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# Morbidly adherent placenta, a cause of emergency obstetric hysterectomy: A 5 year study from district hospital of rural north India

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**Abstract**
**Background:** Placenta accrete spectrum disorders refer to the penetration of the trophoblastic tissue through the decidua basalis into the underlying myometrium, the uterine serosa or even beyond extending into the pelvic organs. The presence of risk factors such as one or more previous caesarean section, uterine surgery, manual removal of placenta, recurrent miscarriages managed surgically should trigger an even more detailed examination of the placental bed during ultrasound examination. Although ultrasound evaluation is important, the absence of ultrasound findings does not preclude a diagnosis of placenta accreta spectrum; thus, clinical risk factors remain equally important as predictors of placenta accrete spectrum by ultrasound findings.
**Material & Methods:** Retrospective, observational and analytical study from March 2013 to February 2018. All women who had vaginal or cesarean delivery in district hospital Samba were included in the study.
**Results:** There were total of 7800 deliveries, out of these 2100 were cesarean section deliveries. Emergency Obstetric Hysterectomies were done in four cases for intra-operative diagnosis of PAS after the delivery of baby and verification that placenta will not spontaneously deliver. The incidence of abnormal invasion of placenta is 1 in 1950 pregnancies.
**Conclusion:** Women with suspected placenta accreta spectrum diagnosed in the antenatal period based on clinical history and on imaging should be delivered at tertiary institute. Early ultrasound examination for at risk patients is important to ensure accurate dating and enable early diagnosis. If the placenta accreta spectrum is diagnosed after the birth of baby on delivery table, attempt should not be made for manual removal of placenta as it can lead to profuse hemorrhage and maternal morbidity and mortality. One should proceed for emergency obstetric hysterectomy after written consent.

**Keywords:** abnormal invasion of placenta (aip.), morbidly adherent placenta, placenta accreta syndrome (pas), emergency obstetric hysterectomy

## Introduction
### Background
Abnormal invasion of placenta (AIP) or placenta accreta spectrum (PAS) disorders refer to the penetration of the trophoblastic tissue through the decidua basalis into the underlying myometrium, the uterine serosa or even beyond extending into the pelvic organs. The term placenta accreta was first described in 1937 by Irving and Hertig as a histopathological term as abnormal adherence of placenta afterbirth in whole or in parts to the underlying uterine wall in the partial or complete absence of decidua [1]. The incidence of abnormal invasion of placenta has increased worldwide mostly as a consequence of the rise in caesarean section rates from 1 in 2500 to 1 in 500 pregnancies [2]. It is a leading cause of maternal and foetal morbidity and. mortality. Haemorrhage continues to be a leading cause of maternal death worldwide accounting for 27.1% deaths as recently as 2014 [3]. In this analysis India & Nigeria together accounted for a third of Global maternal deaths[3]. Surgical complications in the mother are Emergency Obstetrics Hysterectomy and injuries to adjacent pelvic organs, ureters and urinary bladder. The incidence of Emergency Obstetrics hysterectomy varies around the world ranging from 0.64 to 5.09 per 1000 deliveries [4, 5]. One Meta - analysis reported an annual increase of 8% in the incidence of emergency Obstetric hysterectomy around the world [6]. Emergency Obstetric hysterectomy is defined as extirpation of the uterus either at the time of caesarean section or following vaginal delivery or within the puerperium period. Emergency Obstetric hysterectomy can be rightly

classified as a near miss event. A near miss event is defined as a women who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy. The present retrospective study carried out in the District Hospital of North India in low setting resources that undiagnosed morbidly adherent placenta diagnosed after the delivery of baby leads to Emergency Obstetric Hysterectomy. Prenatal diagnosis is of paramount importance as it provides an opportunity to make a management plan for delivery reducing maternal and fetal morbidity and mortality. A thorough past obstetrics & Gynaecology clinical history should raise the strong suspicion of an abnormal invasion of placenta. The presence of risk factors such as one or more previous caesarean section, uterine surgery, manual removal of placenta, recurrent miscarriages managed surgically should trigger an even more detailed examination of the placental bed during ultrasound examination. Although ultrasound evaluation is important, the absence of ultrasound findings does not preclude a diagnosis of placenta accreta spectrum; thus, clinical risk factors remain equally important as predictors of placenta accreta spectrum by ultrasound findings.

## Material and Methods

This was retrospective, observational and analytical study from March 2013 to February 2018. All women who had vaginal or cesarean delivery in district hospital Samba from March 2013 to February 2018 were included in the study. All patients who were referred from other peripheral hospitals during per partum period were also included in the study. Data was collected from admission files, OPD admission registers, theatre registers and ward registers. Data was analyzed with respect to age, parity, and antenatal high risk factors, and indications, type of hysterectomy, co- morbidities and duration of stay in the hospital. Statistical analysis was performed using SPSS 10.0 for windows student version (SPSS Inc. 233 South Wacker Drive, 11th Floor, Chicago, IL 60606-6412). Descriptive were calculated for various clinical outcomes. Our hospital was upgraded District Hospital with storage units for blood only but no availability of blood components so we screened the high risk women such as previous LSCS with low lying central placenta, previous history of manual removal of placenta, history of previous blood transfusions, severe preeclampsia during their antenatal visits. We booked these patients in tertiary institute which has ICU, NICU and Blood Bank with blood component facilities.

## Results

There were total of 7800 deliveries over the study period. Out of these 2100 were cesarean section deliveries. Emergency Obstetric Hysterectomies were done in four cases for intra-operative diagnosis of PAS after the delivery of baby and verification that placenta will not spontaneously deliver. The incidence of abnormal invasion of placenta is 1 in 1950 pregnancies in our study. The women were aged 24 to 35 year, with a mean age at the time of childbirth being 28 year. All these women were multiparous and mean gestational age at child birth was 38.0 weeks. One women had previous normal delivery, three women had previous LSCS. Two women had previous history of surgical evacuation of uterus. Morbidly adherent placenta diagnosed after delivery of baby was the indication for per partum hysterectomy in all our cases. In all cases total hysterectomy was done. Histopathological examination of hysterectomy specimens revealed placenta increta in three cases and placenta creta in one case.

**Table 1:** Table 1 shows the age of patients

| Age (Years) | Number of women |
|---|---|
| 21 – 25 | 01 |
| 26 – 30 | 02 |
| 31 – 35 | 01 |
| 36 – 40 | 00 |

**Table 2**: Table 2 shows parity of patients

| Parity | Number of women |
|---|---|
| P1 | 00 |
| P2 | 03 |
| P3 | 01 |
| P4 | 00 |
| P5 | 00 |

**Table 3**: Shows history of previous caserean section

| Previous Caserean delivery | Number of women |
|---|---|
| None | 01 |
| One | 03 |

**Table 4**: Table 4 shows mode of delivery

| Mode of delivery | Number of women |
|---|---|
| Spontaneous vaginal | 00 |
| Assisted vaginal | 00 |
| Cesarean delivery | 04 |

**Table 5:** Table 5 shows risk factors for PAS

| Risk Factors | Number of Women |
|---|---|
| Previous normal delivery with h/o surgical evacuation of uterus | 01 |
| Previous LSCS | 01 |
| Previous LSCS with surgical evacuation of uterus | 02 |

**Table 6:** Table 6 shows co-morbidities

| | |
|---|---|
| Fever | None |
| Wound sepsis | None |

**Table 7:** Duration of Stay in hospital

| No of days | No of women |
|---|---|
| 8 days | All (4) |

## Discussion

Morbidly adherent placenta as a cause of Emergency Obstetric hysterectomy is increasing for the last two decades [7]. In our study all our cases were diagnosed on operating table in district hospital and we had performed emergency obstetric hysterectomy. The incidence of abnormal invasion of placenta in our study is 1 in 1950 pregnancies which is comparable with reported incidence in literature i.e. 1 in 2500 to pregnancies to 1 in 500 pregnancies [2]. In our study, three fourth of women were in third decade of life and one fourth were in fourth decade of life. There is increased incidence of abnormal invasion of placenta with advanced maternal age [2, 8]. According to a case–control study using the UK Obstetric Surveillance System (UKOSS), there is raised odds of AIP associated with advanced maternal age in women without a previous caesarean delivery (aOR 1.30, 95% CI 1.13–1.50 for every 1-year increase in age from 35 years[2]. In our study, three-fourth of women had at least one prior caesarean section. Previous caesarean section and placenta praevia are the two most recognized risk factors for abnormal invasion of placenta. A recent systematic review

reported an increase in the incidence of abnormally invasive placenta from 3.3%–4% in women with placenta praevia and no previous caesarean section to 50%–67% in women with three or more previous caesarean deliveries[9]. The most common type of child birth preceding the abnormal invasion of placenta in our study was a caesarean section rather than a vaginal delivery, as was the case with majority of studies[2]. According to a case–control study using the UK Obstetric Surveillance System (UKOSS), the odds of having AIP was increased in women who had a previous caesarean delivery (aOR 14.41, 95% CI 5.63–36.85), other previous uterine surgery (aOR 3.40, 95% CI 1.30–8.91), an in vitro fertilization (IVF) pregnancy (aOR 32.13, 95% CI 2.03–509.23) and placenta praevia diagnosed antepartum (aOR 65.02, 95% CI 16.58–254.96) [2]. Maternal and fetal mortality was none in our study because these cases were diagnosed intra-operatively after the delivery of baby and we immediately proceeded for emergency obstetric hysterectomy after verification that placenta will not deliver spontaneously. There was no profuse hemorrhage as attempt was not made for manual removal of placenta. Earlier the maternal mortality was as high as 7%–10% worldwide[10]. But recent series has reported a decrease in maternal mortality because of treatment of these patients in specialist centers and the improvement on prenatal diagnosis [11, 12, 13]. There were no co- morbidities like fever, wound sepsis etc in our patients and all the women discharged on 8th post-operative day. The most common indication for emergency per partum hysterectomy is abnormal invasion of placenta, Cho GJ *et al*., and Chen J *et al*., observed a change in most common indication from uterine atony to abnormal placentation [14, 15]. This in contrast to some studies which reported rupture of uterus to be the most common indication for EPH, followed by placental causes and uterine atonicity [16, 17, 18, 19]. The UKOSS concluded that more than 150 women were managed successfully with an EPH for each woman who died after the procedure [20]. There has been a significant fall in the maternal mortality rates across the globe due to advancements in technology, uterotonics and surgical techniques. However, the most common reason for performing an EPH is still postpartum hemorrhage in developing countries. With increasing rates of caesarean section and its associated rise in placenta praevia and placenta accreta, the incidence of EPH is expected to rise world over. Regular audits are needed to curb the caesarean section rates and its accompanying complications. A thorough past obstetric and gynecological clinical history should raise the strong suspicious of an abnormal invasion of placenta. The presence of one or more previous caesarean sections, manual removal of placenta, recurrent miscarriages managed surgically or a history of endometritis among others should trigger an even more detailed examination of the placental bed during ultrasound examination. The threshold for performing an EPH will depend on hemodynamic stability of the patient and the surgical expertise of the obstetrician with regard to conservative procedures like B-Lynch sutures, uterine and internal iliac artery ligation. Subtotal EPH may be a better choice when surgery needs to be completed in a shorter time before the onset of hemodynamic instability. The complications following EPH like ICU admission and need for blood transfusions are also mostly due to the underlying hemorrhage. However, urological injuries, febrile morbidity, wound infection, prolonged hospital stay, due to the EPH is influenced by technique and skill of operating surgeon, availability of blood products, adequate antibiotic cover and intensive care management. Performance of EPH by an experienced surgeon is reported to significantly reduce the operating time, number of units of blood transfusion and hospital stay. An informed consent regarding the possibility of EPH and ensuring the availability of a consultant while managing a high risk parturient can prevent mortality. Although, EPH marks an abrupt end to the reproductive career of a woman, it is an acceptable alternative where expertise or facilities for more complex modalities of management, such as uterine artery embolization may not be available. Placenta accreta is becoming increasingly common and is associated with significant maternal and fetal morbidity and mortality. Knowledge of risk factors and antenatal imaging expertise can help guide the diagnosis. Preparation for delivery and postpartum care should involve a multidisciplinary team and early antepartum consultation guided by the levels of maternal care. Cesarean hysterectomy can be challenging and should be performed by the most experienced surgeon. When placenta accreta spectrum is encountered at the time of delivery without a prior suspicion or diagnosis. The most generally accepted approach to PAS is cesarean hysterectomy with the placenta left in-situ after delivery of the fetus, attempts at placenta removal are associated with significant risk of hemorrhage. Many standard routine operative procedures, including use of standard peri-operative antibiotic prophylaxis remain applicable [21]. Many clinicians will rapidly close the uterine incision and then proceed for hysterectomy after verification that placenta will not deliver spontaneously. Attempts at forced placental removal often result in profuse hemorrhage and are strongly discouraged [22, 23] . If an antenatal diagnosis of PAS is uncertain or the preoperative diagnosis is unclear, a period of intra-operative observation for spontaneous uterine placental separation is appropriate as long as preparations for uterine removal are in place. After taking informed written consent from family and husband one can proceed for emergency obstetric hysterectomy.

## Conclusion

Ideally, women with suspected placenta accreta spectrum diagnosed in the antenatal period based on clinical history and on imaging should be delivered at tertiary institute. Early ultrasound examination for at risk patients is important to ensure accurate dating and enable early diagnosis. A reasonable approach to perform ultrasound examination at approximately 18-20, 28-30 and 32-34 weeks of gestation in asymptomatic patients should be done in women who had previous history of manual removal of placenta, history of uterine surgery, surgical curettage and previous lower segment cesarean section with placenta previa. If the placenta accreta spectrum is diagnosed after the birth of baby on delivery table, attempt should not be made for manual removal of placenta as it can lead to profuse hemorrhage and maternal morbidity and mortality. One should proceed for emergency obstetric hysterectomy after written consent. Emergency Obstetric hysterectomy is a life saving procedure especially in low resources setting. Delivery centers need the expertise to perform a emergency obstetric hysterectomy. If the patient is stable after delivery of fetus and the centre is unable to perform the hysterectomy under optimal condition patient should be transferred to a facility that can perform the necessary level of care.

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