

Frequency of Morbidly Adherent Placenta in Previous Uterine Scar

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Abstract

Objective: To determine the frequency of morbidly adherent placenta (MAP) in pregnant women presenting with previous uterine scar.

Methodology: A Descriptive, cross-sectional study was done in GYNEOBS Ward-1 of Fauji Foundation Hospital Islamabad from November-2021 to May-2022 was done. A total of 170 pregnant women of age 18-45 years who presented with previous uterine scar were included. In all patients doppler ultrasonography was done to determine the presence of MAP. Data regarding baseline study variables such as age, gestational age, parity and body mass index (BMI) was included for each patient. The statistical analysis in the present study was conducted using SPSS version 23.0, with quantitative variables and qualitative variables being assessed through mean \pm standard deviation and percentage/frequency measures, respectively.

Results: Mean age of patients included in this study was 28.24 \pm 5.13 years. Mean BMI of patients included in this study was 27.72 \pm 5.67 kg/m². Mean parity was 1.82 \pm 0.81. Mean gestational age at the time of presentation was 32.25 \pm 3.26 weeks. Out of 170 patients, 20 (11.76%) patients diagnosed with MAP.

Conclusion: Morbidly adherent placenta is not a very uncommon condition. Its frequency is ten times more among women who had previous history of scar.

Keywords: Morbidly adherent placenta, cesarean section, uterine scar.

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Introduction

Morbidly adherent placenta (MAP) is defined as the abnormal adherence of placenta either fully or partially to the uterine wall. Normally the placenta is adherent to decidua basalis layer of the endometrium.¹ In patients with abnormal placentation; the placenta is firmly bound to the defective deciduae basalis layer or myometrium. It is a life-threatening complication of pregnancy which is directly associated with high morbidity and mortality rate because of potential severe haemorrhage at the time of delivery.^{2,3}

Incidence of all forms of adherent placenta has increased over the last two decades which is most likely as a result of increasing caesarean section (A 10 -fold rise has been reported during the past 50 years).⁴ The incidence rate of MAP varies between 1/210 to 1/2500 births.⁵ In a local study the incidence of MAP turned out to be 1.83/1000 deliveries.⁶ Two most significant risk

factors of MAP include; placenta praevia (83%) and previous caesarean section (83%), while other important risk factors are myomectomy and D&C (16.6%).^{7,8}

Patients usually present with abdominal pain, shock and haemorrhage. Morbidly adherent placenta is an obstetrics emergency, which causes increased risk of perinatal and maternal morbidity.⁹ A previous C-section has been reported to be an important risk factor of MAP. A study conducted by Fakhra Un Nissa et al reported MAP in 9.76% patients presenting with previous scar.¹⁰ Another study by Kavitha B and Hota BM reported MAP in 13.9% patients with previous uterine scar.¹¹

The aim of the present study is to determine the frequency of morbidly adherent placenta in pregnant women with previous scar. If women having MAP are early identified during antenatal period much of morbidity

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can be avoided with proper management. This study will help to determine the frequency of MAP in our local population. The frequency of MAP is found high then this study will recommend screening of all pregnant women through Doppler Ultrasound. This will help to decrease the maternal morbidity and mortality.

Methodology

A Cross-sectional Study was conducted at Obstetrics and Gynecology Unit-I, Fauji Foundation Hospital Rawalpindi from 18-11-21 to 17-05-22. The sample size was calculated to be 170 patients.

The inclusion criteria encompassed all pregnant women aged 18 to 45 years with a prior uterine scar, parity ranging from 1 to 3, and gestational age between 24 to 37 weeks. Exclusion criteria included women with placental abruption and those with a history of dilatation and curettage (D&C). Written informed consent was obtained from each patient, and ethical approval was granted by the Institutional Review Board (IRB).

The statistical analysis in the present study was conducted using SPSS version 23.0, with quantitative variables and qualitative variables being assessed through mean \pm standard deviation and percentage/frequency measures, respectively.

Results

The study's participants had an average age of 28.24 \pm 5.13 years, ranging from 18 to 45 years. Their mean BMI was 27.72 \pm 5.67 kg/m², with BMI values ranging from 17.36 to 39.10 kg/m² (Table I). The mean parity was 1.82 \pm 0.81.

Table I: Demographic Characteristics of Study Participants. (N=170)

	Age (Years)	BMI (Kg/m ²)
Mean \pm SD	28.24 \pm 5.13	27.72 \pm 5.67
Minimum	18.00	17.36
Maximum	45.00	39.10

Table II: Analysis of Morbidly Adherent Placenta (MAP) by Age, Parity, and Gestational Age.

Age Group	MAP		P-value
	Yes	No	
18-30 Years	12 (10.7%)	100 (89.3%)	0.555
31-45 Years	08 (13.8%)	50 (86.2%)	
Parity Group			
1-2	18 (14.3%)	108 (85.7%)	0.084
\geq 3	02 (4.5%)	42 (95.5%)	
Gestational Age Group			
34-37 Weeks	10 (12.8%)	68 (87.2%)	0.69
<34 Weeks	10 (10.9%)	82 (89.1%)	

In the age stratification analysis, morbidly adherent placenta (MAP) was observed in 12 (10.7%) patients aged 18 to 30 and in 08 (13.8%) patients aged over 30, with a p-value of 0.555. Furthermore, 18 (14.3%) individuals with parity 1-2 were diagnosed with MAP, whereas MAP was detected in 02 (4.5%) individuals with parity \geq 3, yielding a p-value of 0.084. Gestational age stratification revealed MAP in 10 (12.8%) patients with a gestational age of 34–37 weeks and in 10 (10.9%) patients with a gestational age <34 weeks, with a p-value of 0.69 (Table II).

Frequency of morbidly adherent placenta (MAP) was derived and out of 170 patients, 20 (11.76%) patients diagnosed with MAP (Figure 1).

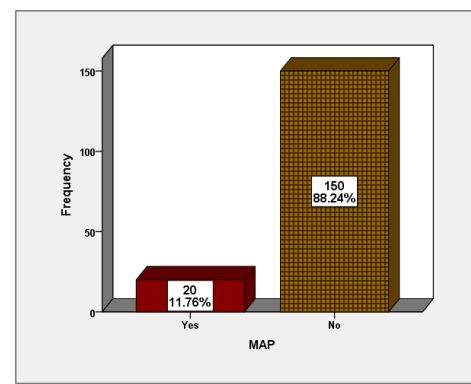


Figure 1. Frequency of Morbidly Adherent Placenta (MAP).

Additionally, BMI stratification was carried out. A p-value of 0.703 indicated the diagnosis of morbidly adherent placenta (MAP) in 01 (33.3%) underweight patients, 08 (10.8%) healthy individuals, 02 (11.8%) overweight patients, and 09 (11.8%) obese patients (Table III).

Table III: Stratification of BMI to Determine the Association of BMI with Morbidly Adherent Placenta (MAP).

BMI Group	MAP		P-value
	Yes	No	
Underweight	01 (33.3%)	02 (66.7%)	0.703
Healthy	08 (10.8%)	66 (89.2%)	
Overweight	02 (11.8%)	15 (88.2%)	
Obesity	09 (11.8%)	67 (88.2%)	

Discussion

Morbidly adherent placenta (MAP) encompasses a group of disorders: placenta accreta (placenta abnormally adherent to the inner half of the myometrium), placenta increta (placenta invading into the outer half of the myometrium) and placenta percreta (placenta penetrating through the myometrium and the uterine serosa). Morbidly adherent placentae are a result

of excessive penetration of the trophoblast through the endometrium (i.e. decidua of pregnancy). The decidua basalis may be deficient in the lower segment or in the presence of scarring from previous operations. This increases the risk of trophoblast invading to the myometrium and beyond, especially in cases of damage secondary to previous CS, uterine curettage, endometritis, resection of submucous leiomyoma, endometrial ablation and uterine artery embolization.^{12,13}

Morbidly adherent placenta is associated with severe maternal and fetal morbidity and mortality. The maternal morbidity is largely secondary to massive obstetric haemorrhage and the surgical complications of removing a placenta that may be invading other pelvic organs. The average blood loss is 3000–5000 ml and around 90% of cases require blood transfusion. Morbidity includes hysterectomy, ureteric, bladder, bowel and neurovascular injury at laparotomy, intensive care admission and the risks associated with massive transfusion.¹⁴

Maternal mortality is reported to be in the range of 7–10% of all cases globally. Fetal morbidity is mainly associated with preterm delivery, which may be elective or as an emergency in the context of major haemorrhage and exposure of the fetus to complications of maternal hypotension and a technically complicated delivery.¹⁵

The overall incidence of MAP in the UK is quoted as 1.7 per 10 000 maternities and it is rising in line with increasing CS rates. Other risk factors include increasing maternal age and shorter intervals between previous CS and current pregnancy, multiparity, placenta praevia, female fetus in the current pregnancy, submucosal leiomyomas, IVF pregnancies, smoking, hypertensive disease and any previous uterine surgery.¹⁶ Since many of these risk factors may be determined pre-pregnancy, attempts have been made to give women individualized risk estimates in the future to help when planning further pregnancies. For example, as many as 65% of women with a history of CS have a deficient scar identifiable on transvaginal ultrasound.¹⁷

Advance maternal age, placenta praevia in index pregnancy and previous uterine scars should raise suspicion of MAP. It is reported that approximately 50% of cases of MAP are suspected antenatally in the UK, but this is based on a cohort from 2010–11 in which a substantial number of women who had a previous CS and placenta praevia did not receive investigation for possible invasive placenta.¹⁸

The focus of care is on management of women after ultrasound diagnosis in the second and third trimesters, and the only way to make that diagnosis is to have an appropriate degree of clinical suspicion in women with a number of risk factors, particularly women with a low placenta overlying a uterine scar. Ultrasound imaging can be used to detect invasive placentae with a high sensitivity and specificity. In addition to routine ultrasound scan to demonstrate classical features of placental lacunae, thinning of the myometrial border and disruption of bladder posterior wall, use of colour Doppler may help in the diagnosis.¹⁹ Ultrasound can be used to detect bladder invasion but performs less well at estimating the invasion of the placenta into the pelvic sidewall and other organs.

In this study we determined the frequency of MAP in women with previous scar. In this study, MAP was diagnosed in 11.76% women.

A previous C-section has been reported to be an important risk factor of MAP. A study conducted by Fakhar Un Nissa et al. reported MAP in 9.76% patients presenting with previous scar.¹⁰ Another study by Kavitha B and Hota BM reported MAP in 13.9% patients with previous uterine scar.¹¹

Surgical therapy carries a considerable risk of catastrophic bleeding due to rich collaterals and profuse neovascularization, which exceeds the effectiveness of hemostasis achievable with existing methods.²⁰ There are also indications that some authors have recognized the need for early diagnosis and this would enable early counseling and intervention, preventing complications or loss of the uterus while the management of high risk patients is a particular concern.²¹⁻²³ Thus, early preoperative diagnosis in the suspected women is the key to save the women's life, adherent placenta should be suspected even in the second trimester in women with known high risk factors who are undergoing medical termination of pregnancy or suction evacuation.

Conclusion

Morbidly adherent placenta is not a very uncommon condition. Its frequency is ten times more among women who had previous history of scar. Early diagnosis and appropriate management goes a long way in reducing morbidity associated with this condition.

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