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Case Series

Case series on placenta accreta spectrum disorder and its management

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ABSTRACT

Placenta accreta spectrum (PAS) is a potentially life-threatening obstetric condition that requires a multidisciplinary approach to management. The main complication of PAS is due to it's massive obstetric haemorrhage which leads to maternal morbidity and mortality. The incidence of placenta accreta spectrum increases day by day due to an alarming increase in caesarean section rates. Depending on the range of invasiveness, The Placenta accreta spectrum is classified as placenta accreta, placenta increta and placenta percreta. We report here a series of 5 cases of placenta accreta spectrum and their management at our centre. With all due pre-op preparedness and anticipation of complications. All 5 cases had good maternal and fetal outcome. In 3 cases hysterectomy was required and 2 cases uterus could be preserved.

Keywords: Placenta accreta spectrum, Obstetrics hemorrhage, One step uterine conservative surgery

INTRODUCTION

Placenta accretion was first described in 1937 by Irving as failure of separation of placenta from the uterine wall following delivery. It is a potentially life-threatening obstetric condition that requires a multidisciplinary approach to management. Massive obstetric haemorrhage which leads to maternal morbidity and mortality is the main complication of PAS. Observational studies conducted from the 1970s and 1980s estimated the prevalence of placenta accreta as between 1 in 2,510 and 1 in 4,017 compared with a rate of 1 in 533 from 1982 to 2002.[1] A 2016 study conducted using the National Inpatient Sample found that the overall rate of placenta accreta in the United States was 1 in 272 for women who had a birth-related hospital discharge diagnosis, which is higher than any other published study.[2-5] The increasing rate of placenta accreta over the past four decades is likely due to a change in risk factors, most notably the increased rate of caesarean delivery, assisted reproduction technology. The Placenta accreta spectrum is classified as placenta accreta, placenta increta and placenta percreta depending on the range of invasiveness. The etiology of placenta accreta spectrum is that a defect of the endometrial–myometrial interface leading to failure of normal decidualization in the area of a uterine scar, which allows abnormally deep placental anchoring villi and trophoblast infiltration. Now prenatal ultrasound scanning with gray scale imaging and color Doppler imaging seems to be an excellent tool for screening of PAS.[6] The absence of Nitabuch's layer was considered the main phenomenon that led to abnormal placental invasion for many years. However, numerous cases have been reported where absence of Nitabuch's layer coexisted with normal placentation. This observation suggests that absence of Nitabuch's should layer might be a secondary process, rather than the primary cause of abnormal invasiveness.

Risk of PAS disorders significantly increased as number of caesarean deliveries increased. Risk of placenta accreta was 3% with one caesarean section increased to 60% when women had history of 4 or more CS and history of placenta praevia.[7]

Table 1: Risk factors for PAS disorder.

Risk factors of placenta accreta spectrum disorder	
History of previous caesarean delivery	Uterine anomaly
Smoking	Endometritis
Uterine curettage	Multiparity
myomectomy	Advance maternal age

CASE SERIES

Case 1

A 33-year-old female G4P2A1L2 with previous 2 LSCS referred from private came to OPD at 32 weeks with ultrasound suggestive of Placenta previa with possibility of percreta. Patient was admitted and diagnosis was confirmed with MRI abdo-pelvis.

MRI report

Focal areas of loss of normal retroplacental hypoechoic zone are noted at scar site (on left side) with concomitant thinning of myometrium with Doppler perceptible vascularity in interface and adjacent vocally thinned out bladder wall and possible invasion of placental tissue to the bladder wall. However, no e/o intramural extension of placenta noted in bladder at present study. Findings are suggestive of Complete Placenta previa grade 3 with Placenta percreta.

All pre-op investigations were done. Her Hb on admission was 9.5 gm%, WBC- 12700/cmm, platelets- 410000/cmm. LFT and RFT within normal limit.

With all pre-op preparations and counselling of patient and relatives.

Elective termination was planned at 35 weeks after antenatal corticosteroid coverage and pre anaesthetic assessment.

Per operatively

Abdomen opened by vertical infra umbilical incision. Baby was delivered by breech extraction via classical incision. Abnormal placental vasculature seen traversing from thinned lower uterine segment to bladder. No trial was done to manually remove placenta. Decision for obstetric hysterectomy taken. Bladder advanced and adherent to uterus, sharp dissection was done. Bladder serosal tear was noted at dome, sutured with vicryl 3-0 in continuous non locking manner. ADK drain was kept. Total 3 units PCV and 3 units FFP were given transfused intraoperative.

Patient shifted to ICU for monitoring. 1 unit of PCV transfused on post op day 2. Abdominal drain was removed on post operative day 5. Foley's catheter was kept for 14 days rest post op period was uneventful. Mother with healthy baby was discharged.

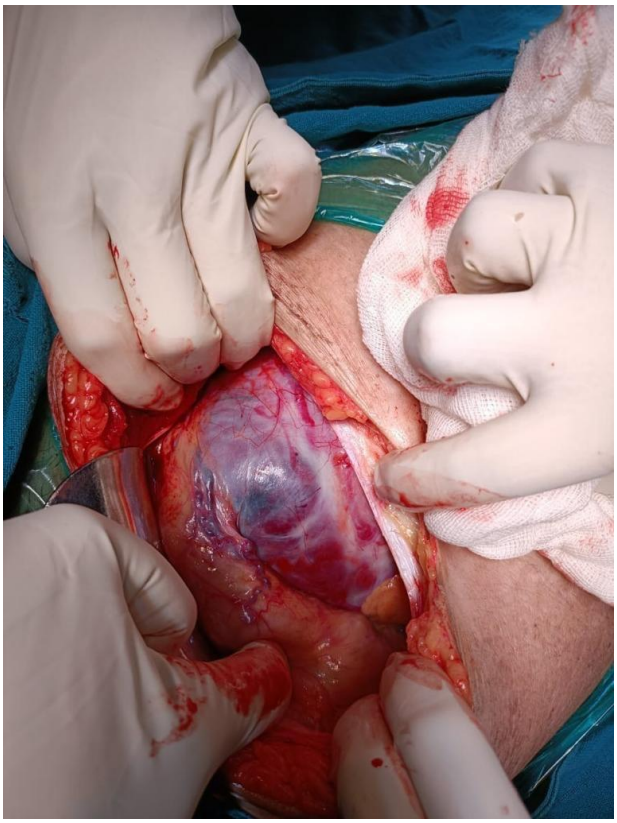

Figure 1: Placenta accreta; intraoperative picture showing abnormal vessels traversing between bladder and thinned out lower segment.

Case 2

A 30-year-old female G6P1A4L1 with previous one LSCS with 30 weeks of gestation with complaint of spotting per vaginum came to emergency with MRI suggestive of anterior placenta completely covering os. Approximately 3cm area of loss of T2 hypointense myometrial signal noted in lower uterine body with invasion of intermediate signal intensity placental tissue in myometrium up to serosa- s/o increta.

On assessment

Patient was stable and was then posted for laprotomy after antenatal corticosteroid coverage and neuroprotection next day.

Exploratory laprotomy followed by respective constructive one step uterine conservative surgery was done.

Intraop

Baby was delivered via a horizontal incision in upper segment. Placenta was removed from the same incision.

Bilateral uterine arteries were lighted. Bladder was dissected sharply and pushed downward. In lower segment placenta was adherent, then focal myometrial resection was done in lower segment with adherent placenta. Hemostatic sutures were taken at cervicoisthmic junction after putting hegars dilator in cervix to prevent cervical obliteration. Exploratory laprotomy followed by resective constructive one step uterine conservative surgery. Total 2 units PCV 2 units FFP and 2 units PRC were transfused. Transverse incision site in upper segment was apposed in double layers, similarly myometrial resection site was apposed in double layer.

Postoperative period was uneventful. Mother with healthy baby was discharged.

Figure 2: Intraoperative uterus after placenta removal and one step uterine conservative surgery.

Case 3

A 38-year-old female G5P4A0L3 with 8 months of amenorrhea with all previous vaginal deliveries came to emergency with complaints of spotting per vaginum. Patient was examined and then sent for ultrasonography. All routine investigations sent. Ultrasonography was suggestive of single live intrauterine fetus with 33 weeks of maturity with anterior placenta completely covering os placenta previa grade 4 with increta. After betnasol coverage, Elective termination was planned. On exploratory laprotomy, baby was delivered by classical incision. Bilateral uterine arteries were ligated. Placenta was tried to remove from same incision. Placenta removed in piece meal. Placenta was adherent in lower segment, myometrium resected focally with adherent placenta. Hemostatic sutures taken at cervicoisthmic junction after introducing hegars dilator in cervix. Exploratory laprotomy followed by resective constructive one step surgery was done. Total 3 units PCV and 2 units FFP were given. Post operative period was uneventful. Mother with healthy baby were discharged on post operative day 6.

Figure 3: Specimen, placenta and excised myometrium with adherent placenta.

Case 4

A 37-year-old female G2P1A0L2 came to emergency at 36 weeks of maturity with previous one LSCS with complaint of decreased fetal movement since 4 hours. On examination FHS couldnot be located with Doppler.

Ultrasonography showed single fetus with cephalic presentation with no fetal cardiac activity suggestive of intrauterine fetal death with 35 weeks 5 days of maturity. Placenta is central, low lying, completely covering the internal os s/o type IV placenta previa.

There is focal loss of retroplacental normal hypochoic zone with concomitant loss of myometrium with increased vascularity, there is suspiciouc focal interruption of hyperechoiec border between uterine serosa and bladder with hyper-vascular right lateral wall of urinary bladder.

Findings s/o abnormal placental invasion - p/o placenta percreta.

All routine investigations were done and her hemoglobin was 13 gm%.

Decision was taken to terminate pregnancy in view of Intrauterine fetal demise with placenta previa with percreta. Laparotomy was taken.

Intra operative

Baby was delivered via classical upper segment incision. Abnormal placental vessels were noted traversing from lower uterine segment to bladder. Torrential bleeding from placental site immediately proceeded with obstetric hysterectomy. Bladder separated from lower uterine segment with sharp dissection, multiple vessels traversing between lower uterine segment and bladder were gently held with artery forceps ligated and cauterised with polygalactin 2-0. Total 3-unit PCV 3-unit PRC and 3-unit FFP were given intraop.

Post operative

Patient shifted to ICU in view of per op hemorrhagic shock, later 2-unit PCV PRC and FFP were transfused. Recovery was uneventful and patient was discharged on post op day 8.

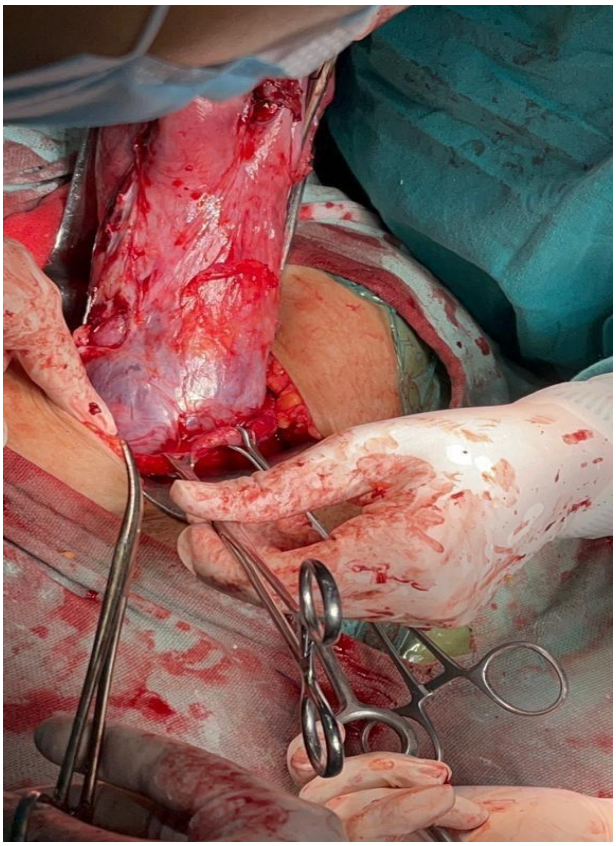

Figure 4: Intraoperative thinned out lower segment with placental buldge with abnormal vessels traversing between lower uterine segment and bladder.

Case 5

A 32-year-old female G4P3A0L3 with 36 weeks maturity with previous 3 cesarean sections came to emergency room with complaints of spotting per vaginum. Ultrasonography showed complete placenta previa grade 4 with focal placental percreta. All routine investigations were done, blood products where reserved patient was then posted for emergency laprotomy.

Intraop

Dense adhesions were present between anterior abdominal wall bladder and omentum. Abnormal placental vessels seen lying in between multiple dense adhesions. Findings were suggestive of placenta percreta, after delivering baby via classical incision. Decision taken directly to proceed with obstetrics hysterectomy. Total 3 PCV, 3 FFP and 3 PRC were transfused intraoperatively. Postoperatively patient was shifted to ICU for monitoring. 1-unit PCV was given on pod 2 and pod 3. Rest postoperative period was uneventful.

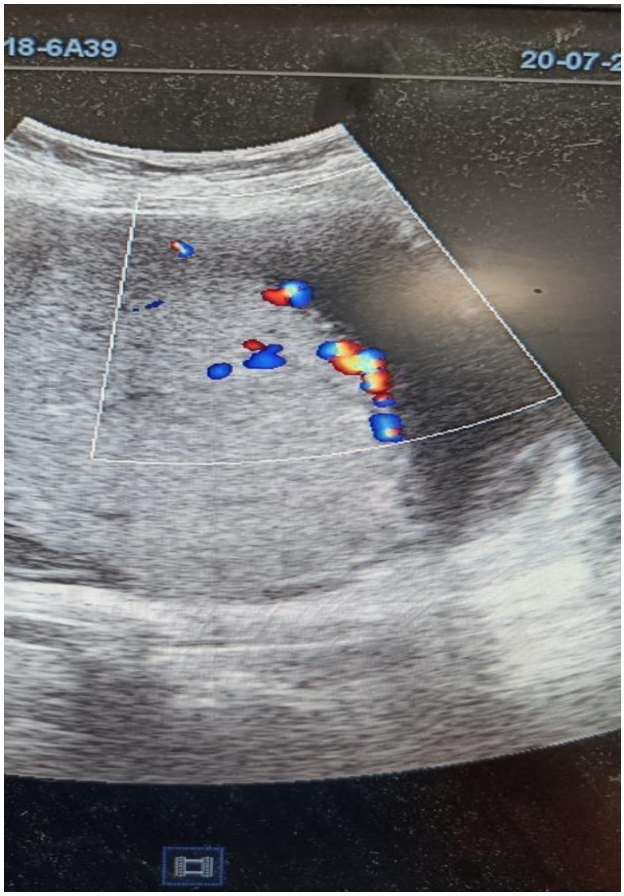

Figure 5: Antenal ultrasonography showing anterior lying placenta completely covering the internal OS.

There is a loss of clear retroplacental space near the scar site. Further, lacunes extend into the uterus-bladder interface and show abnormal color filling.

DISCUSSION

Here are 5 cases of morbidly adherent placenta which were managed at our centre. All 5 cases had successful outcome with no long-term morbidity or mortality.

The groups were similar with respect to maternal age and gestational age at delivery.

All the patient in this study but one had at least one previous caesarean section. All five patients had placenta previa. Risk of placenta accreta is 3% with one caesarean section increased to 60% when women had history of 4 or more CS and history of placenta praevia.

With all pre-op checklist preparations and predicting all possible complications back up was prepared.

Management of placenta accreta spectrum requires a multidisciplinary approach, which should also include preoperative checklist. Cahill et al in 2018, suggested multi-disciplinary team comprising of obstetrician, anaesthetist, radiologist, intensivist and blood bank is an absolute requirement in patients with PAS.[8] Out of 5 cases three patients underwent obstetrics hysterectomy (radical surgery) two underwent uterine conservative one step surgery. Earlier obstetric hysterectomy with the placenta left in situ was only surgical option available for management for PAS. But now uterine preserving surgery (including partial myometrial resection) is possible if the extent of the placenta accreta is limited in depth and surface area, and the entire placental implantation area is accessible and visualised (i.e. completely anterior, fundal or posterior without deep pelvic invasion). One step conservative surgery has been firstly described by Palacios-Jaraquemada.[9] In one step conservative surgery entire placenta along with the invasive myometrial tissue is resected in one piece. This is followed by uterine myometrial reconstruction and bladder repair if required. One step conservative surgery can be performed if 2 cm of healthy segment left above the uterine cervix and repair after resection is possible when segmental tissue destruction is less than 50% of axial circumference otherwise one should proceed for hysterectomy. The colpouterine hemostatic sutures are placed with a pair of square stitches following the technique described by Cho et al.[10] With the aim of preventing hematometra, a Hegar's bougy dilator is placed in the uterine cervix, which will move towards one of the sides.[10] This makes the process easier and reduces the risk of accidental closure of internal cervical.

Other uterine conservative surgeries are also available such as triple P technique.

Triple P technique is preferred in partially adherent or invasive placenta (<50% involvement of placental surface area). Chandaran et al described triple P technique in 2006 in a case series of 4 women with anterior placenta percreta.[11] In this procedure firstly horizontal incision was made 2 finger breadths above the placental edge. Then, preoperatively placed intraarterial balloon catheters were inflated post-delivery. Lastly en bloc myometrial excision was made and new zone was repaired.

Conservative management is done with placenta left in situ and follow up is done with serum beta HCG levels. But outcome of conservative management had more complications ranging from Development of coagulopathy, septicemia, or secondary haemorrhage may require an emergent hysterectomy. A small study conducted by Hsiu-wei Suet al reported a high maternal complication rate (87.5%) and a low successful uterine preservation rate (25%) with conservative management of abnormally invasive placenta.[12]

Uterus preserving surgical techniques should only be attempted by surgeons working in teams with appropriate expertise to manage such cases and after appropriate counselling regarding risks and with informed consent. The aim of this technique is to have the benefits of both the "leaving the placenta in situ approach" by preserving the uterus and "cesarean hysterectomy" by minimizing the risk of secondary hemorrhage or infection.[13]

CONCLUSION

The morbidly adherent placenta is continuously increasing in trend due to increased caesarean section incidence. And severe maternal morbidity associated with it makes it an obstetrician's nightmare. Its management requires multidisciplinary approach and one should be over prepared and anticipate any complications that can develop intraoperatively and in post operative period. Management of PAS should be individualised for patients according to their prepped radiological findings and intraoperative findings.

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