OBSTETRICS

Focal excision for placenta percreta based on pathoanatomy: the challenge of neovascularization

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OBJECTIVE: To evaluate the feasibility, safety, and outcomes of a modified uterus-preserving focal excision technique for Placenta Accreta Spectrum Disorder, including placenta percreta, based on pathoanatomical defects and neovascularization rather than tissue invasiveness.

STUDY DESIGN: We retrospectively reviewed 15 consecutive cases of Placenta Accreta Spectrum Disorder (International Federation of Gynecology and Obstetrics stages 2—3b) treated between 2020 and 2025 at a tertiary referral center using a standardized focal resection technique. Diagnosis was established by abdominal and transvaginal sonography. Preoperative planning included detailed patient counseling, multidisciplinary team coordination, and preparation of blood products. The surgical procedure involved meticulous bladder dissection, stepwise ligation of vessels, and targeted excision of placenta percreta areas.

RESULTS: Uterus-preserving surgery was achieved in 14 of 15 patients (93%). One (7%) patient required emergency supracervical hysterectomy due to uncontrolled hemorrhage. Median blood loss was 2000 mL (interquartile range, 1500—2500 mL), and 4 patients required no transfusion. Bladder injury occurred in 6 patients (40%), all of which were managed successfully without long-term sequelae at ≥1 year of follow-up. No maternal deaths were reported. Focal resection was feasible even in emergency situations and in cases of high-grade Placenta Accreta Spectrum Disorder (up to International Federation of Gynecology and Obstetrics 3b). Histopathological confirmation and intraoperative video documentation supported the reproducibility and accuracy of the diagnosis and technique.

CONCLUSION: This study reports a series of cases with focal excision of Placenta Accreta Spectrum Disorder, allowing preservation of the uterus and associated with limited maternal morbidity, which compares favorably with the commonly used cesarean hysterectomy.

Key words: focal resection, placenta accreta spectrum disorder, uterus preserving surgery

Introduction

Placenta Accreta Spectrum Disorder (PASD) refers to a range of abnormal placental attachments in which the placenta invades the uterine wall to varying degrees, potentially involving adjacent structures. It is not a uniform condition but reflects varying degrees of myometrial damage. While most cases arise after cesarean section,[1] it may also occur following curettage or other uterine surgeries.[2] Traditionally, PASD has been described as a “morbidly invasive placenta,” comparable to malignant infiltration.[3—5] We believe instead that the placenta itself is not invasive; rather, the absence of decidua allows abnormal trophoblast activity and extensive neovascularization, leading to pathological vascular connections (“bridging vessels”) with surrounding tissues.[6]

The key pathological event is uterine scar dehiscence, most commonly after cesarean section, resulting in cesarean scar pregnancy.[7] With progression, this condition may develop into placenta percreta. Therefore, attention to proper cesarean technique may reduce its occurrence.[8]

The placenta, being a highly vascular organ, presents a substantial surgical risk due to the potential for severe hemorrhage during dissection. When attached to tissues beyond the decidua and myometrium—such as the peritoneum, bladder wall, or abdominal wall—placental separation is not followed by the hemostasis usually achieved by myometrial contraction. Consequently, attempts at classical removal of an undiagnosed percreta may cause sudden, uncontrollable hemorrhage.[1,9] Unlike the uterine cavity, which is lined by myometrium and an intact decidual layer, tissues external to the myometrium lack mechanisms for hemostasis, as myometrial contraction is unable to occlude vessels during placental detachment.[10,11] Consequently, the classical removal of an undiagnosed placenta increta or percreta may precipitate massive bleeding, rapidly imposing surgical stress and increasing the risk of intraoperative complications due to loss of vascular control.[12]

In cases of placenta percreta, cesarean hysterectomy is commonly the standard treatment; however, this case series presents our standardized focal excision technique, developed to enable uterus-preserving surgery even in advanced PASD, including patients diagnosed in the third trimester.

Materials and methods

Study design

The cases included in this series were drawn from patients evaluated in our obstetrics outpatient clinic, with particular emphasis on those referred to our center for specialized management. All patients with PASD International Federation of Gynecology and Obstetrics (FIGO) stage ≥2 who opted for focal resection between 2020 and 2025 were included. Procedures were performed by the same multidisciplinary team (obstetrics, anesthesiology, radiology, pediatrics, and urology). Preoperative ultrasound was used for

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AJOG at a glance

Why was this study conducted?
Placenta percreta involving the vesicouterine interface presents major surgical challenges, and the role of bladder dissection in enabling uterus-preserving focal resection is not well established.

Key findings
Careful bladder dissection with ligation of neovascular vessels allowed safe separation of the bladder from the percreta area, enabling focal resection with uterus preservation in most cases. True bladder invasion was uncommon.

What does this add to what is known?
These findings suggest that meticulous bladder dissection may facilitate safe focal resection and support uterus-preserving surgery in selected patients with placenta percreta.

classification, and the diagnosis was assessed intraoperatively in all cases. Additional statistical analyses were performed based on 4 predefined criteria—intraoperative blood loss, transfused red blood cells (RBCs), intraoperative hemoglobin decrease, and gestational age—considering the impact of emergency vs elective surgery, FIGO classification, and tourniquet use.

According to the FIGO classification, PASD is categorized as: Grade 1: accreta; Grade 2: increta; Grade 3a: percreta to serosa; and Grade 3b: percreta with adjacent organ involvement.[13]

The study was reviewed and approved by the Ethics Committee of the University of Regensburg (24-4017-104).

Written informed consent was obtained from patients for the use of clinical images and videos for research and publication purposes. All identifying information has been removed to preserve patient anonymity.

Diagnosis was established by transabdominal and transvaginal ultrasound performed by a Deutsche Gesellschaft für Ultraschall in der Medizin II—certified senior consultant. Diagnostic criteria followed Cali et al,[14] including absence of the hypoechoic decidual zone, myometrial thinning <1 mm, placental lacunae, bridging vessels, hypervascularization, loss of the bladder line, and feeding vessels. All patients received structured counseling regarding hysterectomy vs conservative management. Focal resection was offered to women desiring uterine preservation when a clearly defined uterine wall defect was present regardless of its size.

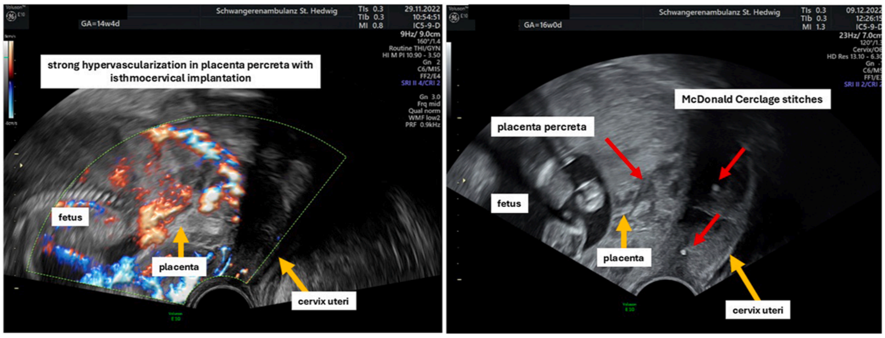
Preoperative preparation
Patients were managed at a perinatal level I center. In isthmocervical pregnancies with cervical shortening, cerclage was placed in the first trimester (Figure 1). For severe second-trimester hemorrhage, selective embolization of cervical uterine artery branches was performed in selected cases (Figures 2 and 3).[15] Elective surgery was scheduled between 34 and 36 weeks, when the uterus could usually be exteriorized via Pfannenstiel incision. Fibrinogen levels were routinely monitored and supplemented if presurgical levels were below 200 mg/dL.

Blood product preparation followed institutional protocol: 4 units of RBCs for hysterectomy and 8 units of RBCs plus 2 platelet concentrates for focal resection. Additional hemostatic agents (prothrombin complex, fibrinogen, tranexamic acid, factor VII, factor XIII) and interventional radiology were available at all times.

Operative technique
Up to 35 weeks of gestation, a slightly extended Pfannenstiel incision (extended approximately 2 cm bilaterally) was the preferred approach, offering adequate exposure with lower postoperative morbidity. A vertical midline incision was selected in cases with multiple prior surgeries, dense and high bladder adhesions, an inelastic abdominal wall, or an estimated fetal weight generally more than 2500 g. In uncertain cases, a vertical incision was considered safest to avoid inadvertent entry into the adherent anterior uterine wall. In the presented cohort, conversion from a transverse to a midline incision was not indicated in any case.

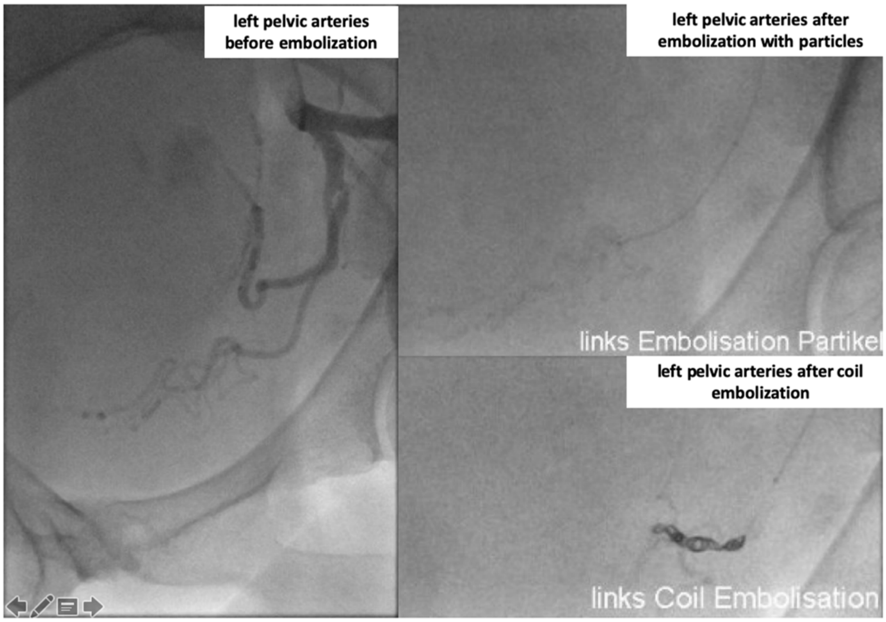
The uterus was exteriorized to facilitate inspection and assessment of placental invasion prior to delivery. In

FIGURE 1
Transvaginal ultrasound images from a patient with placenta accreta spectrum



Left: Power Doppler imaging at 14 weeks' gestation demonstrating isthmocervical implantation with features consistent with placenta percreta, including marked hypervascularization at the implantation site. Right: Follow-up image at 16 weeks' gestation after placement of a circular McDonald cerclage (Ethibond 6), with the cerclage sutures clearly visible around the cervix.

FIGURE 2
Pelvic arterial angiography at 19 weeks' gestation



Left: Preembolization image demonstrating pronounced uterine and collateral pelvic vascularization. Upper right: Selective embolization using particles. Lower right: Additional embolization with coils, resulting in marked reduction of pelvic blood flow.

most cesarean scar pregnancies, the percreta was limited to the anterior wall. Uterotomy was placed at the upper border of the placenta or, in more severe cases (FIGO grade 3), at the fundus with a vertical incision. The choice of uterine incision was determined based on bladder adhesions and the presence of penetrating vessels; in such cases, a fundal incision was routinely performed. This provided optimal access and minimized bleeding risk.

After delivery, the umbilical cord was clamped and the fundal incision held open with 6 tenacula. This maneuver enabled cranial traction of the uterus, controlled bleeding from the fundus, and allowed palpation of the percreta defect from within the cavity (Figure 4).

Bladder dissection was performed first. A simple and effective technique for bladder dissection was first described by Pelosi et al.[16] The technique performed in this study is based on dissection of the bladder as described in a previous series of 58 cases published in 2016.[17] The vesicouterine plane was carefully developed bluntly, with individual identification and ligation of perforating vessels. Each vessel was grasped with 2 clamps, coagulated, and divided with monopolar scissors (Figure 5). A suture knot was applied only on the uterine side, as double ligation risked rupture in the narrow space (Figure 6). Typically, 10 to 20 vessels required ligation. In case of rupture with uncontrolled bleeding, tamponade with gauze was applied until hemostasis could be restored.

Approximately 5 mm of thin myometrial tissue was preserved circumferentially to facilitate reconstruction. Only the placenta and overlying serosa within the defined defect were excised en bloc (Figure 7). This rapid, circular excision represented the main bleeding stage of the procedure. The extent of transfusion required depended on the speed of this step and the hemostatic techniques employed.

A 12 Charrière catheter tourniquet was placed around the cervix (Figure 8),[18] supplemented with bulldog clamps on the uterine or ovarian arteries when hemorrhage risk was present. Uterine closure was performed in 2 layers with polyglactin sutures: the first layer with interrupted seromuscular knots (excluding the endometrium) and the second with a U-shaped seromuscular suture for hemostasis. Defects were closed longitudinally or transversely, depending on uterine anatomy and ease of reconstruction.

Blood loss was assessed by measuring the suction volume after subtraction of the amniotic fluid and by counting the surgical swabs saturated with blood. Transfusion decisions were guided by intraoperative blood gas analysis and institutional transfusion protocols. Cell saver autotransfusion was used when appropriate. Colloidal volume replacement with Gelafundin 4% was used occasionally.

Outcomes assessment

Postoperative follow-up included evaluation of surgical outcomes and subsequent fertility. Patients with an uncomplicated postoperative course were routinely reviewed 3 months after surgery, and any subsequent pregnancies were recorded during follow-up. In cases with postoperative complications, follow-up intervals were adjusted according to clinical needs.

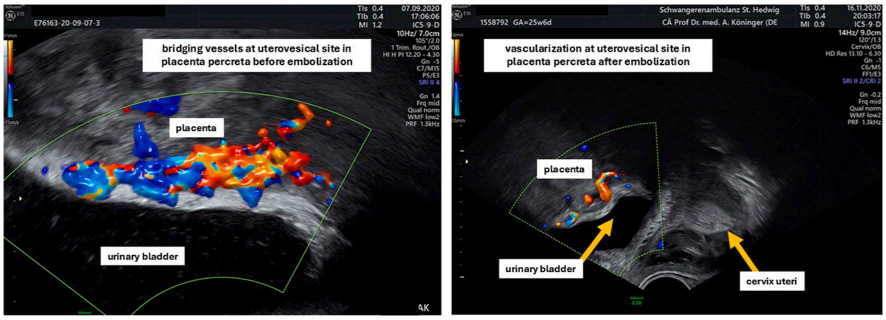
Results

Patient characteristics

Fifteen patients met inclusion criteria. One patient who underwent a planned hysterectomy due to cervical involvement, one patient with diffuse abnormal placentation following multiple curettages, and 4 patients who had requested hysterectomy due to no desire for future fertility were excluded from this analysis.

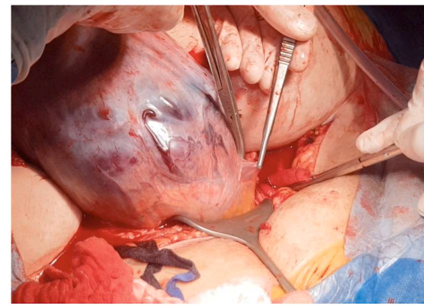
Thirteen patients had a prior cesarean section, 8 of whom also had a history of uterine curettage. Placenta previa was present in 11 cases, while one patient had posterior placenta increta and one had fundal placenta percreta; 11 cases were classified as FIGO stage 3b (Table 1). Intraoperative blood loss and the total number of RBC units transfused were significantly higher ($P = .011$ and $P = .015$ repectively), whereas

FIGURE 3
Transvaginal Power Doppler ultrasound images from the same patient



Left (15th week of gestation): Bridging vessels at the uterovesical junction consistent with placenta percreta prior to embolization. Right (25th week of gestation): Markedly reduced vascularization following embolization therapy.

FIGURE 5
Intraoperative dissection of the bladder from the lower uterine segment along the natural plane between bladder and uterine serosa



Perforating vessels forming collateral connections are identified, individually coagulated, and ligated on the uterine side to maintain hemostasis during separation. The dissection is performed mainly by blunt technique, supplemented with sharp excision as needed. Perforating vessels are selectively grasped with Overholt clamps, coagulated using monopolar scissors, and ligated on the uterine side to ensure hemostasis.

gestational age was significantly lower (P = ,019) in the emergency group compared with the elective group. Additionally, the total number of RBC units transfused was significantly higher in the FIGO 3b group than in the FIGO 2/3a group (Table 2). Sonographic diagnosis was confirmed intraoperatively in all but one case with fundal placenta percreta.

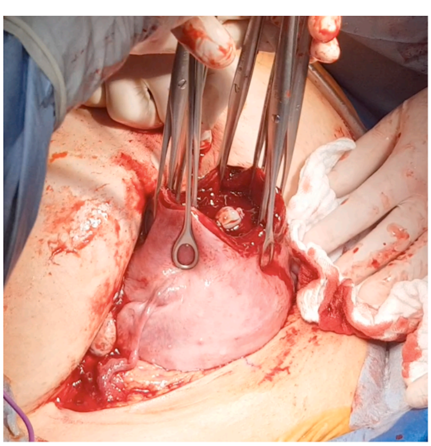
Pregnancy complications occurred in several patients. One woman had preterm premature rupture of membranes at 15 weeks, underwent uterine artery branch embolization at 17 weeks for hemorrhage, and presented again at 26 weeks with cord prolapse. One patient had undergone robotic-assisted uterine closure for a bulging placenta in the first trimester and presented in labor at 32 weeks. Two patients developed uterine rupture: one at 28 weeks with prior PROM at 22 weeks and another at 32 weeks with a fundal rupture following previous myomectomy. An additional patient presented with PROM and spontaneous labor at 32 weeks. In all 4 cases with rupture or PROM, cesarean delivery with emergency focal resection was performed.

Surgical and long-term outcomes

Uterus-preserving surgery was successful in 14 of 15 patients (93.3%). In all cases, the bladder was completely separated from the placenta as the initial step. Bladder lesions occurred only as incidental surgical injuries and were not due to invasion; the full bladder wall thickness was clearly identified after stepwise ligation of the penetrating vessels. One patient required emergency supracervical hysterectomy due to uncontrolled hemorrhage.

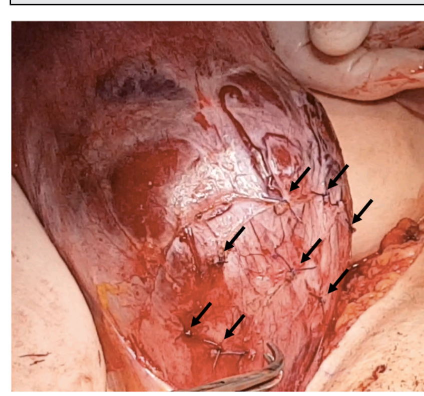
Five procedures were emergency and 10 were elective. The median operative time was 154 minutes (interquartile range, 120—196). Median estimated blood loss was 2000 mL (interquartile range, 1500—2500) (Table 3). Eleven patients required blood transfusion (median, 2 units; interquartile range,

FIGURE 4
Intraoperative view following cesarean delivery and umbilical cord clamping



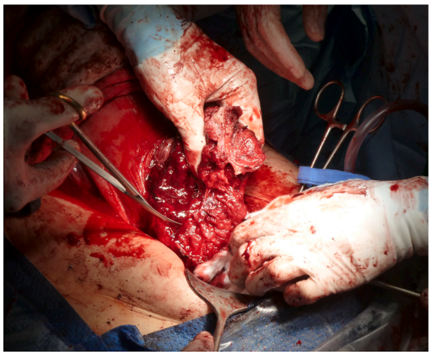
The uterine fundus is exteriorized and stabilized with 6 tenaculum forceps placed along the incision edges, allowing controlled cranial traction, reduction of bleeding, and direct intraluminal access to identify the area of placenta percreta prior to targeted focal excision.

FIGURE 6
Ligated perforating vessels between uterus and bladder following careful bladder dissection



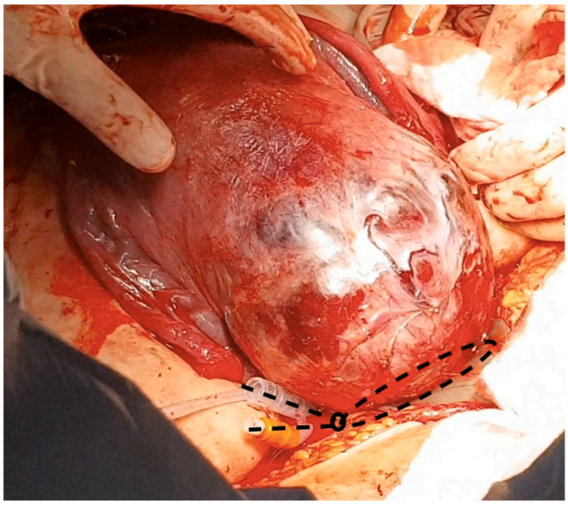
Suture placement on the uterine side to ensures effective hemostasis and prevents bleeding toward the placenta percreta region.

FIGURE 7
Postresection appearance of the uterus after excision of the percreta-affected segment



Only placental tissue and overlying serosa within the area of dehiscence have been excised, while a circumferential 5-mm rim of myometrium is preserved to facilitate uterine reconstruction and optimize hemostasis.

FIGURE 8
Temporary tourniquet hemostasis during focal resection of placenta percreta



A Charrière 12 catheter is placed around the cervix to reduce uterine blood flow, supplemented by bulldog clamps on the uterine and ovarian arteries to minimize intraoperative blood loss. For better understanding, dashed lines were drawn along the course of the Foley catheter. Due to the overlap with the placenta, only part of the catheter distal to the knot is visible in the image. The loop is placed around the cervix.

0–6) and 3 received platelets. Median maternal intensive care unit stay was 0 days (interquartile range, 0–2) and neonatal intensive care unit stay was 2 days (interquartile range, 0–5). All pregnancies resulted in live births.

Follow-up was largely unremarkable: one small niche and one case of metrorrhagia were reported; long-term urinary outcomes were unremarkable. Seven patients had completed family planning, 6 were lost to follow-up after breastfeeding, and 2 (aged 38 and 39 years) desired another pregnancy. No subsequent pregnancies have been reported to date.

Six patients (40%) experienced no complications, whereas 9 (60%) had at least one complication. The most common complication was full-thickness bladder injury, occurring in 6 patients (40%). Other complications included iliac vein injury, sciatic nerve injury, thrombosis of the common iliac and ovarian veins with pyelonephritis (n=1), superficial sigmoid serosal injury (n=1), postoperative infection with abdominal wall dehiscence (n=1), and one neonatal scalp laceration. All complications, except for the wound infection with dehiscence, occurred in patients with PASD stage 3b.

Hemostatic support included Celox Gauze (7 patients),[19] sealant patches,[6] cervical tourniquet,[6] bilateral internal iliac ligation,[2] and bulldog clamps.[2] All patients received oxytocin; additional uterotonics were sulprostone,[2] carbetocin,[1] and both agents.[1] Adjunctive therapy included fibrinogen (6 patients), tranexamic acid,[4] prothrombin complex with factor XIII,[1] albumin,[1] fresh frozen plasma,[5] and platelets.[3]

Eight patients underwent Pfannenstiel laparotomy and 7 vertical midline incisions. Uterotomy was performed at the fundus in 10 patients, at the lower uterine segment in 4, and at the upper placental border in one. In a group of 11 FIGO stage 3b patients, 6 underwent a vertical midline abdominal incision and 9 had a fundal uterotomy.

Structured discussion/comment

Principal findings

In this series of placenta percreta (FIGO $\geq$2), focal resection enabled uterine preservation in 14 of 15 patients. The primary surgical challenge was bladder dissection in the context of extensive neovascularization. Careful, meticulous dissection with individual ligation of vessels—while minimizing blood loss—is the critical step in performing focal resection. Excision of the percreta area is typically associated with a brief but intense hemorrhagic episode, which was managed in our series by temporary occlusion of the main vessels using a tourniquet or bulldog clamps.

Results in the context of what is known

Focal resection has been described by other groups as a viable conservative approach. Nieto-Calvache et al reported a “one-step conservative surgery” technique feasible in 85.3% of PASD cases.[20] A multicenter retrospective series of 248 patients reported overall feasibility of 81%, with classification of subtypes as Type 1 (upper posterior bladder), Type 2 (parametrial), Type 3 (low posterior bladder), and Type 4 (low posterior bladder with fibrosis between the uterus and bladder). In Type 3 and 4 cases,

TABLE 1
Demographic, obstetric, and gynecologic data of the patients according to the PAS grade

PAS grade	Age [y; median (IQR)]	BMI [kg/m^2, median (IQR)]	Parity [median (IQR)]	Number of previous cesarean sections [median (IQR)]	Number of previous curettages [median (IQR)]	Gestational age at first presentation [wk, median (IQR)]	Gestational age at delivery [wk, median (IQR)]	Newborn weight [g, median (IQR)]	Newborn size [cm, median (IQR)]	Umbilical artery pH [median (IQR)]
2 (n=3)	39 (34–42)	33 (24–44)	3 (2–5)	2 (2–4)	1 (1–2)	31 (24–35)	35 (34–36)	2090 (1380–2310)	45 (45–49)	7.29 (7.25–7.29)
3a (n=1)	37 (37–37)	48 (48–48)	4 (4–4)	3 (3–3)	0 (0–0)	34 (34–34)	35 (35–35)	2585 (2585–2585)	44 (44–44)	7.39 (7.39–7.39)
3b (n=11)	36 (33–37)	28 (24–32)	2 (2–4)	1 (1–3)	0 (0–1)	28 (7–34)	33 (31–36)	1935 (1120–2310)	44 (36–47)	7.28 (7.22–7.32)
Total (n=15)	36 (34–38)	31 (24–37)	2 (2–4)	2 (1–3)	0 (0–1)	31 (19–34)	34 (32–36)	2090 (1380–2310)	45 (41–47)	7,28 (7.25–7.32)

BMI, body mass index; *IQR*, interquartile range; *PAS*, placenta accreta spectrum.

uterine preservation was possible in only 22% and 0%, respectively. Our series did not stratify by fibrosis, limiting direct comparability. Nevertheless, our data suggest that focal resection is feasible in high-grade PASD, with acceptable rates of uterine preservation, albeit at the cost of increased blood loss and bladder injury.

A randomized trial comparing hysterectomy with focal resection from the same group reported median intraoperative blood loss of 1740 mL, median operative time of 135 minutes, and a transfusion rate of 58.6% in the conservative group.[21] Most cases were FIGO grade 1, which explains lower complication rates compared with our series, where more advanced PASD cases were included.

In a large PASD series, focal resection was performed in 26 of more than 400 cases, with a reported median blood loss of 2000 mL, a median transfusion requirement of 3 units of RBCs, and only one bladder injury.[22] In a subsequent study of 38 focal resection cases (FIGO grades 1–3a and one grade 3c), mean blood loss was 1500 mL, with a single urinary tract injury.[23] In comparison, our series included higher-grade PASD cases, which likely account for the greater blood loss and the higher incidence of bladder injury (37.5%). These findings emphasize the critical importance of careful patient selection, comprehensive preoperative planning, and a multidisciplinary surgical approach.

Clinical implications

The key pathological event is a defect within the decidua, leading to enhanced trophoblast invasion.[24] Disturbances in these interactions can result in placental dysfunction, including preeclampsia,[25,26] whereas absence of the decidua allows excessive trophoblast invasion, characteristic of placenta percreta.[24] Here, enhanced trophoblast invasion can be demonstrated not only on clinical and sonographical level[27] but also on molecular and genetic level.[24,28]

Our stepwise surgical approach is designed to address these pathophysiologic challenges.

1. Preoperative diagnosis of cesarean scar implantation.
2. Precise intraoperative assessment of the area of abnormal placentation, including the extent of bladder adhesion, the size of the percreta window (tissue consisting of placental tissue and the uterine serosa without intervening myometrium), and the degree of neovascularization.
3. Complete devascularization of vessels connecting the placenta to the vesicouterine fold and posterior bladder wall.
4. In advanced cases, a fundal uterotomy is performed as standard; in less extensive cases, a lower transverse uterine incision is preferred.

   The fundal uterotomy has several advantages:

   - The uterus contracts, and therefore the myometrium surrounding the placenta reduces blood supply through contraction. Although we did not compare blood loss systematically, in our experience a fundal uterotomy is associated with better visualization of the PASD area due to improved contraction of the distal part of the uterus.
   - An assistant can hold the uterus firmly and apply cranial traction.
   - Any damage to the placenta can be avoided.
5. Rapid excision of scar-implanted placental tissue.
6. Rapid uterotomy closure.

Scar defects can expand extensively, leading to individualized placental overgrowth and large extrauterine bulging. First-trimester ultrasound is critical for early detection of these "individual PASD landmarks," allowing preoperative planning and safe execution of focal resection.[29] Focal resection should not be attempted in cases of diffuse high-grade placenta increta or percreta, often following prior uterine surgery such as curettage

TABLE 2
Further statistical comparisons of selected clinical parameters were performed to assess potential differences with respect to emergency vs elective surgery, FIGO classification, and tourniquet use

Criteria for comparison	Bleeding (median, mL, 95% CI)	*P* value[a]	RBCU (median, 95% CI)	*P* value[a]	Hb decrease (median, mg/dL, 95% CI)	*P* value[a]	Pregnancy week (median, 95% CI)	*P* value[a]
Elective (n=10)	1525 (1200–2000)	.011	1 (0–2)	.015	2.5 (0.9–3.3)	>.9	35 (34–36)	.019
Emergency (n=5)	2500 (2500–3500)		6 (5–9)		2.8 (2.6–3.0)		32 (27–33)	
FIGO 2/3a (n=4)	1250 (850–1750)	.056	0 (0–1)	.034	2.5 (1.5–2.9)	.6	35 (34.5–35.5)	.2
FIGO 3b (n=11)	2000 (1550–2500)		3 (1–8)		2.8 (0.9–3.4)		33 (31–36)	
With tourniquet use (n=6)	1775 (1500–2000)	>.9	2.5 (1–5)	.9	2.85 (0.9–3.4)	.8	33.5 (33–36)	>.9
Without tourniquet use (n=9)	2000 (1500–2500)		2 (0–6)		2.6 (2.4–3.0)		34 (32–35)	

CI, confidence interval; *FIGO*, International Federation of Gynecology and Obstetrics; *Hb*, hemoglobin; *RBCU*, red blood cell unit.

[a] Statistical test: Wilcoxon rank-sum test (Mann-Whitney U test).

or severe Asherman's syndrome. Cervical canal involvement, resulting in shortening of the cervix, also warrants consideration of hysterectomy.

Research implications

Further research should focus on refining patient selection criteria, quantifying the degree of fibrosis, and developing standardized surgical protocols, including routine bladder preparation, to improve the safety and success rates of uterus-preserving techniques. Cervical cerclage may also play an important role in preventing premature bleeding in cases with cervical shortening.

As suggested by our series, the concept of true bladder invasion in PASD should be reconsidered. Dissectibility of the bladder, even in advanced PASD stages, raises the question of whether true invasion occurs or whether the apparent infiltration reflects firm adhesion due to neovascularization. Larger series may help clarify this distinction.

Strengths and limitations

The high rate of bladder injury in our series reflects the complexity of these maneuvers; however, the involvement of a urologist ensured safe repair with no long-term complications. Consistent with previous reports, bladder injuries typically occur outside the trigone and ureters.[30] Our study is limited by its retrospective design, small sample size, and lack of stratification by fibrosis pattern. Nevertheless, it provides valuable insights into the feasibility of focal resection in high-grade PASD cases.

Conclusion

Focal resection enabled uterine preservation in the majority of carefully selected patients, including those with advanced FIGO 3 disease, when performed by an experienced multidisciplinary team following standardized surgical steps and with immediate access to advanced hemostatic support.

The principal intraoperative challenge was extensive neovascularization at the vesicouterine interface rather than true bladder wall invasion. Despite the

TABLE 3
Data about the intraoperative bleeding according to the PAS grade

PAS grade	Blood loss [mL, median (IQR)]	Hb decrease during the operation [mg/dL, median (IQR)]	RBC transfusion [unit, median (IQR)]	Duration of the operation [min, median (IQR)]	Stay in intensive care unit for the mother [d, median (IQR)]	Stay in intensive care unit for the newborn [d, median (IQR)]
2 (n=3)	1000 (700–2000)	2.6 (0.70–3.3)	0.0 (0.0–0.0)	120 (92–120)	0 (0–0)	0 (0–5)
3a (n=1)	1500 (1500–1500)	2.4 (2.4–2.4)	2.0 (2.0–2.0)	149 (149–149)	3 (3–3)	3 (3–3)
3b (n=11)	2000 (1550–2500)	2.8 (0.9–3.4)	3.0 (1.0–8.0)	166 (145–204)	1.0 (0–2.0)	2 (1–35)
Total (n=15)	2000 (1500–2500)	2.6 (0,9–3.3)	2.0 (0.0–6.0)	154 (120–196)	0 (0–2.0)	2 (0–5)

Hb, hemoglobin; *IQR*, interquartile range; *PAS*, placenta accreta spectrum; *RBC*, red blood cell.

small sample size, our findings suggest that, in appropriately counseled women seeking uterine preservation, this approach may represent a reasonable alternative to hysterectomy when performed in specialized centers. ■

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