

Case Series on Placenta Accreta Spectrum Disorder and Its Outcome at Tertiary Care Centre

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ABSTRACT

Placenta Accreta Spectrum (PAS) is a critical obstetric condition that poses a significant threat to maternal health and requires a multidisciplinary management strategy. The primary complication of PAS is severe obstetric hemorrhage, which is a major contributor to maternal illness and mortality. The incidence of this condition is rising in correlation with the increasing rates of caesarean sections. PAS is classified into three categories based on the depth of placental invasion: accreta, increta, and percreta. This report details a series of five PAS cases managed at our facility. Through meticulous preoperative planning and anticipation of potential complications, all five cases concluded with positive maternal and fetal outcomes. A hysterectomy was necessary in four instances, while the uterus was successfully preserved in one patient.

Keywords: Placenta Accreta Spectrum (PAS), obstetric hemorrhage

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INTRODUCTION

Placenta Accreta Spectrum (PAS) refers to a group of conditions involving abnormal placentation, where the placenta adheres too deeply or invades the uterine wall.¹ This obstetric emergency requires a coordinated multidisciplinary strategy due to its life-threatening potential. The primary danger associated with PAS is massive hemorrhage, which significantly drives maternal morbidity and mortality rates. The prevalence of PAS is rising, a trend largely attributed to shifting risk factors such as the growing use of assisted reproductive technology and, most significantly, the increasing rates of cesarean deliveries. The correlation between surgical history and PAS is stark: the risk is approximately 3% for women with one prior cesarean section but escalates to 60% for those with a history of placenta previa and four or more previous cesareans.² PAS is categorized by the depth of invasion: placenta accreta (adherent), placenta increta (invasive into myometrium), and placenta percreta (penetrating through the serosa). Prenatal screening has improved with the use of gray-scale and color Doppler ultrasound.³ Additionally, Magnetic Resonance Imaging (MRI) serves as a robust diagnostic adjunct,

with systematic reviews indicating a sensitivity of 94.4% and specificity of 84.0%.⁴ To mitigate risks, the American College of Obstetricians and Gynecologists (ACOG) advises scheduling cesarean hysterectomies between 34 0/7 and 35 6/7 weeks of gestation to balance neonatal maturity with maternal safety.⁵ The mechanism underlying PAS involves a disruption in the regulation of trophoblast invasion. This is primarily caused by defective or absent decidualization, often a sequela of uterine scarring from procedures like myomectomy, curettage, or prior cesarean sections.⁶ In a healthy uterus, the Nitabuch's layer and decidua basalis act as structural barriers between the placenta and the uterus; however, these barriers are frequently compromised in scarred tissue.⁷ Current literature suggests that PAS is not driven by hyper-aggressive trophoblasts. Instead, the pathology arises from a faulty decidual-myometrial interface where essential regulatory signals—such as Prolactin, tissue inhibitors of metalloproteinases (TIMPs), and IGFBP-1—are lost, allowing for unchecked invasion.⁸

CASE SERIES

Case 1

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A 33-year-old female G4P2L2A1 with previous 2 LSCS referred from ajmer district at 32 weeks with Placenta previa with placenta accreta.

MRI report

Placenta-Low lying placenta, covering os with extension by 1 cm beyond it. Grade 2 maturity with multiple lacunae seen and heterogenous echotexture multifocal area of myometrial thinning with loss of retroparietal hypoechoic zone, increased placental bed vascularity with buldge over the bladder wall. Focal interruptions of bladder wall with bridge vessel seen along the posterior aspect of bladder wall of 1 to 1.5cm Placenta previa and adherent placenta spectrum and focal bladder wall interruption of 1 to 1.5cm

Her Hb was 12.1gm%, WBC- 10500/cmm, platelets-2.58 lakh. LFT and RFT within normal limit. Antenatal corticosteroid coverage done, pre anaesthetic assessment done

With all pre-op preparations and counselling of patient and relatives regarding obstetric hysterectomy, severe blood loss, Multiple blood transfusions, ICU admission and mortality

Elective termination was planned at 35 weeks

Patient presented to us at 34 week and 3 days with complaint of bleeding per vaginum and was operated on emergency basis

Per operatively

Lower uterine segment was bulging . Placenta was present under the incision line. Placenta pushed laterally .Baby was delivered out as cephalic using forceps. Trial was done to manually remove placenta but could not be removed completely due to adherence. Profused bleeding was present. Decision for obstetric hysterectomy taken due to blood loss. Total 2 units PRBC and 4 units FFP were given transfused intraoperatively.

Patient shifted to ICU for monitoring. 1 unit of PRBC transfused on post op day 2.

Foley's catheter was kept for 5 days .

Rest post op period was uneventful. Mother with healthy baby was discharged.



Figure 1 Uterus with placenta insitu

Case 2

A 41-year-old female G3P1L1 A1 with previous one LSCS with 33 weeks of gestation referred from bikaner district with Placenta previa with placenta in creta.

MRI report

anterior placenta completely covering internal os with thinning of myometrium along anterior wall of subtle myometrium , invasion of few places and fat planes between urinary bladder - ill defined placenta previa and in creta .

Her Hb was 10.8%, WBC- 14590/cmm, platelets-3.29 lakh. LFT and RFT within normal limit. Antenatal corticosteroid coverage done, pre anaesthetic assessment done

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

Elective termination was planned at 35 weeks

Per operatively

Bladder was uplifted and same and pushed down by blunt and sharp dissection. Lower uterine segment visualised and was thinned out and prominent vessels present over it. Medusa head appearance of placenta was seen. Placenta was present anteriorly and completely covering os .Around 600-700 cc profuse blood stained amniotic fluid drained . Baby delivered out as vertex through placenta. Single true knot present. Placenta was densely adherent to lower segment. Decision for obstetric hysterectomy taken due to excessive blood loss and placenta in creta. Bladder was dissected sharply and pushed downward. Multiple oozers present on bladder base Hemostatic sutures taken with vicryl 3-0 by on call urologist. Integrity of

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bladder checked with methylene blue. Abdominal Drain kept insitu.

Total 2 units PRBC , 4 units FFP and 2 unit RDP were given transfused intraoperatively.

Patient shifted to ICU for monitoring. 1 units PRBC , 2 units FFP transfused on post op day 1.

1 units PRBC on post op day 2

Foley's catheter was kept 14 days

Postoperative period was uneventful. Mother with healthy baby was discharged

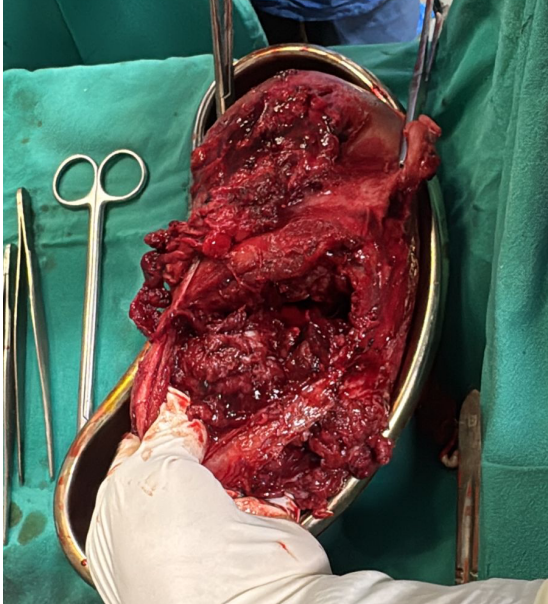


Figure 2 Hysterectomised Uterus

Case 3

A 34-year-old female G3P1L1 A1 with previous one LSCS with 32 weeks of gestation referred from hanumangarh district with Placenta previa with placenta accreta.

MRI report

anterior placenta completely covering internal os reaching far beyond with thinning of myometrium along anterior wall of myometrium , placenta previa and accreta .

Her Hb was 9.1%, WBC- 34200/cmm, platelets-1.99 lakh. LFT and RFT within normal limit. Antenatal corticosteroid coverage done, pre anaesthetic assessment done

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

Elective termination was planned at 34 weeks

Per operatively

Lower uterine segment was thinned out with medusa head appearance of placental vessels seen infiltrating anterior lower uterine segment completely . Bladder was densely adherent to lower uterine segment and

same slightly pushed down by blunt and sharp dissection. Incision given on upper part of lower uterine segment(above the edge of placenta). Baby delivered out as vertex. Gentle attempt to separate the placenta was made but it was morbidly adherent to uterine segment and no cleavage identified . Decision for obstetric hysterectomy taken. Multiple placenta vessels seen infiltrating bladder serosa. On call urologist was called for assistance. Bladder was separated with sharp and blunt dissection. Integrity of bladder checked with methylene blue. Abdominal Drain kept insitu.

Total 4 units PRBC , 4 units FFP were given transfused intraoperatively.

Patient shifted to ICU for monitoring.

1 units PRBC on post op day 3

Postoperative period was uneventful. Mother with healthy baby was discharged

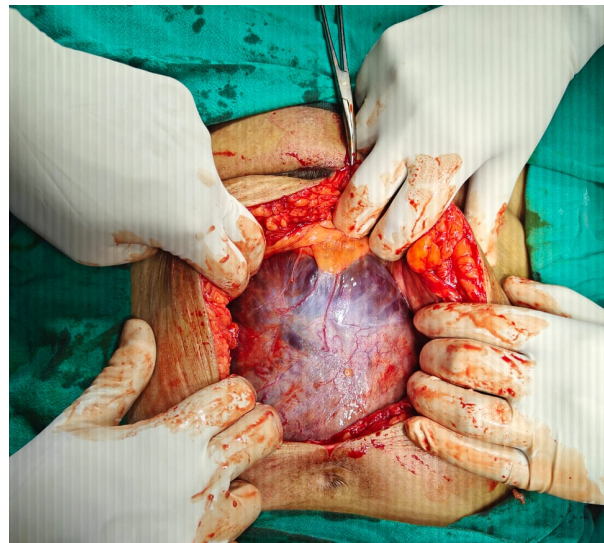


Figure 3 Prominent vessels on lower uterine segment (Medusa head appearance)

Case 4

A 28-year-old female G2P1L1 with previous one LSCS with 34 weeks of gestation referred from private hospital with low lying placenta with Placenta accreta.

MRI report

Placenta is anterior, low lying and extending up to internal os . There is anterior bulging of the uterus with widening of the lower uterine segment. There is diffuse thinning and effacement of myometrium on antero inferior aspect with loss of normal T2 hypointense inner and outer layers. The placenta appears to extend upto the serosal margin in lower uterine segment. No obvious retro-placental hemorrhage or significant bands are seen. Few tortuous vessels are seen along

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serosa margin of uterus on both sides. Urinary bladder is partially distended and compressed

Her Hb was 11.6%, WBC- 11170/cmm, platelets-2.95 lakh. LFT and RFT within normal limit. Antenatal corticosteroid coverage done, pre anaesthetic assessment done

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

Elective termination was planned at 35 weeks

Per operatively

Abdomen opened by vertical incision. Lower uterine segment was thinned out only serosa was visible. Medusa head appearance of placenta seen. Bladder was densely adherent to lower uterine segment. Classical Incision given on upper uterine segment. Baby extracted out as breech. Placenta was morbidly adherent seen extending upto serosa. Profused bleeding present. Decision for obstetric hysterectomy taken. On call urologist was called for assistance. Bladder was separated with sharp and blunt dissection. Suture taken over bladder serosa with vicryl 3-0, Integrity of bladder checked with methylene blue. Abdominal Drain kept insitu.

Total 2 units PRBC , 4 units FFP were given transfused intraoperatively.

Patient shifted to ICU for monitoring.

Postoperative period was uneventful. Mother with healthy baby was discharged

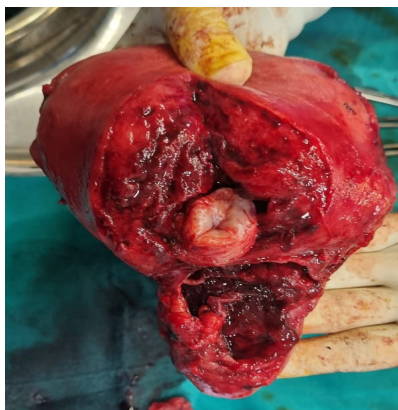


Figure 4 Classical incision given on Uterus

Case 5

A 33-year-old female G4P2L2A1 with previous two LSCS with 32 weeks of gestation referred from ajmer district with ultrasound suggestive of Placenta previa with focal placenta accreta.

MRI report

Placenta is anterior and approx. 2.5cm from os. There is anterior bulging of the uterus with widening of the lower uterine segment. There is marked diffuse thinning and effacement of myometrium on

anteroinferior aspect, more on the left side with loss of normal T2 hypointense inner and outer layers. The placenta appears to extend beyond the serosal margin in lower uterine segment on left side. There is suggestion of loss of normal T2 hypointense bladder wall on left side at the level of placental bulge. A few T2 hypointense intraplacental bands and increased vascularity at placental - myometrial interface. Urinary bladder is partially distended.

Her Hb was 10 %, WBC- 8600/cmm, platelets-1.15 lakh. LFT and RFT within normal limit. Antenatal corticosteroid coverage done, pre anaesthetic assessment done.

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

Elective termination was planned at 35 weeks.

Per operatively

Abdomen opened by midline vertical incision. No plane visible between muscle and anterior uterine wall, Incision extended above until clear peritoneal window found. Peritoneal cavity entered muscle Midline dense adhesion band present, between uterus & anterior uterine wall. Same dissected down by lateral window Bladder also dissected down under Urologist-guidance, Dense adhesion band present between bladder base and lower uterine segment, with dense adhesions under sheath, same separated by sharp dissections. Incision given over lower uterine segment. Baby delivered out as vertex. Placental tissue removed out as much as possible in Bits and pieces. Bleeding present from placental bed. Haemostatic sutures taken at placental bed. B/ L uterine arteries ligated. Haemostasis achieved from placental bed. Small rent occurred in bladder wall, Sutured by urologist. Bladder integrity checked. B/L tubal ligation done by Parkland technique. Abdominal Drain kept insitu.

Total 4 units PRBC , 4 units FFP were given transfused intraoperatively.

Patient shifted to ICU for monitoring.

1 units PRBC on post op day 2

Foley's catheter was kept 21 days

Postoperative period was uneventful. Mother with healthy baby was discharge

DISCUSSION

We present five cases of morbidly adherent placenta managed at our centre. All cases had successful outcomes, with no long-term maternal morbidity or mortality. The study groups were comparable with respect to maternal age and gestational age at delivery. All patients had a history of at least one previous caesarean section, and all had low-lying placenta, including placenta previa. The risk of placenta accreta

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is approximately 3% after one caesarean section and increases to nearly 60% in women with a history of four or more caesarean sections combined with placenta previa.

Thorough preoperative preparation was undertaken using standardized checklists, with anticipation of all potential intraoperative and postoperative complications and appropriate backup arrangements in place. Management of placenta accreta spectrum (PAS) requires a multidisciplinary approach incorporating detailed preoperative planning radiological mapping of placental location, an readiness for massive transfusion.

As a tertiary care centre, all cases were referrals from peripheral hospitals due to limited resources, which were readily available at our institution. The multidisciplinary team included obstetricians, anaesthetists, urologists, radiologists, intensivists, and blood bank services, with intensive care unit availability—an essential requirement for optimal PAS management.

Of the five cases, four patients underwent obstetric hysterectomy, while uterine preservation was achieved in one patient. Traditionally, obstetric hysterectomy with the placenta left in situ was considered the definitive surgical option for PAS. However, uterine-sparing procedures are now feasible in carefully selected cases where placental invasion is limited in depth and surface area and the implantation site is fully accessible and well visualized.

Uterine-preserving techniques may include conservative management with the placenta left in situ, localized excision of the involved myometrium with uterine reconstruction, and adjunctive measures such as uterine artery ligation, pelvic devascularization, or uterine compression sutures to achieve hemostasis. These approaches aim to minimize blood loss while maintaining uterine integrity.

Such uterus-conserving procedures should be attempted only by experienced surgical teams in well-equipped centres, following detailed patient counselling regarding potential risks, including delayed hemorrhage, infection, and the possibility of secondary hysterectomy, with informed consent and close postoperative surveillance.

CONCLUSION

The incidence of morbidly adherent placenta is steadily rising, largely due to the increasing rate of caesarean sections. The severe maternal morbidity associated with this condition makes it one of the most challenging scenarios for obstetricians. Management

requires a multidisciplinary approach, with thorough preparation and anticipation of potential intraoperative and postoperative complications. Care for placenta accreta spectrum (PAS) disorders should be individualized, guided by preoperative radiological assessment and intraoperative findings.

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