ORIGINAL ARTICLE

Frequency of Morbidly Adherent Placenta in Previous Scar

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ABSTRACT

Aim: To identify the frequency of morbid adherent placenta (MAP) in women with previous C-section.
Methods: In this cross-sectional study, we included 138 patients from the department of obstetrics and gynecology, MMDC Multan, Pakistan. within a duration of 1 year from March-2019 to March-2020. The duration of the scar and the reason for the scar was noted, the MAP category type was also done. Diagnosis of MAP was made using doppler ultrasonography.
Results: Out of total of 138 patients 17(12.3%) were diagnosed with MAP. The placental accrete type MAP has found in 7 (5.07%) women, placenta increta in 6(4.34%) and placenta percereta in 4(2.89%) women. 64 (46.37%) women underwent C-section (CS), 46(33.33%) women myomectomy, and 28(20.28%) women hysterectomy. There was 34(24.63%) women scar duration of less than 2 years, 46(33.33%) women scar duration of 2 to 5 years, 42(30.43%) women scar duration of 5 to 10 years, and 16(11.59%) women more than 10 years.
Conclusion: The morbidly adherent placenta is life-threatening in case of delayed diagnosis, the frequency of MAP is lot higher in women those who have a previous history of the scar. All three types of MAP can have a chance of occurrence in 2-5 years of scar history.
Keywords: morbid adherent placenta, Uterine scar, C-section.

INTRODUCTION

Partially or fully abnormal adherence of the placenta to the uterine wall is defined as 'morbidly adherent placenta (MAP), the MAP primarily detectable by an adherent placental histopathological report. MAP was first described by the McDonald in 1885 in a case of partially placental adhesion[1]. C-section (CS) births have been increased around the world, according to the latest data published by CDC, USA shows that 31.7% of births in the USA were by CS and 86.7% of women had previous CS record. CS rate has been increased from 20.7 to 31.7% (from 1996 to 2019).[2] the most identified consequences of C-section delivery is MAP in subsequent pregnancy and other risk factors are D&C, and myomectomy.[3] generally, above 28 weeks of pregnancy women can be diagnosed for MAP.[4] The MAP is a life-threatening condition with severe hemorrhagethat can be happened postpartum, which may cause morbidity or mortality to the maternal women.[5] The incident of MAP in Pakistan was around 4.74 per 1000 deliveries.[6]

Based on the uterine wall adherent to the inner or outer myometrium,MAP is classified into 3 categories, placental accrete, placental increta, and placental percereta. The major category of MAP is placental accrete with 75%[7], the early diagnosis of MAP can be carried through color doppler ultrasound, which can lead to treatment with methotrexate or cesarean hysterectomy (in case of unable to remove of the placenta from the uterine wall)[8]. There are extensive morbidities of massive blood transfusions, urological injury and high chances of infection present in MAP[9]. The MAP mortality incidence rate in Pakistan around 7% to 10% cases, MAP is the foremost reason behind the maternal death.Our aim of this study is to identify the frequency of MAP in previous C-section women. The frequency of MAP is increasing in Pakistan due to CS and hysterectomy. The morbidity or mortality can be avoided by providing early diagnosis and treatment in a population.[10]Despite regional variation around the world, the MAP has been published very few.

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METHODS

In this cross-sectional study, we included patients in the department of obstetrics and gynecology, MMDC Multan, Pakistan. within a duration of 1year from March-2019 to March-2020. Ethical approval from the review committee of the institute was obtained before initiation of the study. in this study, 138 patients are included, the age between 15 to 45 years. All patients with primigravids'. Women who had preterm delivery in 2nd and 3rd trimester with MAP, women with previously had uterine surgeries like a cesarean section, associated placenta previa, myomectomy, hysterectomy or dilatation, and curettage also included in the study. Excluding criteria for the patients having any renal disorder, acute appendicitis, pancreatitis, cystitis, urethritis cholecystitis, and ruptured ovarian cyst. Written informed consent was acquired from all patients. The duration of the scarand the reason for the scar was noted, the MAP category type was also done.

Doppler ultrasonography was done to diagnose MAP. The following criteria was used for diagnosis of MAP; (a) Clear space: loss/irregularity of echolucent area located between uterus and placenta (arrows). (b) Bladder line: thinning or interruption of hyperechoic interface between uterine serosa and bladder wall (arrows). (c,d) Placental lacunae with turbulent high-velocity flow.

The present study statistical analysis was conducted by SPSS version 23.0. quantitative variables and qualitative variables are measured as mean± standard deviation and percentage/ frequency accordingly. chi-square test conducted as required, the p-value of less than 0.05 consider as a significant.

RESULTS

Out of total of 138 patients 17 (12.3%) were diagnosed with MAP, 121(87.7%) patients were normal. 64(46.4%) women had a history of C-section (CS), 46(33.3%) women had a history of myomectomy and 28(20.3%) women had a history of hysterectomy. The placental accrete type MAP has found in 7(5.07%) women, placenta increta in 6(4.34%) and placenta percereta in 4(2.89%) women (Table 1).

In Placenta accreta patients, 5(62.5%) women had a C-section scar, 2(16.67 %) women had a history of hysterotomy(p-value 0.05).

The placental increta type MAP has found in 6(4.34%) women, among them,2(33.33%) women had C-section scar, 3(50%) women had a history of myomectomy and only 1 (16.67 %) woman had ahistory of hysterotomy(p-value 0.04).

The placental percereta type MAP has found in 4 (2.89%) women, among them,3(75.0 %) women had C-section scar, only 1(25.0%) woman had a history of myomectomy(p-value 0.02).

64 (46.37%) women underwent c-section (CS), 46 (33.33%) women myomectomy, and 28 (20.28%) women hysterectomy. The chi-square test value 2.0944, the p-value is 0.91(Table 2).

There was 34 (24.63%) women scar duration of less than 2 years, 46 (33.33%) women scar duration of 2 to 5 years, 42 (30.43%) women scar duration of 5 to 10 years, and 16 (11.59%) women more than 10 years (Table 3).

Table 1: Modbidly adherent placenta categories and their frequency.

MAP category	Frequency	percent
Placental accrete	7	5.07
Placental increta	6	4.34
Placental percereta.	4	2.89
Total	17	

MAP=Modbidly adherent placenta

Table 2: Reason for scar in morbidly adherent placenta women.

Type of MAP	Reason for scar			Total	p-value
	C-section (CS)	Myomectomy	Hysterotomy		
Placental accrete	5(62.5%)	0(0%)	2(16.67 %)	7 (100%)	0.05
Placental increta	2(33.33 %)	3(50.0 %)	1(16.67 %)	6(100%)	0.04
Placental percereta.	3(75.0 %)	1(25.0%)	0(0 %)	4(100%)	0.02
MAP absent	54(44.63%)	42(34.71%)	23(19.01%)	121(100%)	0.87
Total	64(46.37%)	46(33.33%)	28(20.28%)	138(100%)	

MAP = Modbidly adherent placenta, CS = Cesarean section

Table 3:Frequency of scar duration (years)

Duration of scar	Frequency	Percent
Up to 2 yrs.	34	24.63
2 to 5 yrs.	46	33.33
5 to 10 yrs.	42	30.43
>10 yrs.	16	11.59
Total	138	100

DISCUSSION

The history of C-section has been recognized as one of the greatest risk factors for MAP. MAP mostly in scarred uterus even though it may present in an unscarred uterus. [11] There was a suggestion that the MAP was formed due to biochemical anomalies over the time of the healing process causes of unavailability of beta-3 (transforming factor) and connective tissue growth factor.[12]rupture and bleeding can be explained by entering the nitabuch layer of the decidua weakening the thin tissue layer. Invading of cytotrophoblast to regulate placental growth due to the low oxygen tension.[13] The low oxygen tension in scar villi stimulates cytotrophoblast to enter into villi.[14] previous C- section scar is 24 times the chances of evolving MAP in a scarred uterus compare to an unscarred uterus[11].

There were a lot of study researches published regarding the increasing MAP cases worldwide due to the increased in C-section[10,15]. Ansar A et al. proposed the high frequency of MAP found in previous C-section scar women, as well as the present study also giving the strong evidence of above research with 64(46.37%). All three category types of MAP were present C-section women compare to myomectomy 34.71 and hysterotomy 19.01%. Usta IM[16] & Nisenblat V[17] described in their study that there was a high frequency of MAP in women who are having a history of more C-sections. There was a study conducted by Nissa FU et al[10] on the scar duration of MAP women, they found that there was a high frequency of MAP in less than 2 years scar women. As our study results are also mimic the Nissa FU results. a study conducted by vijayasree M[18], published the 33% of placenta accreta was detected by the sonography, which allows approaching surgical hysterectomy rather than placental removal.[19] those who are having a history of the intrauterine procedure without a C-section scar has to be vigilant of the development of MAP in pregnancy, which may cause the massive postpartum hemorrhage may need invasive intervention procedure compare to the normal adherent placenta.[20] though, early diagnosis of MAP in suspected women could save from threat.

Although, the study period was short, may result vary with a high sample size center possibly due to the small sample size.

CONCLUSION

The morbidly adherent placenta is life-threatening in case of delayed diagnosis, the frequency of MAP is lot higher in women those who have a previous history of the scar. All three types of MAP can have a chance of occurrence in 2-5 years of scar history.

REFERENCES

1. MacDonald KN. How to prevent septicaemia in cases of morbidly adherent placenta. Br Med J. 1885;1(1268):779.
2. Hamilton B, Martin J, Ventura S. Births: preliminary data for 2010. Nat 1 vitalStatRep. 2011; 60 (2): 1-25. 2012.
3. Sultana N, Mohyuddin S, Jabbar T. Management and maternal outcome in morbidly adherent placenta. Journal of Ayub Medical College Abbottabad. 2011;23(2):93-6.
4. Doumouchtsis SK, Arulkumaran S. The morbidly adherent placenta: an overview of management options. Acta Obstet Gynecol Scand. 2010;89(9):1126-33.
5. Esakoff T, Sparks T, Kaimal A, Kim L, Feldstein V, Goldstein R, et al. Diagnosis and morbidity of placenta accreta. Ultrasound Obstet Gynecol. 2011;37(3):324-7.
6. Tahir N, Adil M, Afzal B, Kiani S, Kiani R, Khan S. Definitive management of morbidly adherent placenta: analysis of maternal outcomes. Pakistan Armed Forces Medical Journal. 2018;68(5):1156-60.
7. Hasan AA, Hasan JA, Khan AA. Management and maternal outcome in morbidly adherent placenta. Journal of Surgery Pakistan (International). 2009;14(4):166.
8. Kayem G, Kurinczuk JJ, Alfirevic Z, Spark P, Brocklehurst P, Knight M. Uterine compression sutures for the management of severe postpartum hemorrhage. Obstet Gynecol. 2011;117(1):14-20.
9. O'Brien JM, Barton JR, Donaldson ES. The management of placenta percreta: conservative and operative strategies. Am J Obstet Gynecol. 1996;175(6):1632-8.
10. Nissa FU, Dars S, Awan S, Mumtaz F. Frequency of morbidly adherent placenta in previous scar. Journal of Liaquat University of Medical & Health Sciences. 2019;18(02):94-8.
11. Cheng K, Lee M. 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):511-7.
12. Pollio F, Staibano S, Mascolo M, Salvatore G, Persico F, De Falco M, et al. Uterine dehiscence in term pregnant patients with one previous cesarean delivery: growth factor immunoexpression and collagen content in the scarred lower uterine segment. Am J Obstet Gynecol. 2006;194(2):527-34.
13. Genbacev O, Zhou Y, Ludlow JW, Fisher SJ. Regulation of human placental development by oxygen tension. Science. 1997;277(5332):1669-72.
14. Norwitz ER. Defective implantation and placentation: laying the blueprint for pregnancy complications. Reproductive biomedicine online. 2006;13(4):591-9.
15. Ansar A, Malik T, Shuja S, Khan S. Hysterectomy as a management option for morbidly adherent placenta. J Coll Physicians Surg Pak. 2014;24(5):318-22.
16. Usta IM, Hobeika EM, Musa AAA, Gabriel GE, Nassar AH. Placenta previa-accreta: risk factors and complications. Am J Obstet Gynecol. 2005;193(3):1045-9.
17. Nisenblat V, Barak S, Griness OB, Degani S, Ohel G, Gonen R. Maternal complications associated with multiple cesarean deliveries. Obstet Gynecol. 2006;108(1):21-6.
18. Chaudhari H, Shah P, D'Souza N. Morbidly adherent placenta: its management and maternal and perinatal outcome. The Journal of Obstetrics and Gynecology of India. 2017;67(1):42-7.
19. 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