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Incidence of Placenta Accreta and its Complications in Cases of Previous Cesarean Sections with Placenta Previa Anterior

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ABSTRACT

Background: Due to the increased use of caesarean sections, the incidence of placenta previa has recently been estimated to be 0.5% of all gravidities. Due to the significant prenatal and intrapartum depletion associated with placenta previa, this condition is a leading cause of maternal morbidity and death. Premature delivery is associated with placenta previa, and it multiplies the risk of newborn death.by three times.

Aim of the work: To determine the relationship between placenta accreta and its complications in cases of previous cesarean section with placenta previa anterior.

Patients and methods: The investigation was carried at Al Husseiun Hospital's Department of Obstetrics and Gynecology. The study comprised 50 pergnant patients diagnosed currently of placenta previa and the delivery was by caesarean labour. Statistical analyses were performed to determine the relationship between a previous cesarean birth and the establishment of placenta previa accreta.

Results: The prevalence of pregnancy problems, including intensive care unit admission, was higher in the accreta group than in the non-accreta group, and while there was a statistically significant difference in urinary bladder injury, bowel injury complication, and intrapartum haemorrhage, there was no mortality in our study. In acreta, foetal problems were substantially more common.

Conclusion: Although the increased frequency of placenta accreta is significantly related to the increasing total number of caesarean sections, it appears that this is not the only new effect on its rising incidence. In females who had previous caesarean surgeries, the rate of placenta accreta has nearly tripled.

Keywords: *Placenta accrete; cesarean sections; placenta previa anterior.*

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INTRODUCTION

Placenta previa is still estimated to occur in about 0.5 percent of pregnancies, and this increase is linked to the increased use of caesarean sections.[1]

Due to the significant prenatal and intrapartum haemorrhage associated with placenta previa, this condition is a leading cause of maternal complications and death. [2]

Preterm delivery is also linked to placenta previa, and prematureness increases the risk of baby death by three times. [3]

While placenta previa is accompanying with antepartum haemorrhage, massive bleeding necessitating a preterm caesarean section does not occur in all women with the disease. In the treatment of placenta previa, the capacity to anticipate significant antepartum bleeding and emergency caesarean delivery is critical.[4]

Until now, there has been no agreement on the risk of premature birth linked with distinct forms and sites of placenta previa. Only a few papers have looked at the maternal and perinatal implications of various forms of placenta previa.[5]

When the myometrium unexpectedly split into three types based on histology, the result is placenta accreta.Chorionic villi communicate through the myometrium in accreta.

Wherever A chorionic villi enter the myometrium, incerta.Wherever A chorionic villi enter the uterine serosa, the placenta percerta.[6]

Accreta's precise pathophysiology is unknown. Decidua maldevelopment, a severe trophoblastic attack, or a combination of the two types are all included in a proposed explanation. Imperfect decidualization, atypical maternal vascular remodelling, superfluous trophoblastic invasion, and mixing are all quantified by prior instrumentation as significant.[7]

The prevalence of placenta accreta has been progressively rising over the past fifty years, mirroring the increasing frequency of caesarean sections.[8]

Births with a placenta accreta incidence of 1:533 were reported from 1990 to 2005, A significant increase over earlier reports from 1970 to 1980. The prevalence of placenta accreta, which is regarded as a serious pregnancy complication that may be linked to enormous, potentially fatal intrapartum and postpartum haemorrhage, is rising.The placenta accreta is now the main reason for emergency hysterectomy in cases of severe uterine haemorrhage, which may necessitate substantial life-saving surgical operations such hysterectomy and ligation of major pelvic arteries.[9]

As a result of placental invasion into an adjacent organ, reconstruction of the bowel or bladder may be required. Massive blood and blood product infusions are the usual in these extreme cases; other problems include neonatal death, infection, and so on.In adding to neonatal morbidity, such as preterm delivery and small for gestational age, maternal morbidity has been observed to occur up to 60% of the time, with placenta accreta women having a 7% mortality risk.[10]

There are numerous risk factors for placenta accreta, including previous caesarean surgeries with concurrent placenta previa. The risk of placental accreta increases considerably as the number of caesarean sections performed increases.[11]

Other risk factors have been found, including as multiparity, prior uterine scarring, and uterine scarring.[12]

The best time to diagnose placenta accreta is during the prenatal period using magnetic resonance imaging or sonography.Numerous studies have shown the value of ultrasonography in making this diagnosis, particularly in cases where the gestational age is greater than 20 weeks.Sadly, some cases of placenta accerta are discovered during delivery when the mother experiences excessive vaginal bleeding or persistent bleeding when the placenta is attempted to be removed.[13]

The aim of the current study is to determine the relationship between the placenta accreta and its problems in cases delivered by cesarean section previously,and suffered from placenta previa anterior

PATIENTS AND METHODS

50 pregnant women were included in a cohort observational research after the 26th week of pregnancy. The candidates will be chosen from the Al Hussein Hospital and Al-Azhar University Obstetric clinic. From June 2021 to January 2022, the study was conducted. This research was conducted at the Al Husseiun Hospital in Obstetrics and Gynecology division. About 50 pregnants in total diagnosed of placenta previa newely and a prior history of C-section were included. statistical studies to ascertain the connection between a prior caesarean delivery and the following occurrence of placenta previa accreta

Methods:

Each case was given a thorough medical history review, a full physical examination, laboratory testing, a colour Doppler evaluation, and other investigative procedures (Hemoglobin concentration, bleeding time, clotting time, prothrombin time, prothrombin activity and INR). The amount of units of blood, plasma, platelets, and/or cryoprecipitate transfused to the patients, as well as caesarean sections and conservative approaches, were documented as part of the interventions.

Maternal outcome (admission to Ward's, admission to an intensive care unit, problems, and length of stay). Fetal outcomes included newborn mortality, gestational age at CS, Apgar scores at one and five minutes, admission to neonatal intensive care, and admission duration.

Inclusion criteria: the participants whom achieved the Inclusion criteria included in the study: Signle fetus, patient with placenta previa anterior and previous delivery by caesarean section, [3]

Doppler ultrasound was used to determine placenta previa accreta from the 26th week of pregnancy. Onwards, in patients who have had a previous caesarean section and were proven intraoperatively and clear of medical disease at the time of the caesarean section.

Exclusion Criteria: Cases of marginal and low lying placenta previa diagnosed on ultrasonography but delivered vaginally.Multiple gestations.

History taking: maternal and gestational age, gravidity, parity, date of last menstrual period & EDD, present, past, obstetrics and family history, number of previous CS and any history of placenta pervia .

Clinical examination: any signs of bleeding during pregnancy, fundal level, fundal grip, umblical grip, pelvic grip, paw lick grip, ultra sound during pregnancy, cervical length, signs of hemorrhage, body mass index, blood pressure measurement, abdominal examination. The following lab values are going to be measured once in every participant: routine CBC, Pt, ptt, INR, liver functions, kidney functions and FBS,RBS,GTT

RESULTS

50 pregnant women were used in this investigation after the 26th week of pregnancy. The participants were attended to obstetrics and gynaecology departmrnt at Al Hussein Hospital.

The study comprised 50 patients with such a new diagnosis of placenta previa and a history of caesarean surgery. Before CS, patients were split into two groups as follows:

Group I: included 26 patients with acreta.

Group II: included 24 patients without acreta.

Acreta	Number	Percent
Yes	26	52.0
No	24	48.0
Total	50	100.0

Table 1: The prevalence of the examined groups in terms of the acreta.

Table (1) shows distribution of studied groups regarding acreta. Patient with acreta were 26 (52%) and patient without acreta were 24(48%).

	Group I Acreta "n=26"		Group II No Acreta "n=24"		P value
Maternal Age (years)	30.27±3.47		30.42±3.66		0.4422
Gestational age (weeks)	29.15±2.13		29.58±2.50		0.2577
Wt (kg)	62.54±7.53		65.17±7.66		0.1136
Ht (cm)	163.08±5.53		163.92±6.37		0.3100
BMI (kg/m^2)	23.55±2.83		24.42±3.97		0.1857
Gravidity	3.54±1.17		3.58±0.93		0.4411
Parity	3.04±1.25		2.96±1.20		0.4091
Previous abortion	No	%	No	%	0.4153
No	14	53.85	15	62.50	
One	11	42.31	5	20.83	
Two	1	3.85	4	16.67	
Previous cesarean section (P.C.S)	3.15±1.08		3.04±1.04		0.3556
Previous history of placenta pervia	No	%	No	%	0.3121
No	8	30.77	9	37.50	
Yes	18	69.23	15	62.50	

Table 2: Comparing the two studied collections regarding to demographic data, anthropometric measurements, maternal history, previous cesarean section and previous history of placenta pervia.

Table (2demonstrates that there was no statistical significance variation in relation to age and gestational age among the both examined groups (P > 0.05). There was no statistical significance difference in Wt, Ht, or BMI among the both groups of study (P > 0.05). There was no statistically significant difference in GA, gravidity, parity, or previous abortion between the two groups tested (P > 0.05). There was no statistically significant difference between the two groups in terms of previous caesarean section and history of placenta pervia (P > 0.05).

	Group I Acreta "n=26"		Group II No Acreta "n=24"		P value
	No	%	No	%	
Blood transfusion	6	23.08	14	58.33	0.0052*
No	20	76.92	10	41.67	
Yes					
Amount of blood transfusion	15	75.0	7	70.0	
One unit	5	25.0	3	30.0	0.236
Two unit					

Table 3: Comparison of the two research groups as regard to blood transfusions.

Table (3) shows that, patients need blood transfusion in acreta group were 20 (76.92%) and 10 (41.67%) in non acreta respectively. There was a statistical significant increase in blood transfusion in acreta group more than non acreta (P < 0.05).

	Group I Acreta "n=26"	Group II No Acreta "n=24"	P value
Systolic Blood pressure	111.58±9.96	109.71±9.76	0.2533
Diastolic blood pressure	82.73±5.10	81.83±4.60	0.2591

Table 4: Comparison of the two research groups as regard to systolic Blood pressure and diastolic blood pressure.

Table (4) shows that, systolic blood pressure in group I have mean value 111.58±9.96 and in group II was 109.71±9.76. Diastolic blood pressure in group I have mean value 82.73±5.10 and in group II was 81.83±4.60. There was no statistical significant difference between the two studied groups regarding systolic blood pressure and diastolic blood pressure (P > 0.05).

	Group I Accreta "n=26"	Group II No Accreta "n=24"	P value
Hb level (gm/dl)	14.06±1.48	13.62±1.45	0.1472
Bleeding time (sec)	4.27±1.51	3.75±1.36	0.1045
Clotting time (sec)	11.96±2.31	10.96±2.33	0.1347
P.T. (sec)	11.15±1.16	11.67±1.24	0.0683
INR	0.94±0.11	0.94±0.12	0.4883

Table 5: Comparison of the two research groups as regard to laboratory findings.

Table (5) demonstrates that there was no statistically significant difference in the laboratory results between the two investigated groups (P > 0.05).

Operative data	Group I Acreta "n=26"		Group II No Acreta "n=24"		P value
	No	%	No	%	
Duration of preparation to operation (days)	7.0±1.23		-		-
internal iliac ligation	20	76.9	-	-	-
Hysterectomy	16	61.5	-	-	-
B-Lynch	18	69.2	-	-	-

Table 6: Comparing the both studied collections regarding to operative and intra-operative data.

Table (6) clarifies the variation among the two studied groups regarding to operative and intra operative data, the mean duration of preparation to peration was 7 days, 20 cases (76.9%) internal iliac ligation, 16 cases (61.5%) hysterectomy and 18 cases (69.2%) B-lynch.

Maternal out come	Group I Acreta "n=26"		Group II No Acreta "n=24"		P value
	No	%	No	%	
Intensive care unit [ICU] admission	21	80.77	23	95.8	0.031*
No	5	19.23	1	4.2	
Yes					
Injury to the urinary bladder	18	69.23	19	79.17	0.047*
No	8	30.77	5	20.83	
Yes					
Bowel injury complication	23	88.46	22	91.67	0.211
No	3	11.54	2	8.33	
Yes					
Intra partum hemorrhage	6	23.08	14	58.33	0.0052*
No	20	76.92	10	41.67	
Yes					
Mortality	0	0.0	0	0.0	-

Table 7: Comparing the two researched collections in realtion to maternal out come.

Table (7) demonstrates that there was no mortality in our study, but there was a statistically significant difference in the admission to the intensive care unit (P 0.05), injury to the urinary bladder, and intrapartum haemorrhage between the two investigated groups related bowel injury complications.

Fetal out come	Group I Acreta "n=26"	Group II No Acreta "n=24"	P value
Apgar at 1 min	5-8	5-8	0.0034*
Range	6.23	6.96	
Mean	0.95	0.86	
S.D.			
Apgar at 5 min	5-10	6-10	0.0118*
Range	7.62	8.63	
Mean	1.68	1.35	
S.D.			

Table 8: Comparison between the two studied groups regarding Fetal out come.

Table (8) shows that, Apgar at 1 min in group I ranged from 5-8 with mean value 6.23±0.95 and in group II ranged from 5-8 with mean value 6.96±0.86. Apgar at 5 min in group I ranged from 5-10 with mean value 7.62±1.68 and in group II ranged from 6-10 with mean value 8.63±1.35, and APAGR score significantly increased in the non-acreta group more than in the acreta group.

	Group I Acreta "n=26"		Group II No Acreta "n=24"		P value
NICU	No	%	No	%	0.041*
No	19	73.08	20	83.33	
Yes	7	26.92	4	16.67	
Cause of admission	5	71.4	4	75.0	
RDS	2	28.6	1	25.0	
Prematurity					0.265 N.S.

Table 9: Comparing the two researched collections in realtion to admission in NICU.

Table (9), shows the nenota who needed NICU were in acreta group was 7 (26.92%) and 4(16.677%) in non acreta collection correspondingly. There was statistically significance variation in-between the two studied collections regarding to admission in NICU (P <0.05).

DISCUSSION

The findings related to this study declared that the incidence of acreta in the risk groups was 52.0%, in agreement with our results reported that Placenta accreta is much more common than placenta increta and percreta with the succeeding incidences: placenta accreta – 79%; placenta increta – 14%; and placenta percreta 7%.[14]

Regarding our results in the percent of acreata (52.0%), it was found that Mohammed et al.,study was agreement with our results, they found that placenta

accreta was more common than increta and percreta. Abnormal placentation: 50.8% (32 cases) placenta accreta; 34.9% (22 cases) placenta increta; and 14.3% (9 cases) placenta percreta.[15]

Zwergel and von, (2019) demonstrated the relation between the pateints with placenta accreta and the main number of cesarean labours whom diagnosed with placenta previa, Zwergel and von, (2019)[16] reported that, in women with placenta previa, the frequency of placenta accreta increases with an increasing number of cesarean deliveries as follows: in women with placenta previa and no previous cesarean birth 1 to 5 %, with one previous cesarean birth 11 to 25%, with two previous cesarean birth 35 to 47%, with 3 previous cesarean labours 40%, and with four or more previous cesarean births 50 to 67%. [16]

Numerous of reasons might be occupied in the increase of placenta accreta. It was assumed that extra reason may be an amplified amount of females giving with a past of numerous caesarean sections, as this is one of the greatest frequently recognized hazards of the placenta accreta. This has not been exposed to be the situation, though, as the number of females with more than four previous CS deliveries fell in the advanced periods. [17]

Alternative assumed techneique for the growing hazard of placenta accreta is a modification whichever in seam material, or operating mechanism. In this part polyglactin seams derived into mutual usage in last 20 years. It might be that a modification in seam material might modify the curative capability of the uterus afterward operation thus inclining to an improved hazard of devotion of the placenta.

In this manscript, there was no significant change among acreta and non acreta cases regarding age, gestational age, anthropometric measurements and maternal history.

The frequency of maternal complication was developed in acreta cluster more than non acreqta including sign of bleeding during pregnancy and blood transfusion, injury to the urinary bladder and bowel injury complications.

In contrast, the prevalence of fetal complications were suggestively increased in the acreta group including low Apgar score and increasing in NICU.

In accordance with our findings, Abdel Fattah et al. (2018) examined the incidence of placenta accreta and its complications in patients who had previously undergone caesarean sections with placenta previa anterior at Al Hussein University Hospital. The findings revealed that 63 percent of these patients also experienced placenta accreta.

The noticeable rise in the occurrence has remained accredited to the growing occurrence of cesarean born in current period and we select more than risk factors in the inclusion criteria of patients included in the study(previous cesarean, placenta previa anterior reaching the scar, and the cases collected from a referral center Al Hussein university maternity hospital). [18]

Also, Abdel Fattah et al., study showed that the bladder was injured and repaired in 19 of 40 cases (47.5%) all of them with abnormal placenta, while no bladder injury in cases of normal placenta. Bowel injury happen in 1 case only (2.5%) all have abnormal placenta, while no bowel injury in cases of normal placenta.

Perinatal morbidity was also more common in women with placenta accreta, due to preterm labour and a small for gestational age infant.In the this manscript, the average age of gestational at birth was 35 ± 2.819 weeks' gestation, the mean APGER score in cases of abnormal placenta 7.05±0.974 with no significant relation (p-value0. 105). [18,19]

Abd El khabeer (2020) discovered that the occurrences of the placenta accreta and its related difficulties was higher in previous caesarean pateints with placenta previa anterior.[20]

Accreta was found in 61 percent of cases in this study, and there was a significant relationship between the location of the placenta and the definitive diagnosis of placenta accreta by pathological examination. This nearly matched the study that found that the incidence of placenta accreta with placenta previa anterior was 63 percent in cases of prior caesarean section, and this marked rise in the occurrence was due to the growing prevalence of caesarean. [21]

Two studies also showed that in instances of placenta previa correlated with abnormal placentation, postpartum ICU entry, extended hospital staying and CS hysterectomy became more popular. [22]

In the previous study, they found significant relation between bladder injury complication and the definitive diagnosis of normal and abnormal placenta (P-value less than <0.001) in accordance with a study which found that the bladder was injured and repaired in 19 of 40 cases (47.5%) all of them with abnormal placenta, while no bladder injury in cases of normal placenta. [22]

Regarding the APGER score, there has been no significant relationship among neonatal APGER score and definitive diagnosis of normal and abnormal placenta in all cases, as p value 0.217 in agreement with a study which also revealed no significant difference between the APGER score and definitive diagnosis of normal and abnormal placenta. 22

A retrospective study of 76 women with placenta accrete, bladder injury was observed in 22 cases (49%) & ICU admission in 21 cases (54%). In our study the bladder was injured and repaired in 31 of 63 cases (49.2%) all of them with abnormal placenta, while no bladder injury in cases of normal placenta. Bowel injury happen in 2 cases only (3.2%) all have abnormal placenta, while no bowel injury in cases of normal placentaThe occurrence of perinatal problems is also elevated in cases with placenta accreta, owing primarily to premature birth and tiny for gestational age foetuses.. Our results, the average age of gestational at birth was 35 ± 2.819 weeks' gestation, the mean APGER score in cases of abnormal placenta 7.05±0.974 with no significant relation (p-value0. 105).[19]

Mohammed et al., (2018), study Placenta Accreta and Its Complications in Previous Cesarean Sections with Placenta Praevia Anterior at El-Sayed Galal Hospital, they found that the admission in neonatal ICU 9 cases (14.3%) of abnormal placenta admitted in NICU, while54 cases (85.7%) not admitted in NICU with no significant relation (p-value0.346). [15]

In this manscritp, there was no maternal mortality, in contast with our results maternal complications has been described was more than 7% of females ACOG. 109 cases of placenta accreta maternal death in 8 cases (7%). This may be due to the sample size that was insufficient

to detect the actual maternal mortality in these obstetric patients, diagnosed preoperatively, adequate blood, very experience surgical team and availability of resources improve maternal and fetal outcome and decrease maternal and fetal mortality.[23]

CONCLUSION

The overall number of caesarean sections is somewhat correlated with the increased frequency of placenta accreta, although it would suggest that this is not the only new factor contributing to the expanding prevalence. Level between females who have had earlier caesarean procedures, placenta accreta occurrence has increased by almost three fold.

Conflict of interest : none

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