellhaas CS, Gilbert S, Landon MB, Varner MW, Leveno KJ, Hauth JC, et al. The frequency and complication rates of hysterectomy accompanying Cesarean delivery. Obstetric Anesthesia Digest 2010;30(3):153-4.
25. D'Antonio F, Iacovella C, Bhide A. Prenatal identification of invasive placentation using ultrasound: systematic review and meta-analysis. Ultrasound Obstet Gynecol 2013; 42(5):509-17.
26. Tovbin J, Melcer Y, Shor S, Pekar-Zlotin M, Mendlovic S, Svirsky R, et al. Prediction of morbidly adherent placenta using a scoring system. Ultrasound Obstet Gynecol 2016; 48(4):504-10.
27. Li GT, Li XF, Li J, Liu YJ, Xu HM. Reflexed compression suture for the management of atonic postpartum hemorrhage with an abnormally adherent placenta. Gynecologic Obstet Investigation 2015;80(4):228-33.
28. Richa A, Amita S, Bala VN, Ponam Y, Abha S, Kiran M. Morbidly Adherent Placenta: A Critical Review. J Obstet Gynecol Ind 2012;62(1):57–61.
29. Wei Y, Cao Y, Yu Y, Wang Z. Evaluation of a modified "Triple-P" procedure in women with morbidly adherent placenta after previous caesarean section. Archives Gynecol Obstet 2017;296(4):737-43.
30. Koroglu N, Cetin BA, Turan G, Yıldırım GY, Akca A, Gedikbasi A. Characteristics of total laparoscopic hysterectomy among women with or without previous cesarean section: retrospective analysis. Sao Paulo Med J 2018;136:385-9.
31. Grönvall M, Stefanovic V, Paavonen J, Loukovaara M, Tikkanen M. Major or minor placenta previa: Does it make a difference? Placenta 2019;85:9-1.
32. Chaudhari H, Shah P, D'Souza N. Morbidly adherent placenta: its management and maternal and perinatal outcome. J Obstet Gynecol Ind 2017;67(1):42-7.
33. Morlando M, Sarno L, Napolitano R, Capone A, Tessitore G, Maruotti GM, et al. Placenta accreta: incidence and risk factors in an area with a particularly high rate of cesarean section. Acta obstetricia et gynecologica Scandinavica 2013;92(4):457-60.