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Article

Assessing Intraoperative Findings in Morbidly Adherent Placenta Previa: A Case-Control Study

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Abstract: This study aims to evaluate the complications and outcomes associated with adherent placenta previa in Iraqi women, highlighting a significant gap in understanding the intraoperative challenges of this condition. A case-control study design was employed, recruiting 102 patients from multiple hospitals and analyzing demographic and clinical data over a 12-month period. Findings revealed a clear association between placenta accreta and adverse maternal outcomes, with notable complications such as significant blood loss and ICU admissions. The results underscore the need for improved surgical techniques and preoperative planning to mitigate risks, providing crucial insights for enhancing patient care in obstetric emergencies.

Keywords: Hematoma, Adherent Placenta previa, Birth, Breastfeeding, Patients

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1. Introduction

PAS, commonly known as placenta accreta spectrum disorder, was the main reason behind high levels of maternal morbility and mortality cases admitted during delivery [1]. This makes it to cause deathly bleeding, thus needing emergency caesarian hysterectomy that rescues the life of the patient. At the same time, the term "spectrum" defines three specific forms of implantation failure, including placenta accreta, placenta increta, and placenta percreta, which have many causes, one of them being cesarean delivery, previous surgery on the uterus, in vitro fertilization technique [2,3,4].

The phenomenon of abnormal placental attachment occurs when the placenta adheres to a site of uterine injury that was present prior to the onset of pregnancy [5]. The most prevalent cause of this condition is previous surgical intervention involving the uterus, including caesarean section or the removal of fibroids or ectopic pregnancy. Other contributing factors include uterine scraping following miscarriage, the presence of submucous fibroids, or an abnormal uterine shape [6,7,8].

Following a caesarean section (CS), the occurrence of placenta previa represents the most significant risk factor for the development of placenta accreta. [9,10] The prevalence

of placenta accreta varies between 1 in 300 and 1 in 2000 pregnancies, thereby rendering its diagnosis challenging [11].

In women who have previously undergone a caesarean section, placenta previa is associated with a 3% prevalence of PAS, while lack of placenta previa is linked with a 0.03% probability of PAS. The most recent meta-analysis by Jauniaux et al. suggests that PAS occurs at rates between 0.01% and 1% [12].

Placenta accreta is a condition that arises when the placenta grows too deeply into the uterine wall during pregnancy. It is possible that uterine scarring resulting from a previous caesarean section or other uterine surgery may contribute to the development of this condition [13].

Placenta accreta is a serious pregnancy-related condition characterised by the growth of the placenta into the uterine wall to a depth that is greater than that which is considered normal [14].

The placenta typically separates from the uterine wall following childbirth. In cases of placenta accreta, a portion or the entirety of the placenta remains attached to the uterus. This can result in significant blood loss postpartum, with the placenta potentially invading the uterine muscles (placenta increta) or growing through the uterine wall (placenta increta) [15,16].

2. Materials and Methods

This study employed a case-control design to evaluate intraoperative findings in Iraqi women diagnosed with morbidly adherent placenta previa. A total of 102 patients were recruited from multiple hospitals across Iraq over a 12-month period, from July 2023 to April 2024. The inclusion criteria targeted women aged 21 to 36 years with a confirmed diagnosis of morbidly adherent placenta previa. Data collection involved comprehensive demographic information, medical history, smoking status, and details of prior surgical interventions. Additionally, intraoperative data were meticulously recorded, including blood loss, need for ICU admission, and postoperative complications.

Patients were excluded if they had fatal diseases, extreme obesity, or were outside the specified age range. Statistical analysis was performed using Microsoft Excel 2013 and IBM SPSS software, focusing on identifying risk factors and assessing the correlation between previous cesarean sections and the occurrence of placenta accreta. Logistic regression analysis was employed to determine the impact of various demographic and clinical variables on maternal and fetal outcomes. The study ensured ethical compliance by obtaining necessary academic consent from patients and securing relevant licenses from authorities. The results of this meticulous data collection and analysis provide a comprehensive evaluation of the complications associated with morbidly adherent placenta previa and highlight critical risk factors, thus offering valuable insights for improving clinical management and patient care in similar obstetric cases.

3. Results

Table 1. Characteristics of patients study according to age

Statistics		
age		
N	Valid	102
	Missing	5
Mean		28.9216
Median		29.5000

Mode	32.00
Std. Deviation	4.37745
Variance	19.162
Range	15.00
Minimum	21.00
Maximum	36.00

Table 2. Distribution of patients according to gestational age

Gestational age					
		f	p	VP	cp
Valid	29.00	20	18.7	19.6	19.6
	30.00	6	5.6	5.9	25.5
	31.00	14	13.1	13.7	39.2
	32.00	22	20.6	21.6	60.8
	33.00	14	13.1	13.7	74.5
	34.00	8	7.5	7.8	82.4
	36.00	5	4.7	4.9	87.3
	37.00	7	6.5	6.9	94.1
	38.00	3	2.8	2.9	97.1
	39.00	3	2.8	2.9	100.0
	Total	102	95.3	100.0	
Missing	System	5	4.7		
Total		107	100.0		

Table 3. Distribution of patients according to smoking

Smoking					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	76	74.5	74.5	74.5
	yes	26	25.5	25.5	100.0
	Total	102	100.0	100.0	

Table 4. Distribution of patients according to APH

APH					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	57	55.9	55.9	55.9
	yes	45	44.1	44.1	100.0
	Total	102	100.0	100.0	

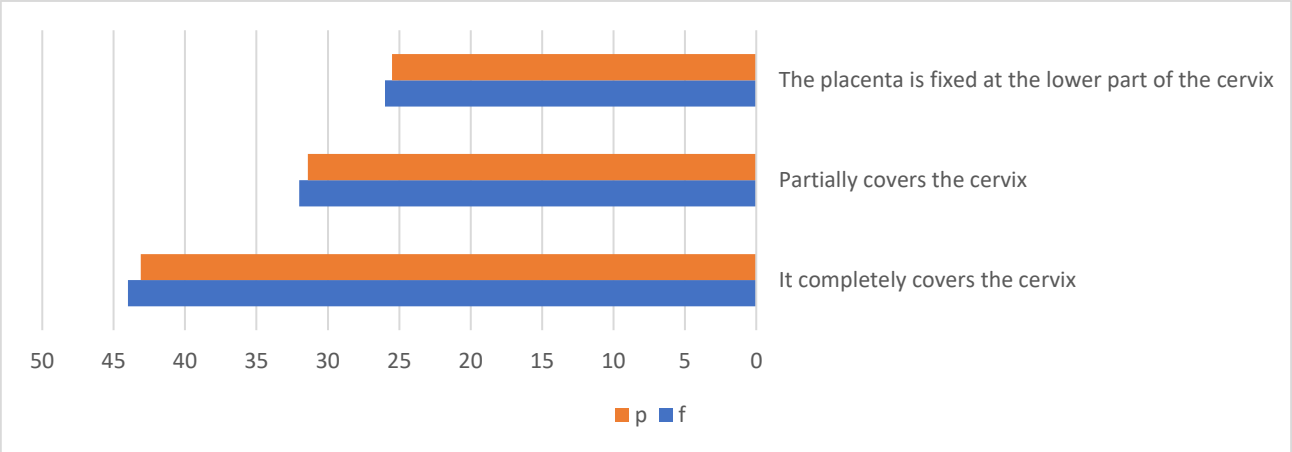

Figure 1. Outcomes of patients related to placenta position

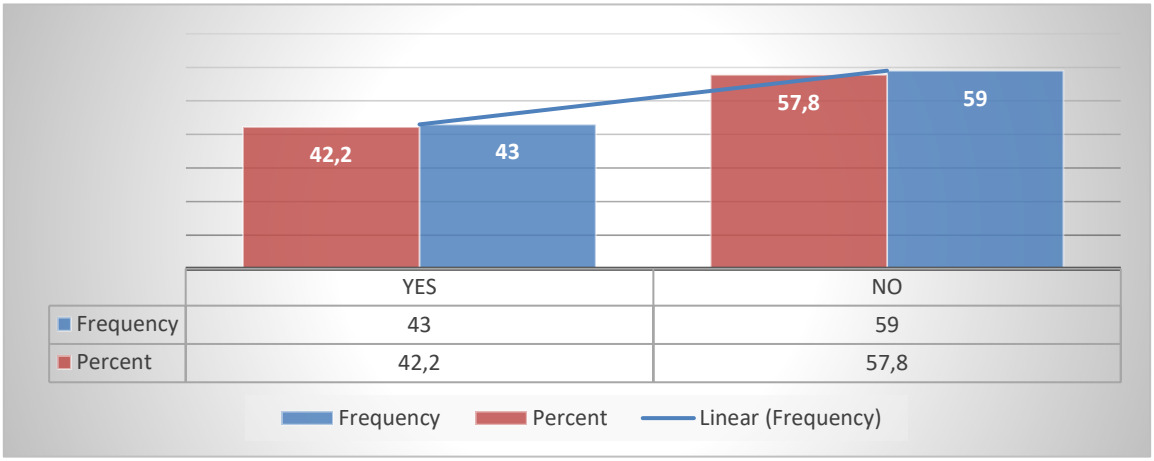

Figure 2. Results for women who have undergone previous birth

Table 5. Evaluating the outcomes of surgical management in Iraqi female patients

Age * surgical management Crosstabulation							
Count							
		Balloon catheterization	Bilateral uterine artery ligation	Hysterectomy	Sub Total hysterectomy	Total hysterectomy	
Age	21.00	0	2	0	0	1	3
	22.00	0	2	2	0	2	6
	23.00	0	1	0	0	1	2
	24.00	2	4	3	0	1	10
	25.00	0	7	1	0	2	10
	26.00	1	2	1	1	3	8
	27.00	0	1	0	0	0	1
	28.00	0	2	1	1	3	7
	29.00	0	1	1	0	2	4
	30.00	0	2	1	0	1	4
	31.00	1	3	5	0	1	10
	32.00	1	5	4	1	1	12
	33.00	0	3	1	0	2	6
	34.00	1	6	1	1	0	9
	35.00	0	4	2	0	0	6
	36.00	0	1	1	1	1	4
Total		6	46	24	5	21	102

Table 6. Assess outcomes related to blood loss, platelet transfusion, blood transfusion

v	**Details Primary**	**Percentage**
Blood Loss (L) range	From 2-5	2.94
Platelet Transfusion	Frequency 80	78.43
Cryoprecipitate Transfusion	Frequency 80	78.43
Fresh Frozen Plasma (FFP)	Frequency 2	1.96
Blood Transfusion	Frequency 2	1.96

Table 7. Final outcomes which related to ICU admission and complication

Variable	Details
ICU admission (f)	With eight patients
Reoperation	Two patients
Readmission	Two patients
Duration of hospital stay	From 1 day to 5 days
Complication	
Breastfeeding status	There is a decrease for seven patients.
Menstrual period (days)	
Longer	3
Same	90
Shorter	9
Intrauterine adhesion (f)	2
Fever (f)	8
Hematoma (f)	5
Intrauterine fetal death	For one patient
Birth Weight g (mean±sd)	2844±700.6

Table 8. Analysis of the risk factors that affected patients in this study according to logistic analysis

Variable	CS	OI	P Value
Age	2.6-3.4	2.9	0.001
GA	1.5-2.4	2.0	0.05
ICU admission (f)	1.32-2.3	1.8	0.84
Placenta position	3.2-6.1	4.98	0.001
Blood Loss (L)	1.6-1.9	1.7	0.63
previous birth	2.8-4.7	3.5	0.001

4. Discussion

This study assessed intraoperative findings in morbidly adherent placenta previa through a case-control study. A total of 102 Iraqi women were included in the study, with an average age ranging from 21 to 36 years. Through statistical analysis, the true value of architectural regression was discovered.

The mean age of the patients was 28.9 years, as shown in Table 1. The distribution of patients according to gestational age is shown in Table 2. The gestational age ranged from 29 to 39 weeks. In this study, patients were distributed according to smoking status. It was observed that 26 patients (25.5%) were smokers, which represents a significant proportion of the study population. Approximately 30% of women who smoke cigarettes voluntarily reduce their consumption or cease smoking entirely when they become pregnant. Tobacco

use during pregnancy can lead to complications such as placental abruption, placenta previa, ectopic pregnancy, and spontaneous abortion [11, 12]. However, in Spain, the prevalence of pregnant women who smoke does not depend on social class or maternal age. Indeed, smoking in this population reaches proportions of 30 to 35% [13,14]. In developed countries, the prevalence of smoking among pregnant women varies according to age. Women over 30 years old smoke less than women between 15 and 24 years old.

The primary determinants of the development of an abnormal placenta accreta include a prior cesarean section with placenta previa, which involved two or more rounds of cesarean delivery with the anterior placenta during the actual pregnancy. Previous placental variations have been demonstrated to confer an overall central 40% greater likelihood of removing placenta accreta, as evidenced by studies 23 and 24. A significant correlation has been identified between the occurrence of serious placental accretions and the number of previous caesarean sections, with an odds ratio of 5.0 or greater. Placenta accreta is a rare but potentially fatal condition that is associated with a high incidence of cesarean deliveries preceded by high maternal morbidity and mortality rates. This is due to generalized hemorrhage resulting from serious obstetric hemorrhage.

Previous studies have indicated that the primary indication for hysterectomy is uterine dilatation. Indeed, [17,18] a review of the literature reveals that the indications for obstetric hysterectomy are evolving. The most common reason for this procedure is the presence of placenta accreta and the association of placenta previa with a uterine scar resulting from a previous caesarean section. It is, therefore, evident that new therapeutic concentrations and procedures are required.

The incidence of abnormal placental accretion increases in a linear fashion with the number of previous caesarean sections. Abnormal placental accretions are associated with the number of previous caesarean sections, as a direct correlation is found between the two variables [19].

The results of our study indicate that the conservative approach of uterine retention with placental abruption is the most effective treatment for this condition. This approach should be considered in cases where patients' vital signs are normal, but they are not suffering from any life-threatening conditions such as extreme blood loss or infections.

The objective of our study was to identify the optimal approach for the management of placenta retention. Our findings suggest that the entire placenta should be targeted for transformation following delivery or in cases where the placenta extends. Preventive devascularization through preoperative aortic balloon occlusion or clamp may reduce the risk of blood loss during surgery and prevent extensive bleeding following childbirth [20].

Following the surgical procedure, no significant complications were observed. Therefore, any minor cervical adhesions or those between the uterine wall and placental bed that could potentially cause persistent bleeding after separation required attention prior to removal. This approach facilitated the straightforward removal of both flaps, as they were only attached posteriorly by a narrow area that was not connected within this region. Consequently, their removal was more straightforward than before.

5. Conclusion

This study highlights the significant findings regarding the complications and outcomes of morbidly adherent placenta previa in Iraqi women. The analysis of 102 patients revealed a strong association between placenta accreta and adverse maternal outcomes, including substantial blood loss, ICU admissions, and various postoperative complications. The data indicate that previous cesarean sections significantly increase the risk of placental abnormalities. These findings emphasize the necessity for improved surgical techniques and preoperative planning to mitigate risks. Further research is recommended to explore advanced diagnostic methods and effective management strategies to enhance maternal and fetal outcomes in cases of morbidly adherent placenta previa, contributing to better clinical practices and patient care in obstetric emergencies.

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