



Placenta Accreta Spectrum-An Obstetrician Nightmare- Its Management and Outcome in a Tertiary Care Centre

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Abstract

Background: Placenta accreta spectrum (PAS) is a rare embryological disorder where abnormal trophoblastic invasion of a part or whole of the placenta occurred into the myometrium of uterine wall. The risk of morbid adherence of placenta increases with each caesarean section. We present our experience of 16 PAS cases management and its outcome in a tertiary care centre. **Material & Methods:** Retrospective data analysis of PAS patients were done over a period of 2years from September 2019 to August 2021 at department of obstetrics and gynaecology, a tertiary care centre, Bhubaneswar India. Detail obstetric history, their presentation, prenatal investigations, intra operative findings, amount of blood loss, transfusion details of blood and blood product, ICU admission and complications were recorded and analysed. **Results:** Incidence of PAS in our institute was 0.59%, all were multigravida, elderly age having previous scared uterus with placenta previa. 9 cases being suspected having adherent placenta prenatally & 11 cases had central placenta previa. All 16 cases(100%) needed caesarean hysterectomy during surgery due to torrential bleeding All cases needed massive blood & blood product transfusion, 12/16 cases required ICU admission. Mortality rate was 12.5 % (2cases) in our study where both were admitted in emergency hour with massive blood loss and diagnosed to have morbidly adherent placenta intraoperatively. **Conclusion:** Prenatal diagnosis of abnormal invasion of placenta by 2D USG in case of high-risk suspected cases like anterior placenta previa in previous LSCS, reducing caesarean rate by strict to indicated caesarean section and liberal decision for caesarean hysterectomy may help in reducing maternal morbidity and mortality.

Keywords:- Morbidly Adherent, mortality, placenta previa, embryological, Cesarean Hysterectomy.

INTRODUCTION

Morbidly adherent placenta described as spectrum of disorder, where abnormal adherence of the part or whole of the placenta to the uterine wall is known as placenta accrete spectrum (PAS). It includes placenta accrete, increta and percreta depending on trophoblastic invasion through the decidua

basalis into and then the myometrium. When the anchoring villi simply attached to myometrium is defined as Placenta accrete. In placenta increta when villi extend into the myometrium and placenta percreta when villi invade beyond the uterine serosa and sometimes to adjacent pelvic organs.^[1] The International Federation of Gynaecology and Obstetrics (FIGO) 2019 Placenta Accreta



Spectrum Disorders Diagnosis and Management Expert Consensus Panel for better understanding and management have classified PAS as follows Grade 1 : placenta adherent or accreta, Grade 2 :placenta increta and Grade 3 :placenta percreta (subtype 3a -- limited to the uterine serosa, 3b -- urinary bladder invasion and 3c -- invasion to other pelvic tissue/organs).[1] Association of rise in incidence of PAS cases have been appears to correlated with increase in caesarean section rate in recent years.[2] Considerable risk factors include uterine scar due to Caesarean section, placenta previa(central and low-lying), later age of conception, multiparous and previous endouterine procedures. The mean prevalence of PAS was 0.17 percent (range 0.01 to 1.1 percent) of JauniauxE et al in2019 a metanalysis that included 7001 cases of PAS among nearly 5.8 million births.[3] Their study have also concluded that placenta accreta is more common than increta and percreta.[3] Diagnosis of PAS prenatally is effective with ultrasonography and Doppler studies which help in decreasing morbidity of the condition with effective management. Magnetic resonance imaging (MRI) is indicated in case of inconclusive ultrasound or Doppler findings.

American College of Obstetrics & Gynaecology (ACOG) and the Society for Maternal-Fetal Medicine recommend PAS patients should receive level III (subspecialty) or higher care as it is a high risk condition associated with serious complications.[4] Multidisciplinary approach should be shouted involving the patient and her family, the anaesthetist, obstetrician and sometimes urologistin suspected placenta accretion. Advance delivery planning should be made for management of such patients.

According to WHO, the main cause of maternal death is haemorrhagic shock for which abnormal placental invasion disorders have become a major risk for pregnant ladies.[5] Aim of this study was to formulate strategy for prenatal diagnosis and proper management of individual PAS patients to reduce maternal mortality and morbidity in our hospital setup.

MATERIAL AND METHODS

Retrospective data analysis of placental accreta spectrums were done over a period of 2years from September 2019 to August 2021 in a tertiary care centre at Department of obstetrics and gynaecology, Bhubaneswar India.

Detailed maternal history including age of the patient, gravida, parities, gestational age at diagnosis of PAS, associated placenta previa, detailed past obstetric history including number of caesarean deliveries, uterine curettage were recorded. In present pregnancy any obstetric and medical complications like gestational hypertension, preeclampsia, essential hypertension, diabetes, during pregnancy, cardiac diseases and any other morbidity were also recorded.

Amount of blood loss in intraoperative period is assessed through quantitative estimation of blood collected in suction reservoir and fully soaked surgical mop estimated approximately 100 ml per each and 10 ml for each gauze were calculated.

Details of management with specific regards to type of surgery, degree of placental villa invasion, intraoperative injuries to viscera, transfusion of blood and its components both in intraoperative and postoperative period of 48 hours were tabulated. Information regarding

ICU management like number of days of admission, complications with prolonged ICU stay was also included. Causes and detailed information regarding maternal mortality were also noted.

We represented results of our data of 16 cases with regards to demographic factors, risk factors, time of diagnosis, mode of management, complications, maternal and neonatal morbidity and mortality in the form of tables, and percentages. As small number of cases are not sufficient for statistical analysis.

RESULTS

We had identified 16 cases of placenta accrete spectrum based on prenatally suspected with ultrasonography and confirmed in intraoperatively along with which were incidentally diagnosed during delivery due to associated risk factors. In all cases diagnosis was confirmed histologically. Total 16 numbers of PAS cases were diagnosed during the period of two years out of 2692 deliveries with an incidence of 0.59%. Coming to demographic factors Table 1: indicates all PAS spectrum cases were multigravida with previous uterine scar and were in their early third trimester. 75% cases were age group of 30 and above years. 9 (56%) out of 16 cases were admitted with complain of bleeding per vagina while 7 (44%) case for safe confinement. Table 2: shows almost 70% (11/16) of PAS cases being diagnosed prenatally. In intraoperative 9 (56.25%) cases had been diagnosed to have increta (Grade 2) and 7 (43.7%) cases being percreta (Grade 3a and 3b).

Coming to placental localisation Table 3: indicate 100% cases of PAS had placenta previa and 80% being central placenta previa.

Management and complication point of view Table 4: shows 100% cases needed caesarean hysterectomy due to torrential bleeding with blood loss ranging from 4 to 8 lit, mean loss being 5.75 lit and 75% patient need ICU admission

In our case series mortality rate was 12.5% (2 cases). Both cases were presented in labour with bleeding per vagina with shock index (SI) >1 while admission and underwent emergency Caesarean section. Both of them had central placenta previa with PAS grade-3a & other grade 3b. Both cases had severe Uncontrolled torrential bleeding ended up with hysterectomy and Massive transfusion protocol were followed. In spite of all efforts, both cases had ICU admission with prolonged stay and death occurred in view of Disseminated Intravascular Coagulation (DIC) and sepsis.

DISCUSSION

During the period of our study the incidence of PAS was 0.59%. Similar study from Pune by Savitha et al, observed incidence of 4.3 per 10000 deliveries.^[6] It is mentioned as 4 per 10000 deliveries in Morgan et al,^[2] study and comparatively fewer incidences was observed in Fitzpatrick et al. study.^[8] This high incidence in our centre could be aspect of being tertiary referral centre which have prompted us to document the cases of PAS. Indications of caesarean section like twin pregnancy, breech presentation, scared uterus in current obstetric practice are not anticipated to change in future.^[9] In response to formulate a suitable

management of such cases, women at risk has to be identified.

Placenta previa in a previous caesarean delivery is the most important risk factor for developing PAS.^[10] The percentage of adherent placenta following one previous caesarean section is 0.3% which increases with an increasing number of caesarean deliveries to 6.74% for women with five or more caesarean deliveries.^[11] Prenatal diagnosis of PAS has been increased currently due to wide spread use of good imaging modalities and also looking for placenta accrete in scarred uterus with anterior placenta previa.

In our study previous one Caesarean Section and previous two CS contributes 8(50%) in together. It is evident from many studies, like Wu et al,^[12] in 20 years of retrospective study. In our study majority of cases were from 3rd decade between 30-35 years with a median age being 30 years. All of them are multiparous with 8 of them are \geq Gravida 3 and 8 being Gravida 2. It indicates advanced age at time of pregnancy and multiparity are contributory risk for abnormal placentation. Study done by Savita et al,^[6] and Heather J baldwin et al,^[13] were also observed similar results. In our study all cases of PAS had previous uterine scar due to Caesarean section were present. This establishes the risk associated with it, when compared to 76% in study by Savita S et al,^[6] and 84% in Fitzpatrick KE et al.^[8]

Placenta previa itself is an independent cause for placenta accretion.^[10] In our series it is observed out of 16 cases, among them low lying placenta in 3(18.75) cases and central placenta previa in 13(81.25) cases. Relationship between placenta previa and accretion is similar compared to 71% in Chowdhary et al,^[14] 64% in

study by Fitzpatrick et al.^[8] Study reported by Miller et al,^[15] an incidence of placenta accretion without any risk factors was 1/68 000 births or 0.0015% while it was 10% in patients with a low-lying placenta. Functional quality of decidua is poor near isthmus and internal cervical orifice which leads to deeper trophoblastic penetration in case of lower insertion of placenta. Further in presence of scar at placental attachment site and in central placenta previa there is an increase in risk of accretion.^[16]

Any intra uterine procedure which leads to a defect in restoration of endometrium such as endometrial curettage, suction and evacuation is associated with placenta accreta.^[17] In our series 5 (31.2%) cases had past history of suction and evacuation and out of them 3 had > two times. Other risk factors identified including gestational hypertension, Gestational diabetes could be less significant and in our study group no one had either of it. Main antecedents are maternal age, multiparity, Caesarean section in all cases, placenta previa and endouterine procedures both are present in 31.2% cases.

Placenta implanted over a previous caesarean section scar in case of previa most often helps in diagnosis of adherent placenta prenatally or serious bleeding leading to complication during delivery. In our study prenatally diagnosed with 2D ultrasound with Doppler's made possible of diagnosis in 68.75% (11/16 cases), where as 5 cases (37.5%) were diagnosed intra-operatively. Features of PAS can be suspected from first trimester by ultrasound but mostly it is diagnosed in second and third trimesters. In our case series prenatal diagnosis of PAS were made in early 3rd trimester which help us formulating the line of management. The surgical procedures in prenatal group almost

were elective CS and proceeded to obstetrical hysterectomy. MRI was not done in our series. For all elective cases 3 units of each PRBC, FFP and RDP were always kept ready before surgery as per transfusion protocol of 1:1:1.^[18] Anticipating complications multidisciplinary team include department of transfusion medicine, anesthesia, urology, NICU and ICU were informed ahead.^[19] All cases were performed through midline longitudinal skin incisions for better asses. To avoid torrential bleeding while putting uterine incision through placenta higher transverse incision was preferred above placental insertion as all cases were placenta previa. Injection tranexamic acid 1gm iv was given before incision as protocol for management of PPH.^[20] Once accrete is confirmed after delivery of baby hysterectomy was proceeded with placenta,^[19] and without suturing uterine incision to save time. Before proceeding for hysterectomy to minimize blood loss bilateral uterine vessels and utero ovarian anastomosis were occluded by tourniquet. Simultaneously blood and blood products were transfused to replenish the loss. In our study group as all cases were placenta previa with PAS, total hysterectomy was performed to prevent cervical bleeding. Standard perioperative use of prophylaxis antibiotics was followed.^[21] Shock index was >0.7 before incision in all elective cases which helps in preventing mortality. Diagnosis of PAS antenatally and planned approach with multidisciplinary team involvement is keystone in optimizing maternal outcome and helps in decreasing morbidity and mortality.^[19,22] Majority of cases can be diagnosed by gray-scale Second and third trimester ultrasonography if there is any obscure of echolucent line at the level of uteroplacental

interface along all the plane of placental attachment. Other sonographic finding may include multiple venous lake (placental lacunae) that may make the placenta appear like moth eaten or Swiss cheese - character, puffed of the placental/myometrial site into the bladder, and turbulent blood flow extending from placenta to surrounding tissue evident on colour-Doppler. Wong et al., reported that using a composite scoring system of 6 sonographic findings performed with gray-scale and Doppler sonography had 89% sensitivity and 98% specificity for the diagnosis of placenta accrete.^[23] Painless intergestational bleeding per vagina sometime quite heavy is a significant clue for diagnosis. In our study 9 (56%) cases warning sign was bleeding per vagina. No diagnostic tool is 100% accurate in ruling out placenta accrete during antenatal screening. Prenatal diagnosis may be missed because of ineffective ultrasound scanning in high-risk pregnancies. Low percentage of diagnosis is reported by E Cloqueuret al,^[24] 24% only and also 50% diagnosis was recorded in study done by O'Brien et al.^[25] Looking at areas of placenta adherence where there is deficit of deciduas and direct contact of chorionic villi with myometrium in postpartum hysterectomy specimen confirms the diagnosis.^[26] In our study 5 cases (31.25%) were diagnosed on postpartum specimens.

Placenta accreta spectrum disorders associated with severe intrapartum and postpartum complications such as severe blood loss, sepsis, DIC, multi organ failure, need for ICU admission along with these complications most troubling event is hysterectomy in early age.^[27] 12 patients (75%) in our study group were needed ICU admission due to such

complications. The management protocol depends on the type of placenta accretion and the patient's wishes for fertility preservation.^[28] Multidisciplinary care in a tertiary centre are desired for managing morbidly adherent placenta. Appropriate planning including maternal-fetal unit, radiologists, anaesthetist, urologists and viscera lists should work together.^[29] The deeper the penetration and large area of involvement in adherent placenta may leads to sever haemorrhage and need of performing peripartum hysterectomy. [1] The main complication encountered in our case series was the haemorrhagic shock and the average need of transfusing packed RBCs was 5 and 4 FFP per patient respectively. Severe blood loss observed in all most all cases with a mean volume loss of 5.5 litres approximately. Two patients had died out of 16 (12.5% maternal mortality rate) and there was no neonatal mortality. Maternal death was reported 7% in O'Brien et al. (8/109 patients).^[25] The maternal mortality rate in Aziz slaoui et al. series was 17% (1 patient of 6),^[2] Both expired patients were unbooked in our hospital, admitted in emergency with sever vaginal bleeding having shock index>1. Eemergency caesarean section was performed and though blood loss was tried to replace with available blood products, patients went into irreversible shock followed by DIC, sepsis and death. In our series all cases were PAS with previous LSCS ended up with hysterectomy in view of severe bleeding. Similar results were also observed in study reported by Somosi Pitukkijronnakornetc,^[30] where all of their cases needed caesarean hysterectomy. Elective Caesarean section was performed in 12 cases fallowed by hysterectomy where as emergency section with hysterectomy was done in 4 cases.

Urinary bladder injury is one of the most important and devastating complication associated with placenta accreta management, which increases the morbidity and length of hospital stay.^[31] In our study bladder injury was observed in 5 (31.25%) cases among them 4(21%) were encountered in emergency posted cases. It indicates unpreparedness to tackle sever hemorrhage had resulted it. Preoperative ureteric stent placement is not recommended routinely but may be considered in case of PAS3b where bladder is involved.^[19] Hospital stay was prolonged (10-15) days in our case series due to morbidity related need for ICU admission and bladder injuries.

Neonatal risks observed in PAS are preterm and small for gestational age babies and similar results were obtained in our case series where all deliveries were preterm baby including one extremely preterm of <28 weeks.^[32]

CONCLUSIONS

There has been increase in the incidence of abnormal placental implantation leading to placenta accrete spectrum disorders due to rising rate of both primary and repeat caesarean sections along with other risk factors like placenta previa, elderly age during pregnancy and uterine surgery involving endometrial mucosa. Risk of heavy transfusion related complication is always associated with it and may end up in mortality.

Routine caesarean section should not be performed unless it is indicated, as history of caesarean section and its association with placenta previa increases the incidence of PAS. High degrees of suspicion of accrete in anterior previa in a scarred uterus along with addition of 2D ultrasound and MRI can diagnose it



prenatally which helps its efficient management. Planned elective caesarean hysterectomy in a tertiary care centre is the

safest and most realistic option for developing countries.

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