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An obstetrician's nightmare: Placenta Accreta - A Retrospective study.

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Abstract

Purpose : to study the complications encountered in women with placenta accreta.

Materials and methods: in a retrospective study from July 2014 to July 2017, the total number of maternal admissions, total deliveries, total number of caesarean sections, total number of placenta accreta cases was noted. Patients' parameters like age, gestational age, parity, history of previous caesarean section or D&C, perioperative complications, maternal and neonatal morbidity and mortality were noted.

Results: out of the total number of maternal admissions of 7832, 2698 were the number of LSCS performed and there were 282 cases of major degree placenta praevia. 14 patients had placenta accreta. The mean gestational age was 36 weeks. The mean blood loss was 2,928.57 mL (range 1,500-4,500). The average amount of PRBC transfused was 7 units. Two patients had bladder involvement suggestive of placenta percreta. Four patients had serious postoperative complications. There was one maternal mortality. There were five NICU admissions and no neonatal mortality.

Conclusion: caesarean hysterectomy is the most challenging operation in modern obstetrics and is associated with high maternal morbidity and mortality.

Keywords: placenta praevia, placenta accreta, caesarean hysterectomy, packed red blood cells.

Introduction

The term placenta accreta is used to describe any implantation in which there is abnormally firm adherence to the uterine wall. As the consequence

of partial or total absence of the decidua basalis and imperfect development of fibrinoid or Nitabuch layer, placental villi are attached to the myometrium in placenta accreta. ⁽¹⁾

In the last few decades, the incidence of placenta accreta has increased exponentially as a result of increase in caesarean section rate. It complicates 1 in 533 deliveries⁽²⁾. In presence of placenta praevia, the risk of placenta accreta is 3%,11%,40%, 61% and 67% for first, second, third, fourth and fifth or greater repeat caesarean deliveries, respectively. Other risk factors include advanced maternal age, multiparity, any condition resulting in myometrial tissue damage followed by secondary collagen repair such as myomectomy, vigorous curettage, thermal ablation.⁽³⁾

The exact pathogenesis of placenta accretais unknown. A proposed hypothesis includes maldevelopment of decidua, excessive trophoblastic invasion, or a combination of both⁽⁴⁾. This decidual maldevelopment in placenta accreta is usually associated with previous instrumentation as in the case of prior caesarean sections or uterine curettages.⁽⁵⁾

Placenta accreta is a severe pregnancy complication that is associated with massive and catastrophic intrapartum and postpartum haemorrhage⁽⁶⁾, when the placenta does not completely separate from the uterus, leading to disseminated intravascular coagulation; the need for hysterectomy; surgical injury to the ureters, bladder, bowel or neurovascular structures; adult respiratory distress syndrome; acute transfusion reactions; dyselectrolytaemia; acute kidney injury. The average amount of blood loss at delivery in women with placenta accrete is 3,000-5,000 mL.⁽⁷⁾

The diagnosis is usually established by performing an antenatal ultrasonography with colour Doppler, occasionally supplemented with magnetic resonance imaging (MRI).⁽³⁾The ultrasonographic features suggestive of placenta accreta include irregularly shaped placental lacunae within the placenta, thinning of myometrium overlying the placenta, loss of retroplacental “clear space”, protrusion of the placenta into the bladder, increased vascularity of the uterine serosa-bladder interface and turbulent blood flow into the lacunae on Doppler ultrasonography.⁽⁸⁾Placenta accreta can be

diagnosed by Doppler ultrasonography as early as by 15-20 weeks of pregnancy which is evidenced by the presence and increase in the number of lacunae within the placenta, with a sensitivity of 79% and a positive predictive value of 92%.⁽⁹⁾Yet, no antenatal diagnostic technique guarantees 100% affirmation of either ruling in or ruling out the presence of placenta accreta. The definitive diagnosis of placenta accreta is by histopathology examination of caesarean hysterectomy specimens which shows chorionic villi indirect contact with the myometrium and absence of decidua.⁽¹⁰⁾

Therefore it is prudent in diagnosing placenta accreta and planning the delivery of such cases so as to minimise foeto-maternal morbidity and mortality.⁽³⁾A multidisciplinary preoperative team meeting, with a review of imaging findings and operative planning, helps to achieve favourable outcomes. Women who deliver in an unplanned fashion or under emergency conditions have grave outcomes with high morbidity and even mortality.⁽¹¹⁾

Emergency peripartum hysterectomy (EPH) is a major surgical endeavour and the most dramatic operation in modern obstetrics invariably performed in case of life threatening obstetric haemorrhage. The unplanned nature of the surgery and the need for performing it expeditiously and efficiently exacerbates matters.^(12,13)

Conservative and uterine-sparing approaches for the management of placenta accreta have been described to reduce the morbidity of peripartum caesarean hysterectomy as well as allow for future fertility in selected women.^(14,15) In such women, the uterus is closed after delivery of the baby and the placenta is left in situ and a number of different techniques like uterine artery embolisation / selective arterial embolisation, methotrexate therapy, pelvic devascularisation, and balloon tamponade have been described.⁽¹⁶⁾ A novel technique of prophylactic hypogastric artery occlusion has also been tried.^(17,18)

Materials and Methods

It is a retrospective study conducted in the department of Obstetrics and Gynaecology, unit 2 of Bebe Nanki Mother and Child Care Centre, G.M.C., Amritsar.

Between July 2014 to July 2017, the total number of maternal admissions, total deliveries, total number of caesarean sections, total number of placenta accreta cases was noted. Patients' parameters like age, gestational age, parity, history of previous caesarean section or D&C were noted. Before surgery all patients were provided with written informed consent. All patients of placenta accreta underwent classical caesarean section with placenta left in situ, followed by caesarean hysterectomy under spinal anaesthesia. Intraoperative and postoperative complications, ICU admission, use of ionotropes, amount of blood transfused, hospital stay and maternal mortality were noted. Neonatal outcome in terms of Apgar score at 1 minute and 5 minute, NICU admission and neonatal mortality were also noted.

Results

The total number of maternal admissions for the above said period was 7832. The total number of deliveries was 6745 out of which 2698 was the number of LSCS performed. Major degree placenta praevia was 282. There were 12 patients who had placenta accreta and 2 had placenta percreta. The incidence of placenta accreta in our study is 4.96%

Out of the cohort of 14 patients of placenta accreta, 12 were booked and 2 were unbooked who presented in the emergency with antepartum haemorrhage. The booked patients had placenta accreta diagnosed by ultrasonography during the antenatal period. All patients of placenta accreta underwent classical caesarean section with placenta left in situ followed by caesarean hysterectomy under spinal anaesthesia. Thirteen patients amongst the total had history of either prior LSCS or D&C whereas one patient was primigravida.

The mean age of the patients was 29.14 years (range 24-37).

The mean gestational age was 36 weeks (range 32.4-38).

Table No.1

Gravida	Number of patients (N=14)	Percentage
Primigravida	1	7.14%
G2	2	14.28%
G3	7	50%
G4	2	14.28%
G5	1	7.14%
>G5	1	7.14%

The mean blood loss during the surgical procedure of all 14 patients was 2,928.57mL (range 1,500-4,500). The estimate of

intraoperative blood loss in each patient was measured by measuring the output collected in the suction bottle.

Table No.2

Blood Loss(mL)	Number of patients (N=14)	Percentage
1,500-2,000	3	21.42%
2,001-2,500	3	21.42%
2,501-3,000	3	21.42%
3,001-3,500	2	14.28%
>3,500	3	21.42%

The average amount of PRBC transfused was 7 units (range 5-12).

All patients had encountered heavy intraoperative bleeding and required multiple blood transfusions.

Three patients had scar dehiscence, while four patients had bladder injury. There were two patients where bladder involvement was seen suggestive of placenta percreta

Table No.3

Intraoperative complication	Number of patients (N=14)	Percentage
Bleeding	14	100%
Adhesions	11	78.57%
Scar dehiscence	3	21.42%
Bladder injury	4	28.57%
Bladder involvement	2	14.28%

Four patients had serious postoperative complications requiring ICU care and inotropic support. Two patients had acute kidney injury along with other multiple postoperative complications out of which one patient

succumbed to the complications and could not be saved. Hence there was one maternal mortality. The hospital stay ranged from 8 to 18 days (mean 10.5). Prolonged hospital stay (>10 days) was seen in seven patients.

Table No.4

Postoperative complication	Number of patients (N=14)	Percentage
Fever	7	50%
Surgical site infection	1	7.14%
UTI	1	7.14%
Shock	4	28.57%
ICU care	4	28.57%
Use of ionotropes	4	28.57%
Prolonged hospital stay (>10 days)	7	50%
Acute kidney injury	2	14.28%

The mean Apgar score at 1minute was 7 (range 5-9) and at 5 minutes was 8 (range 7-9).The average birth weight of the infant was 2.38 kg (range 1.9-

2.8). There were five NICU admissions. There was no neonatal mortality.

Discussion

In our study we observed, the average amount of blood loss was around 2.9L whereas mean transfusion requirement was 7 units.

Studies done by Guy et al. ⁽¹⁷⁾ and Tan et al. ⁽¹⁹⁾ on similar patients found massive intra operative blood loss. Eller et al. observed an average blood loss of 2.6 L on 76 patients of placenta accreta who underwent caesarean hysterectomy. ⁽¹⁷⁾

In a study by Wright et al., the median blood loss for women with placenta accreta undergoing peripartum hysterectomy was 3,000 mL, whereas median transfusion requirement was 5 units PRBC. 13% of the patients had a blood loss of over 10,000 mL. ⁽¹¹⁾

We observed heavy intraoperative bleeding in all patients of placenta accreta who underwent caesarean hysterectomy and multiple blood transfusions were required by all. 50% of our patients had post operative febrile episodes, 28.57% had intraoperative bladder injury, surgical site infection was seen in 7.14% and acute kidney injury in 14.28% of our patients. Prolonged hospital stay of more than 10 days duration was seen in 50% of our patients. No primary or secondary post partum haemorrhage was encountered and none of the patients required reoperation. Though bladder injury was present but none had neither ureteric injury nor anyone required cystotomy. Bladder repair by a general surgeon sufficed in these patients. There was one maternal death (7.14%) and no neonatal death.

Patients were followed weekly for 6 weeks after discharge from the hospital and there was no maternal and neonatal morbidity or mortality.

In a series of studies conducted, the maternal morbidity ranged from 26.5% to 31.5%. The complications included blood transfusion (88%), febrile episodes (26.5%), perinatal death (22.8%), bladder injuries (8.8%), wound infection, DIC, ileus, vaginal cuff bleeding and adnexectomy. The maternal mortality ranged from 0 to 12.5% with a mean of 4.8%. Emergency peripartum

hysterectomy is associated with high mortality rate. ⁽¹³⁾

Perioperative complications are generally encountered and injuries to the genitourinary tract are most common, with reported rates of cystotomy of 6–29% and ureteric injuries in up to 7% of women. Postoperatively, febrile complications and bowel dysfunction are relatively frequent. Approximately one third of women, who undergo peripartum hysterectomy, require repeat laparotomy for either primary or secondary PPH or to repair the operative injuries. The average postoperative hospital stay following peripartum hysterectomy ranges from 4 to 8 days. ⁽¹⁶⁾ There are favourable foeto-maternal outcomes in planned as opposed to emergency peripartum hysterectomy. ⁽²⁰⁾

In our study the mean gestational age of delivery was 36 weeks. O'Brien et al. reported that after 35 weeks, 93% of patients with placenta accreta experience antepartum haemorrhage. ⁽¹⁰⁾ In terms of perinatal outcome, Warshak et al. reported in a cohort of 99 cases of placenta accreta that planned delivery at 34 to 35 weeks of gestation did not significantly increase neonatal morbidity. ⁽²¹⁾ Robinson and Grobman compared approaches for the optimal gestational age for delivery and found that a scheduled delivery at 34 weeks of gestation was the preferred strategy and integrating amniocentesis for assessment of foetal lung maturity does not assist in the management. ⁽²⁰⁾

Therefore, to avoid an emergency caesarean hysterectomy and its complications and to minimize the complications of prematurity, it is acceptable to schedule caesarean at 34 to 35 weeks. ⁽¹⁰⁾

Caesarean hysterectomy immediately after delivery of the neonate without any attempts at removal of the placenta has lower morbidity and mortality rates as compared to conservative management especially in cases of placenta percreta. This procedure since 1972 is the recommended treatment option. ⁽¹⁰⁾

ACOG also recommends planned preterm caesarean hysterectomy at 34 weeks of gestation. ⁽³⁾

However, in recent years, there has been a dramatic rise in the use of interventional techniques as a conservative and uterine sparing treatment of placenta accreta, but further studies are required for determining their potential benefits.⁽¹⁶⁾

Conclusion

Placenta accreta is associated with high maternal morbidity and mortality.

Every single case of placenta accreta should be managed by a multidisciplinary team approach, preferably electively at 34 weeks. Prompt emergency peripartum hysterectomy should be preferred when needed, failing which the delay would lead to maternal morbidity and in unfortunate cases, mortality. Every obstetrician should try to reduce the number of primary caesarean section. Surgical management of placenta accreta is individualised

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