

Management of Placenta accreta and its complications in cases of previous cesarean section with placenta previa anterior at Al-Hussein University Hospital

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ABSTRACT

Background: Every year, 140 000 women are estimated to die of postpartum hemorrhage. Placenta accreta has since become a statistically relevant etiology for maternal morbidity and mortality. There has been a 10-fold increase in the occurrence of placenta accreta since 1970, due to the rising rate of cesarean delivery.

Aim of the work: to determine the occurrence and complications of placenta accreta in instances of prior cesarean sections with placenta previa anterior and outcome of management of these complications at Al Hussein University Hospital.

Patients and Methods: The study is a prospective cohort study including all cases admitted to Al Hussein university Hospital diagnosed as placenta previa anterior plus one or more previous cesarean sections during the period from January 2020 to June 2020. The number of cases was 64 cases. 40 cases (63%) of them were found as placenta previa accreta.

Results: Our findings indicate that the occurrence, risk factors and fetomaternal outcomes of the treatment of patients with placenta accreta at Al Hussein University Maternity Hospital are similar to those of preceding literature.

Conclusion: Placenta previa accreta for the diagnosis, particularly anterior placenta accreta, the sensitivity and specificity of color imagery by Doppler was high since abnormal uteroplacental invasion can be identified with a high degree of trust.

Keywords: Morbid Adherent Placenta; Labor Outcome; 2D ultrasound; placenta Previa anterior.

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INTRODUCTION

Morbid Adherent Placenta (M.A.P) happens when the myometrium is abnormally invaded by chorionic villi. Depending on histopathology, it is classified into three groups: placenta percreta in which the uterine serosa is penetrated by the chorionic villi, placenta increta in which the chorionic villi invade the myometrium, and placenta accreta in which the chorionic villi are in touch with the myometrium.¹

It is unclear the precise pathogenesis of placenta accreta. A suggested theory involves a maldevelopment of decidua, excessive invasion of trophoblastic, or a mixture of both.² Defective decidualization, abnormal maternal vascular remodeling, excess trophoblastic invasion, or combinations are known to be the consequences of prior instrumentation.³

The occurrence of placenta accreta had risen progressively, reflecting higher rates of caesarean delivery over the last,⁴ For the period 1982 to 2002, an occurrence of 1: 533 births was registered, far higher than previous estimates, varying from 1: 4027 to 1: 2510 births in the 1970s to 1980s,⁵ the

occurrence of placenta accreta is expected to further increase.⁶

Placenta accreta is regarded a strong pregnancy complications which could be correlated with intrapartum and postpartum hemorrhage, which is massive and potentially life-threatening.⁷ Placenta accreta is the main trigger of an urgent hysterectomy, and severe uterine hemorrhage may contribute to the necessity for extensive surgery to save lives, including such hysterectomy and major pelvic vessel ligation.⁸

Rebuilding of the urinary bladder or intestine could be required as a result of placental invasion of neighboring organs. In these dramatic conditions, large transfusions of blood and blood products are the norm. Other complications include neonatal death, fistula formation, infection and ureteral damage.⁹

Maternal morbidity was estimated for up to 60% of women with placenta accreta, and mortality was estimated for up to 7% of women with placenta accreta. Furthermore, the occurrence of perinatal complications is also raised largely because of preterm birth and tiny fetuses of gestational age.^{10,11}

Numerous risk indicators were recorded for placenta accreta, which include prior caesarean birth, especially when followed by a coexisting placenta previa, rising numbers of previous caesarean deliveries raise the risk of placenta accreta exponentially.^{5, 12} Other predisposing factors have been identified including: multiparity, previous uterine surgery, advanced maternal age, previous uterine curettage, scarred uterus.^{9, 13}

Placenta accreta is best diagnosed either by sonographic or magnetic resonance imagery techniques in the antenatal period. Several researches have shown the importance of ultrasonography in making this diagnosis, especially at < 20 weeks of gestation.¹⁴ Regrettably, when the mother experiences persistent vaginal bleeding or extreme vaginal bleeding when an effort has been made to eradicate the placenta or only part of the placenta can be removed, some instances of placenta accreta are diagnosed at the delivery time.¹⁵

This work aims to determine the occurrence and complications of placenta accreta in instances of prior cesarean sections with placenta Previa anterior and outcome of management of these complications at Al Hussein university hospital.

PATIENTS AND METHODS

Type and Duration of the study: The study is a prospective cohort research that involves all cases admitted to Al Hussein university Hospital departments diagnosed as placenta Previa anterior plus one or more previous cesarean sections during the period from January 2020 to June 2020. The number of cases was 64 cases. 40 cases (63%) of them were found as placenta Previa accreta. The research was accepted by the Committee on Ethics and after proper counseling; all women solicited for enrollment and provided written informed consent.

Inclusion criteria include: patients must have placenta Previa anterior. Gestational age: more than 30 weeks at the beginning of the research. Parity: patients must have at least one previous cesarean section.

Exclusion criteria: Patients with unscarred uterus, or scarred uterus rather than cesarean section. Patients that are normally placenta positioned. Placenta Previa posterior. Coagulopathy.

Diagnosis: The recommended first step for the diagnosis of placenta previa accreta is ultrasound.¹⁶ The ultrasound used was Philips HD5 at al Hussein University hospital during the period from January 2020 to June 2020.

Preoperative Preparation: Full laboratory tests and if anemia is discovered, it must be corrected properly before delivery. Proper counselling of the patient and her relatives about her case and possible complications as cesarean hysterectomy, bladder, intestinal injury up to death. Patients and her relatives must sign an informed consent form acknowledging that they are aware of risk and complications. Saving of cross matched blood of the same blood group at least two bags of blood and four units of fresh frozen plasma and must be accessible before surgery. Intestinal preparation of the patient should be done. Saving of Intensive Care Unit (ICU) bed before the operation.

Outcomes: Incidence of placenta accreta is much more popular than for placenta increta and percreta. The type and incidence of abnormal placentation in a pooled study of findings from two series comprising a total of 138 histologically verified, abnormally implanted placentas from hysterectomy samples were: Placenta percreta: 7%. Placenta increta: 14 %. Placenta accreta: 79 %.⁵

Intraoperative Morbidity: In 24 instances of placenta accreta (60%) Cesarean hysterectomy was performed. In 10 cases (25%) bladder injury occurred. In 1 case (2.5 %) bowel injury occurred. Intra-operational blood transfusion was obtained in all cases.

The postoperative follow up data were: In 25 (62.5 %) of the instances with placenta accreta, ICU admission occurred. Transfusion of Postoperative Blood was conducted in 38 cases (95%) of those with placenta accreta. No complicated cases of DIC or death.

Neonatal outcome: The average gestation period at birth was in weeks' 35.9±4.546 gestation (range: 30 - 39 weeks gestation). Preterm birth occurred in 25 (62.5%) neonates. The mean 1-min Apgar score was 7.05 in accreta cases (range: 4 - 8), while the mean 1-min Apgar score was 6.65 in non accreta cases (range 4-8). 6 infants (15%) their mothers have placenta accreta were admitted to the neonatal intensive care unit (NICU), while 5 infants (20.8%) their mothers have normal placenta admitted to the neonatal intensive care unit (NICU).

Statistical analysis: For the diagnosis of placenta previa accreta, particularly anterior placenta accreta, the sensitivity and specificity of color imagery by Doppler was high since abnormal uteroplacental invasion can be identified with a high degree of trust. The ultrasonography and Doppler indicated morbid adherence in 38 instances (95.2 %) of the instances accepted with placenta accreta, with specificity of 97.3 %, accuracy of 96 %, sensitivity of 95.24 %, - ve predictive value of 92.31%, + ve predictive value of 98.36%.

RESULTS

| No. of P.C.S | Definitive diagnosis | | |
|------------------------|----------------------|-----------------------|-------|
| | Accreta (n=40) | Not accrete (n=24) | |
| 1 CS | No. | 2 | 9 |
| | % | 5.0% | 37.5% |
| 2 CS | No. | 10 | 5 |
| | % | 25.0% | 20.8% |
| 3 CS | No. | 15 | 5 |
| | % | 37.5% | 20.8% |
| 4 CS | No. | 11 | 5 |
| | % | 27.5% | 20.8% |
| 5 CS | No. | 2 | 0 |
| | % | 5.0% | 0.0% |
| Chi-square test | 12.129 | | |
| p-value | 0.016* | | |

Table 1 section and the definitive diagnosis of normal and abnormal placenta in all cases.

| Type of complication | No. | % |
|---------------------------------|-----|--------|
| Operative blood transfusion | 40 | 100.0% |
| Postoperative blood transfusion | 38 | 95.0% |
| Cesarean hysterectomy | 24 | 60.0% |
| ICU admission | 25 | 62.5% |
| Bladder injury | 10 | 25.0% |
| Bowel injury | 1 | 2.5% |
| Death | 0 | 0.0% |

Table 2: Intraoperative complications of patients diagnosed as placenta previa accreta.

| | No. | % |
|----------------------------------|-----|------|
| Apgar score less than 7 at 5-min | 6 | 15% |
| RDS | 14 | 35% |
| NICU | 6 | 15% |
| Preterm | 20 | 50% |
| neonatal death | 1 | 2.5% |

Table 3: Neonatal outcome in patients diagnosed as placenta previa accreta.

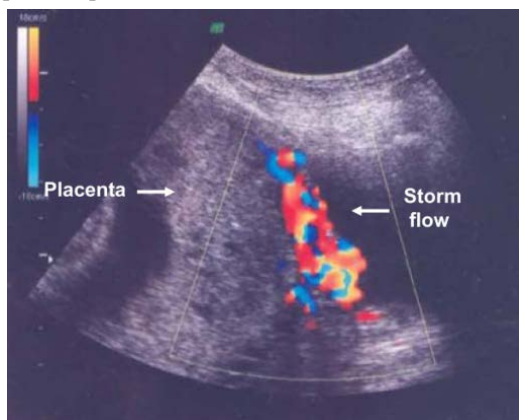


Fig. 1: Hyper vascularity invading myometrium, few lacunae and retroplacental zone loss.

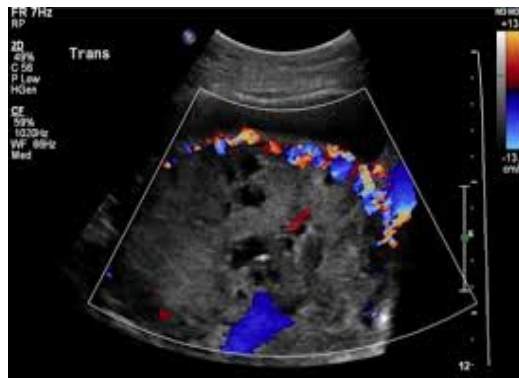


Fig 1: Hyper vascularity in uterine bladder interface.

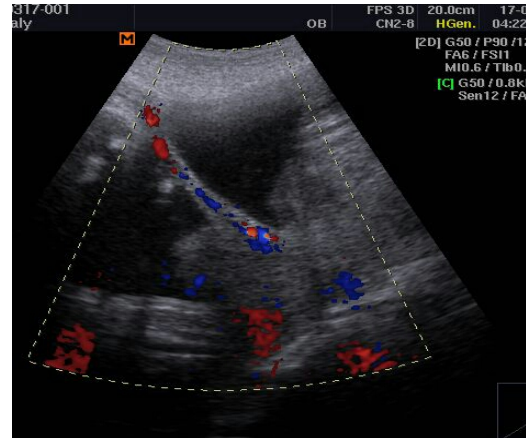


Fig. 2: Uterovesical interface thinning with hyper vascularity (bladder invasion proved intraoperatively & pathologically).

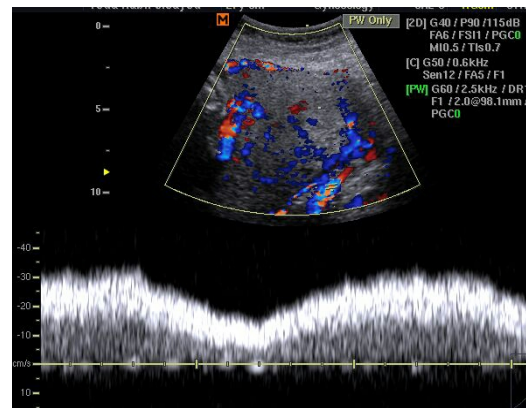


Fig. 3: Diffuse lacunae with turbulent flow of blood.

DISCUSSION

In our study, the occurrence of placenta accreta with placenta previa anterior in instances with prior cesarean section is 63%. The noticeable rise in incidence was due in recent years to the rising prevalence of cesarean deliveries.

The result of the study was as follow: Cesarean Hysterectomy was done in 24(60%) instances of accretion, 10 (25 %) instances of bladder injury, 1 (2.5 %) instance of bowel injury, all instances of intraoperative blood transfusion, 38 (95%) instances of postoperative blood transfusion and 25 (62.5 %) instances of ICU admission.

In our study the incidences of abnormal placentation: 50% (28 cases) placenta accreta; 35.7% (20 cases) placenta increta; and 14.3% (8 cases) placenta percreta. Therefore, placenta accreta was more common than increta and percreta.⁵

There is significant relation between abnormal placenta and number of previous cesarean sections, as whenever the number of previous cesarean section increased the frequency of abnormal placenta also increased.¹⁷

There is significant relation between the definitive diagnosis of placenta accreta and the antenatal color Doppler diagnosis of placenta accrete.^{18,19}

Color Doppler ultrasound in diagnosis of placenta accreta had specificity 96.8%, sensitivity 82.4%.²⁰

Consideration should always be given to risk of excessive (false positive) hysterectomy or risk of secondary bleeding after attempting placental removal (false negative).²¹

No single diagnostic criterion provides complete certainty of the existence or lack of placenta accreta, despite modern developments in imaging techniques.²²

Placenta accreta morbidity is triggered by issues correlated with massive bleeding. In the current study, 64 cases 40 of them definitive diagnosis of abnormal placenta all need intraoperative blood transfusion, while the 24 cases with normal placenta, 11 cases (45.9%) need intraoperative blood transfusion and 17 cases (70.8%) need no blood transfusion.

Post-operative blood transfusion needed in 38 cases (95%) of accreta cases, and 2 cases don't need postoperative blood transfusion, while 7 cases (29.7%) of normal placenta need blood transfusion, and 17 cases (70%) need no postoperative blood transfusion. Therefore, blood transfusion is required and a major transfusion is not unusual for these obstetric patients.⁶

No cases in our study complicated with DIC (disseminated intravascular coagulopathy) may be due to the sample size.

As mentioned in the earlier study, other reasons of early morbidity (coagulopathy, bladder injury & bowel injury, admission to intensive care units) are also elevated in patients suffering from placenta accrete.¹¹

In our research, the bladder was injured and repaired in 10 of 40 cases (25%) 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.

In instances of placenta accreta, the occurrence of perinatal complications, primarily due to preterm birth and tiny fetuses of gestational age, is also elevated.¹¹ The mean gestational age at delivery was in the present research, 35 ± 2.819 weeks' gestation, the mean APGER score in cases of abnormal placenta 7.05 ± 0.974 with no significant relation (p-value 0.105).

Admission in neonatal ICU 6 cases (15%) of abnormal placenta admitted in NICU, while 34 cases (85%) not admitted in NICU with no significant relation (p-value 0.346).

In up to 7 % of American College of Obstetricians and Gynecologists cases,²³ maternal mortality recorded: 109 cases of placenta accreta maternal

death in 8 cases (7%), no maternal deaths in the present study. 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.

Limitations of our study include: Limited number of cases of placenta previa accreta attending Al Hussein University Hospital at the period of the study from January 2020 to June 2020. Patients with accidentally discovered placenta accreta during delivery not included in our study as we depend on patient admitted from outpatient clinic during antenatal care period. We may not be assured that all cases have been pathologically confirmed, but the inclusion of clinically identified cases has been limited to those needing active treatment. Large numbers of false positive cases are therefore unlikely to have been included. Another possible drawback is that we cannot be sure that all cases have been decided by us.

CONCLUSION

In prior cesarean section instances of placenta previa anterior, the incidence of placenta accreta was 63%.

In 24 instances (60 %) of placenta accreta, cesarean hysterectomy was conducted. Bladder injury occurred in 10 cases (25%). Bowel injury in 1 case (2.5%). Intraoperative blood transfusions were carried out in all instances of placenta accreta. In 16 cases following spontaneous placenta separation, procedures for uterine preservation (Bakry balloon) were performed.

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