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Current practice in abnormally invasive placenta in a tertiary hospital in northern India and its clinical outcome

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Abstract

Objective: The aim of this study was to know the current practice in patients with abnormally invasive placenta in the context of a rising caesarean delivery rate, evaluate our antenatal and intraoperative management and see the maternal and perinatal outcome in these patients.

Material and Methods: A prospective study was carried out in 19 women with abnormally invasive placenta in the Department of Gynecology, PGIMER, Chandigarh, India between Jan 2015 – April 2016. The profile of these patients was recorded in a predesigned proforma and maternal and perinatal outcome analyzed in detail. A critical analysis for improvement for better outcome was done.

Results: All 19 patients who had antenatal diagnosis of abnormally invasive placenta had previous cesarean scar with co-existing placenta previa. Massive blood loss during cesarean section was the predominant feature in all patients. In these patients, performing a classical CS, not trying to remove the placenta and proceeding directly to hysterectomy resulted in reduced blood loss (1900 ± 1057.7 ml) compared to trying to remove the placenta and then proceeding to hysterectomy (2500 ± 707 ml). All patients had requirement of blood transfusion with minimum of single PRBC to maximum of 7 units. All patients antenatal diagnosis of abnormally invasive placenta was again confirmed during intra-operative period and ultimately all 19 of them had peripartum hysterectomy. No maternal mortality was recorded.

Conclusion: Abnormally invasive placenta has high maternal as well as neonatal morbidity. Previous caesarean section remains the major risk factors for abnormally invasive placenta. So, every effort should be made to avoid cesarean delivery which will further reduce the development of abnormally invasive placenta.

Keywords: abnormally invasive placenta, cesarean section, peripartum hysterectomy

Introduction

Invasive placenta is an abnormal attachment of the placenta to the myometrium, and occurs when a defect of the decidua basalis allows the chorionic villi to invade the myometrium. It is a growing obstetric problem. It is often encountered unexpectedly and can lead to catastrophic blood loss leading to performance of emergency peripartum hysterectomy and several complications secondary to rapid and excessive blood loss such as, adult respiratory distress syndrome, renal failure, Sheehan's syndrome, and even death.

The risk factors for adherent placenta are number of previous caesarean sections, placenta previa, dilatation and curettage or any other prior uterine surgeries. The incidence of invasive placentation is on the rise. Wu *et al.* [1] reported a rate of 1 in 533 deliveries as the incidence of the condition. Ultrasound can usually diagnose invasive placenta. In a study by Dwyer *et al.* [2], there was no statistical difference in sensitivity or specificity between ultrasound and magnetic resonance imaging (MRI), as USG showed 93% sensitivity and 71% specificity, whereas MRI showed 80% sensitivity and 65% specificity.

In cases of invasive placenta without antepartum hemorrhage, delivery should occur by 37 weeks whereas in patients with history of antepartum bleeding or a cervix less than 3cm, delivery should be planned at 34 weeks after antenatal corticosteroid administration. A multidisciplinary team approach and a meticulous planning is required at the time of delivery. Caesarean hysterectomy with the placenta in situ without any attempt at placental delivery is the standard care in patients with invasive placenta.

In the context of a rising caesarean delivery rate, this study was planned to know the recent time trends in patients with abnormally invasive placenta and to assess the maternal and neonatal

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outcome of these women who are being managed in a tertiary hospital.

Materials and Methods

This prospective study was conducted in the Department of Obstetrics and Gynecology, PGIMER, Chandigarh from Jan 2015 to April 2016. This study was approved by the Institutional Ethics Committee of Post-graduate Institute of Medical Education and Research (PGIMER), Chandigarh. A total of 19 patients diagnosed with abnormally invasive placenta on ultrasound were included in the study, since the time of diagnosis. The data was collected after explaining the study protocol and informed written consent. As the study did not involve any extra intervention, none of the women denied. Cases were managed according to institute protocol. All the collected data was transferred to predesigned proforma and data was analyzed using SPSS (version 12) and Excel 2010 software.

Abnormally invasive placenta was confirmed by histopathology report of invasion. The term placenta accreta was used where there was invasion of placental tissue into the inner myometrium, placenta increta where the placenta was seen invading the outer myometrium and percreta where the placenta was seen invading through the serosa of the uterus.

A detailed medical and obstetric history including details of any previous surgeries on uterus, uterine curettage, was recorded in a predesigned proforma for each patient with details of present pregnancy complications if any. Note was made of occurrence of bleeding and number of episodes of antepartum hemorrhage, any previous USG examinations. A complete general physical, medical and obstetric examination was recorded. Patients left for expectant management were treated as per protocol of the hospital and followed up till cesarean. During the expectant management, all antenatal complications including repeat bouts of bleeding were managed and recorded. At the time of cesarean delivery, approximate blood loss, number of units blood transfused, any intra operative complications like PPH, bladder or bowel injury, procedures required to control intraoperative bleeding, anesthesia related complications were noted in detail.

Maternal outcome was analysed in terms of: Mean gestation at delivery, frequency and severity of bleed associated with placental location, occurrence of complications such as : postpartum hemorrhage, need of blood transfusion, DIC, renal failure, ARDS, sepsis, ICU admission, duration of hospital stay etc. and maternal mortality.

Neonatal outcome were analyzed in terms of APGAR score, birth weight, need and duration of NICU stay and any other complications.

Results

In our study, there were a total of 19 patients with antenatal diagnosis of abnormally invasive placenta. All these 19 patients were confirmed to have invasive placentation after hysterectomy during histopathological examination. There were 10 patients with previous one LSCS, 6 with previous two LSCS and 3 with previous three LSCS. None of the patients with a previously unscarred uterus had abnormally invasive placenta. All 19 patients also had co-existing placenta previa.

The placenta was located anteriorly in 94.7%. Majority (17/19) of the patients with abnormally invasive placenta enrolled in this study had one or more per vaginal bleeding episodes in the antenatal period. The mean period of gestation of first bleeding episode was 24 wks. \pm 12 wks. 88.2% patients received expectant management to improve neonatal morbidity and mortality and the rest 11.8% required emergency termination of

pregnancy after the first bleeding episode.

A total of 15.8% patients were delivered in early preterm period i.e. before 34 weeks gestation; 42.1% were delivered in late preterm period i.e. between 34 and 37 weeks and 42.1% were delivered at term i.e. \geq 37 weeks gestation. The mean period of gestation at delivery was 35weeks \pm 2 weeks; minimum being 32 weeks and maximum being 38 weeks. Most (7/19) of the patients were delivered between 37-38 weeks.

The majority (63.2%) of patients had emergency cesarean section and only 36.8% had elective CS. Only 5.3% of the patients had transverse incision on the skin during cesarean section whereas 94.7% had vertical skin incision. Lower segment cesarean section was performed in 5.3% of the patients whereas 94.7% patients had classical cesarean section done. The mean amount of blood loss during CS was 1963 \pm 1029 ml (Table 1); minimum being 700ml and maximum being 4000ml. The average number of units of blood transfusion was 4 \pm 2 units with the maximum number of blood units transfused being 7 units. All patients required blood transfusion.

All 19 patients underwent cesarean hysterectomy. After hysterectomy, the whole specimen (uterus with abnormally invasive placenta) was sent for histopathological evaluation. After histopathological examination invasive placentation was confirmed in all 19 cases of which placenta accreta was diagnosed in 11 cases and placenta percreta in 8 cases. Bladder injury (Serosal) occurred during cesarean section in 2 patients. None of the patients had mortality. Seven patients were near miss as they received 5 or more units of blood transfusion and 6/7 patients also needed intubation and ventilation not related to anesthesia. This is depicted in Table 1.

Table 1: Maternal outcome of abnormally invasive placenta

Findings	(n=19) (%)
Estimated blood loss (ml) *	1963 \pm 1029
Need of blood transfusion	19 (100%)
Peripartum hysterectomy	19 (100%)
Accreta	11 (57.9%)
Increta	0
Percreta	8 (42.1%)
Bladder injury	2 (10.5%)
ICU admission	6 (31.6%)
Near miss	7 (36.8%)
Maternal death	0 (0%)

*Mean \pm SD

Different blood loss reducing strategies were used during the CS of abnormally invasive placenta (Table 2) like taking elective decision for hysterectomy in 17 patients, doing classical CS in 18 patients and performing peripartum hysterectomy without attempting for removal of placenta in 17 patients. In those 17 patients, in whom no attempt was made to remove the placenta and hysterectomy was done soon after performing CS, blood loss was less (1900 \pm 1057.7 ml) compared to trying to remove the placenta and then proceeding to hysterectomy in the remaining 2 patients (2500 \pm 707.1ml).

Table 2: Blood loss reducing strategies used in abnormally invasive placenta in present study

Strategies	(n=19) (%)
Classical CS	18 (94.7%)
Elective decision for hysterectomy	17 (89.5%)
Placenta left undisturbed	17 (89.5%)
Preoperative embolization	0 (0%)
Postoperative embolization	0 (0%)

The mean birth weight of babies born was 2.39 ± 0.55 kg (Table 3). All 19 patients had live born babies. 21.1% babies born during CS of adherent placenta had 5 min Apgar < 7 and 21.1% babies required NICU admission.

Table 3: Neonatal outcomes of women with abnormally invasive placenta

Details	(n=19)(%)
Neonatal birth weight *(kg)	2.39 ± 0.55
Live birth	19 (100%)
5 min Apgar <7	4 (21.1%)
NICU admission	4 (21.1%)

* Mean \pm SD

Discussion

Invasive placentation disorder encompasses a spectrum of conditions including placenta accreta, placenta increta and placenta percreta which are so classified depending upon the depth of invasiveness of placenta to the underlying uterine wall. It is a significant cause of maternal morbidity and mortality due to associated massive hemorrhage, which occurs due to attempted placental removal often leading to unplanned peripartum hysterectomy. Due to growing incidence of cesarean sections, the prevalence of abnormally invasive is on the increase.

In our study all patients who had antenatal diagnosis of abnormally invasive placenta also had placenta previa and none of the patients with a previously unscarred uterus had abnormally invasive placenta which is similar to the study by Cheng and Lee [3], which found more risk of adherent placenta in presence of placenta previa with a previous scar. Placenta previa is a risk factor for development of invasive placenta because of poor decidualization during development of placenta when it gets implanted in the lower segment. In a study by Silver *et al.*, it was observed that in the presence of placenta previa, the risk of placenta accrete was 3%, 11%, 40%, 61% and 67% for the first, second, third, fourth and fifth or greater repeat cesarean deliveries, respectively [4].

All patients in our study had previous cesarean scar. A uterine scar in the lower segment attracts lower implantation of the placenta and decidua is scanty in this lower uterine segment. In the presence of one or more scars, decidualisation is impaired which leads to an increased risk of trophoblastic invasion into the myometrium in this area.

Anterior placentation was one of the important predictor of abnormally invasive placenta in our study which is similar to the study by Jang *et al.* [5] Majority of the patients underwent emergency CS due to significant bleeding but should have undergone elective CS as adequate preparation and a multidisciplinary team approach including anesthesiology, urology or urogynecology and interventional radiology is required to reduce complications and decrease overall morbidity and mortality. Patients with abnormally invasive placenta are generally delivered preterm in a planned manner prior to 37 weeks before they are expected to go into labor. This is to avoid unpreparedness, which can lead to increased morbidity in the patient when they suddenly go into labor at odd hours.

In our study there were more complications in patients with abnormally invasive placenta in terms of increased blood loss during cesarean section, more need of maternal post-operative ICU admission [6], low Apgar score at birth and more need of NICU admission in the baby similar to reports by Upson *et al.* [3] Estimated blood lo. [7] ss during the cesarean section these patients with abnormally invasive placenta was in higher range

which was similar to the study by Eller *et al.* Peripartum hysterectomy was carried out in all the patients who were found to have abnormally invasive placenta intra-operatively as some authors say without any attempt to remove the placenta, hysterectomy should follow delivery of the infant. Only in few cases in which uterus removal is difficult because of extensive placental invasion into surrounding pelvic tissues, conservative therapy with the uterus and placenta left in situ should be given [8, 9]. In our study, performing a classical CS, not trying to remove the placenta and proceeding directly to hysterectomy resulted in reduced blood loss (1900 ± 1057.7 ml) compared to trying to remove the placenta and then proceeding to hysterectomy (2500 ± 707.1 ml). Peripartum complications were also higher like increased need for blood transfusion (100%) and ICU admission (31.6%). Increased morbidity associated with delivery of patients with abnormally invasive placenta is well known and supported by literature [10].

Conclusion

From the present study we conclude that previous caesarean section and co-existing placenta praevia remains the major risk factors for abnormally invasive placenta. To prevent the occurrence of complications like postpartum hemorrhage and peripartum hysterectomy, continued timely surveillance of the prevalence and impact of abnormally invasive placenta is warranted. A meticulous multidisciplinary planning must be done at the time of delivery and these patients should be delivered in a tertiary center. Abnormally invasive placenta risk is more with more number of previous LSCS. So it is extremely important to have higher threshold for doing cesarean in a primigravida. Reduction in cesarean rate in primigravida and antenatal diagnosis is the major key factor for decreasing the incidence of abnormally invasive placenta and other associated complications as well.

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