

Experience of Diagnosis and Treatment of 16 Cases of Placenta Accreta Spectrum at Different Degrees: A Case Report

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Abstract

Objective: In order to explore the risk factors, diagnosis, management, outcome of placenta accreta spectrum disorders at varying degrees.

Method: 16 cases of placenta accreta admitted to Suzhou Ninth People's Hospital affiliated to Soochow University from January 2021 to June 2022 were retrospectively analyzed, and the general information, pathogenesis and treatment process of the patients were summarized.

Result: The age of patients was 32.6 ± 5.3 years. The number of pregnancies was 3.6 ± 1.7 and the number of reproductive was 1.2 ± 0.9 . The time after latest uterine surgery was 27.9 ± 14.7 months. Most of the patients had two or more uterine operations. Ultrasound, magnetic resonance and Human Chorionic Gonadotropin (HCG) all have clinical reference value. A total of 10 patients suffered postpartum hemorrhage and needed for blood transfusion. 4 patients ended up with hysterectomy. 7 patients underwent partial hysterectomy at the placenta accreta site. 4 patients underwent curettage after arterial embolization and Methotrexate (MTX) chemotherapy was performed in 3 of them. Placenta was retained in situ in 2 patients but only one of them has been cured.

Conclusion: For patients with multiple uterine surgeries, previous placenta previa and elderly pregnant women, penetrating accreta should be vigilant, and the treatment should be timely and individualized, which is beneficial to improve maternal and infant outcomes.

Keywords: Case analysis; Placenta accreta spectrum disorders; Individualized therapy.

Abbreviations: PAS: Placenta Accreta Spectrum; MRI: Magnetic Resonance Imaging; MTX: Methotrexate; HCG: Human Chorionic Gonadotropin; RBCs: Suspension Red Blood Cells; FFP: Fresh Frozen Plasma; NICU: Neonatal Intensive Care Units; ICU: Intensive Care Units.

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Introduction

Placenta Accreta Spectrum (PAS) refers to the abnormal invasion of placental villi into the base of the decidua. Placental villi invade the decidua and myometrium at different depths, causing adherent placenta accreta, placenta increta, and placenta percreta [1]. The incidence of this disease has increased tenfold in the past 50 years, mainly considered as the result of the increase of cesarean sections and advanced maternal age, and was expected to keep on increasing over time [2].

Cesarean sections and placenta previa are important obstetric factors leading to PAS. For gravidas with history of cesarean section, the risk of PAS is significantly higher than that without, and the incidence of PAS increases with the number of cesarean sections [3,4]. When accompanied by placenta previa, the occurrence of PAS is markedly increased [5]. In addition, gynecological operations such as curettage, myomectomy and hysteroscopy will also cause an increase in the incidence of PAS [6]. Advanced age is also a risk factor for PAS. The risk of PAS in older pregnant women (≥ 35 years old) is 2.1 times that in women aged 20~34 years [7].

PAS patients are prone to massive bleeding, which not only has a great demand for blood transfusion, but also leads to the death of pregnant women, increases the probability of hysterectomy, and prolongs the hospital stay, leading to many adverse outcomes [8]. The mean blood loss is 3000~5000 mL [9], and more than 90% of the patients required blood transfusion. After 37 gestational weeks, the rate of bleeding in PAS patients will be significantly increased, and about half of PAS pregnant women need emergency surgery to terminate pregnancy because of bleeding [10-12]. Surgical complications result in higher rates of intensive care unit transfers, higher rates of puerperal infection, and longer hospital stays. This study retrospectively analyzed 16 cases of placenta accreta from January 2021 to June 2022 admitted to Suzhou Ninth People's Hospital, and summarized the general information, pathogenesis and treatment process of the patients.

Data and methods

Data collection

From January 2021 to June 2022, 16 cases of placenta accreta were admitted to Suzhou Ninth People's Hospital affiliated to Soochow University. Three cases were transferred to superior hospitals for further treatment, and the follow-up of telephone follow-up was analyzed.

Statistical index

① **General information:** Patient's age, gestational age, history of gravidity and parity, history of uterine surgery, time since previous surgery, primary diagnosis and secondary diagnosis.

② **Procedures:** Case history, auxiliary examination, treatment, intraoperative situation, total blood loss, total blood transfusion and disease outcome.

Results

General information

The patients ranged in age from 23 to 42 years, with an average of 32.6 ± 5.3 years. There were 13 parturients and 3 primiparas, with an average of 3.6 ± 1.7 pregnancies and 1.2 ± 0.9 deliveries. The mean gestational age was 31.4 ± 8.5 weeks; there were five cases after one cesarean section, three cases after two cesarean sections, and one case after hysteromyoma resection. 5 cases had a history of one abortion, and 8 cases had a history of two or more abortions. It was 27.9 ± 14.7 months after the previous uterine operation.

Placental accreta in 9 cases, placenta percreta in 7 cases; 8 cases with placenta previa; 6 cases of them were dangerous placenta previa; Fetal abnormality in four cases; Bilobate placenta in 1 case; Uterine inertia in 2 cases; Puerperal infection in 1 case; Hemorrhagic shock in 5 cases (Table 1).

Table 1: Different cases.

Case	Age (Year)	Pregnancy	Gestational Weeks	History of Uterine Surgery	Time From The Previous Operation (Month)	Principal Diagnosis	Secondary Diagnosis
1	29	History	Gestational	1 cesarean section 2 artificial abortions	18	placenta percreta	dangerous placenta previa; preterm birth; hemorrhagic shock
2	39	Weeks	39 + 1	2 artificial abortion	15	placenta percreta	breech presentation
3	28	G3P0	40 + 2	2 artificial abortions 1 hysteromyoma resection	20	placenta percreta	fetal distress; uterine inertia; ilobate placenta
4	23	G3P0	20 + 2	2 artificial abortions	12	placenta accreta	—
5	29	G2P1	36 + 2	1 cesarean section	21	placenta percreta	dangerous placenta previa; hemorrhagic shock
6	32	G3P1	36	1 cesarean section 1 artificial abortion	36	placenta accreta	dangerous placenta previa; hemorrhagic shock
7	30	G3P1	38 + 5	1 cesarean section 1 artificial abortion	72	placenta accreta	dangerous placenta previa
8	42	G6P1	32 + 4	4 artificial abortion	34	placenta percreta	placenta previa; uterine inertia; preterm birth; hemorrhagic shock
9	42	G2P1	25 + 5	1 artificial abortion	22	placenta accreta	—
10	36	G7P3	36 + 6	2 cesarean sections 3 artificial abortion	36	placenta percreta	fetal growth restriction

11	33	G3P1	16 + 5	1 cesarean section 1 artificial abortion	48	placenta accreta	dangerous placenta previa
12	30	G2P1	16 + 3	—	15	placenta accreta	—
13	26	G2P0	39 + 5	1 artificial abortion	20	placenta accreta	—
14	32	G5P2	37 + 5	2 cesarean sections	28	placenta percreta	dangerous placenta previa; uerperal infection
15	38	G7P3	37 + 6	3 artificial abortion	26	placenta accreta	placenta previa
16	33	G2P2	20 + 1	2 cesarean sections 4 artificial abortion	23	placenta accreta	hemorrhagic shock

Table 2: Treatment and Outcomes of 16 Patients with PAS at Different Degrees.

Case	Principal Diagnosis	Auxiliary Examination	Therapy Method	Surgical Findings	Amount of Bleeding	Blood Transfusion Volume
1	placenta percreta	ultrasound: The lower margin of the placenta covered the inner cervix, the boundary between the anterior uterine wall and the placenta was not clear, and abundant blood flow signals were visible in the anterior wall of the uterus.	partial excision of anterior uterine wall (Triple P procedure)	The blood vessels in the old scar of the lower part of the uterus are abundant and circuitous. the placenta completely covers the inner cervix and is closely adhered to the uterus, penetrating the serous membrane layer with a penetration area of 3x5 cm.	3550 mL	red cell suspension (RBCs) 8 IU FFP 600 mL
2	placenta percreta	ultrasound: The placenta is located in the anterior and the bottom of the uterus, the lower margin is more than 70mm from the cervical opening, the thickness is 24mm, and the fetal position is breech.	hysterectomy	The blood vessels on serous surface of anterior, fundus and posterior wall of uterus were indignant, with purplish blue surface and no obvious muscularis tissue.	2400 mL	RBCs 5 IU FFP 400 mL
3	placenta percreta	ultrasound: The placenta is located in the left and bottom lateral walls of the uterus., the lower margin is more than 70mm away from the cervical opening, and the thickness is 21mm.	uterine artery embolization; partial excision of the anterior uterine wall (Triple P procedure); uterine B-lyncb suture	The placenta could not be delivered by itself. when pulling the placenta, the anterior uterine wall near the uterine bottom was obviously depressed about 10*10cm, and tortuous blood vessels were seen on the uterine surface. after the artificial removal of most of the placenta, the placenta was double-lobed and the penetrating area was 3x4cm.	1200 mL	RBCs 5 IU
4	placenta accreta	ultrasonography: A slightly more homogeneous solid echo area of 84x23x46mm was seen in the uterine cavity. hint: residual placenta (placenta accreta cannot be ruled out) HCG:886.16 IU/L	uterine artery embolization (arterial injection MTX); curettage rely on ultrasonic	—	20 mL	—
5	placenta percreta	Ultrasound: The placenta is located in the left anterior wall, and the lower margin completely covers the endocervix.	uterine artery embolization; intrauterine balloon tamponade(failed); hysterectomy	The lower anterior uterine wall was as thin as paper, widely adhered to the bladder and pelvic wall, with abundant dilated blood vessels observed on the surface. The placenta completely covered the cervical opening, and there were dense adhesions between the placenta and the left anterior uterine wall, lower scar and lower uterine posterior wall, penetrating the base.	6130 mL	RBCs 22 IU FFP 1900 mL cryoprecipitate 10 IU

6	placenta accreta	ultrasound: The placenta is located in the left anterior wall and completely covers the endocervix.	partial excision of the anterior uterine wall (Triple P procedure)	There was active bleeding in the lower part of uterus, part of placenta was attached to the uterine wall and the cervical canal, and part of placenta tissue was implanted into the muscle layer with the implanted area of 4.5 × 3.5 cm.	5300 mL	RBCs 18 IU FFP 1900 mL
7	placenta accreta	ultrasound: The placenta is located in the right anterior wall, the lower margin is more than 70 mm from the cervical opening, and the thickness is 28 mm.	hysterectomy	Placenta partially covered the cervix, partially penetrated the myometrium of uterus. The placenta tissue was implanted into myometrium of right side and posterior wall, which was difficult to separate. Meanwhile, the bleeding was much and rapid.	3000 mL	RBCs 6 IU FFP 200 mL
8	placenta percreta	ultrasound: The placenta is located in the posterior wall, the lower edge of the cervical opening >70 mm, the thickness of 25 mm.	uterine artery embolization; partial excision of the anterior uterine wall (Triple P procedure)	The uterus was pale and soft as a sack. A large number of tortuous vessels were observed on the thin surface of the lower muscular layer, with a penetrating area of 5.5 × 6 cm.	6500 mL	RBCs 22 IU FFP 1600 mL cryoprecipitate 3 IU
9	placenta accreta	ultrasonography: Slightly strong echo was observed in the uterine cavity with a size of 114 × 50 mm. there was a low echo area in the lower anterior uterine wall, about 46×37mm in size, which was indistinguishable from the uterine wall. MRI: lumpy long T1 signal shadow was seen in the lower anterior wall of uterus, and placental accreta was considered.	uterine artery embolization; partial excision of the anterior uterine wall (Triple P procedure)	The placenta could not be delivered by itself. After the artificial dissection of part of the placenta, the vaginal bleeding was fierce. The implantation area of the placenta tissue was 5 × 5 cm.	800 mL	—
10	placenta percreta	ultrasound: The placenta is located in the anterior wall, with a thickness of 22 mm and a lower margin 19 mm from the cervical opening.	uterine artery embolization; partial excision of the anterior uterine wall (Triple P procedure)	Part of placenta was implanted into the anterior uterine wall, and part of placenta invaded the serosal layer of the anterior uterine wall, penetrating an area of 2 × 3 cm.	550 mL	—
11	placenta accreta	ultrasound: The placenta is located in the anterior wall, the lower edge is 12 mm from the cervical opening, and the thickness is 21 mm. HCG: 505.79 IU/L	uterine artery embolization (arterial injection MTX); curettage rely on ultrasonic	—	2000 mL	RBCs 6.5 IU FFP 1000 mL
12	placenta accreta	ultrasonography: A 40 × 33 × 38 mm heterogeneous mixed echo area was observed in the uterine floor, and the boundary between local edge and uterine wall was not clear. HCG: 40.07 IU/L	uterine artery embolization; removal of pregnancy residue by hysteroscopy	Placenta tissue about 3 × 2 cm in size was observed in the anterior wall of the uterus near the bottom of the uterus.	300 mL	—
13	placenta accreta	ultrasonography: Placental echo 122×46×83mm was observed in the uterine cavity, and the right fundus muscle layer was thin, where the boundary between placenta and muscle layer was not clear.	placenta retention in situ	—	200 mL	—

14	placenta percreta	Ultrasound: The boundary between placenta and uterine wall is not clear, and the lower margin covers the cervical opening. abundant blood flow signals. HPC: 6669 IU/L	uterine artery embolization; partial excision of the anterior uterine wall (Triple P procedure)	A large amount of blood vessels were dilated on the inferior surface and part of the placenta was implanted into the uterine muscle layer of the anterior uterine wall, with a penetrating area of 3.5 × 5.5 cm.	2500 mL	RBCs 5.5 IU FFP 600 mL
15	placenta accreta	Ultrasonography: low echo 135 x 61 mm was observed in the uterine cavity and the lower segment of the anterior wall, and the boundary between the muscular layer and the lower part of the anterior wall was not clear, and the local muscular layer was 2.8mm thick. MRI: lumpy irregular mixed signal shadows were seen in the uterine cavity, partially entering the anterior inferior uterine wall muscularis.	Uterine artery embolization; placenta retention in situ (failed); hysterectomy	The blood vessels at the lower segment of the uterus were abundant and circuitous, the uterine resection margin was widely bleeding, the placenta attached to the lower uterine segment extended to the posterior wall, completely covering the cervical opening, and the posterior wall of the placenta was seriously adhered.	900 mL	—
16	placenta accreta	Ultrasonography: Mixed 48 x 20 mm echogenicity in the inferior anterior wall of uterus was observed in the myometrium, which was indistinguishable from the scar. MRI: Anterior wall of uterus - uterine space occupation, local boundary with the anterior wall of uterus was not clear, placenta accreta was considered.	Uterine artery embolization(arterial injection MTX); curettage rely on ultrasonic	—	1500 mL	RBCs 4 IU

Symptoms

Three of the included patients presented with painless vaginal bleeding during pregnancy, lasting 3.7 ± 3.1 days; In 6 cases, abnormal placenta position was found, and no symptoms such as vaginal bleeding and abdominal pain were found. Placenta accreta was diagnosed during cesarean section in 9 cases. 5 cases showed residual placenta and continuous vaginal bleeding after abortion. Another 2 cases showed placental retention after delivery, with little vaginal bleeding, and 1 of them was preterm delivery. The signs and clinical manifestations of most patients were not obvious, but patients with placenta previa often complicated with painless vaginal bleeding.

Auxiliary examination

All patients underwent ultrasound examination after admission, 7 cases showed unclear boundary between uterine muscle wall and placenta; one case suggested that the uterine base was thin; one case suggested placental thickening. In all eight cases of placenta previa, five ultrasound showed low or varying degrees of placenta covering the cervix. In addition to the location of placenta and the judgment of the relationship between placenta and uterus, ultrasound can also accurately measure the thickness of uterine muscle layer and the richness of blood flow signals. Pelvic Magnetic Resonance Imaging (MRI) was performed in two patients, suggesting that irregular mixed signal shadows were seen in the uterine cavity, and the myometrium was implanted in different degrees. For patients with postpartum placental residue, serum Human Chorionic Gonadotropin (HCG) has a reference effect on the treatment effect.

Treatment and outcomes

Four patients had massive bleeding in cesarean section at the lower uterine segment, and finally subtotal hysterectomy. Among them, 2 cases were given arterial embolization in advance to reduce bleeding. Case 5: Intrauterine balloon tamponade was performed after cesarean section, but the balloon fell off spontaneously two hours after operation, and a large amount of vaginal bleeding was accompanied by old blood clots. Finally, subtotal hysterectomy was performed. In cases 1, 3, 6, 8, 9, 10 and 14, partial placenta accreta was localized by ultrasound before operation, and partial hysterectomy (Triple P procedure) was performed after blocking uterine blood supply. All patients had different degrees of uterine wall FFP membrane surface vascular anger, muscle layer thickness decreased. Placenta and uterine wall adhesion is closely, uterine wall depression can be seen when pulling the placenta. Three patients underwent curettage after arterial embolization, and case 12 underwent hysteroscopic removal of pregnancy residues.

A total of 10 patients with postpartum hemorrhage were treated with blood transfusion, including 5 cases of hemorrhagic shock. Case 4,6 and case 11 underwent MTX + calcium folinate intramuscular injection after curettage under ultrasound guidance, and the blood HCG decreased ideally. In case 13, the placenta was kept in situ, and the placenta absorption was monitored by ultrasound every month. Two months after delivery, the echo of placenta was reduced to 12 x 6 x 8 mm, and the blood HCG decreased ideally, which was still in follow-up. In addition to induced labor cases, the prognosis of all full-term newborns was good, and the prognosis of newborns in Case 1 and Case 8 was good after being rescued in neonatal department due to premature birth (Table 2).

Discussion

Forepassed uterine surgery is one of major risk factors for placenta accreta

The character of normal early human placental development is to implant blastocyst into the decidualized endometrium. The decidualized bottom deciduum is a strip of detachment that separates the placenta from the myometrium, allowing the placenta to be expelled during the third stage of labor. Due to all kinds of previous uterine surgery, defects in the decidua at the implantation site can cause placental tissue to contact with the myometrium directly, preventing the normal strip to form, leading to unsuccessful placental detachment during delivery [13]. Most of the cases in this medical record analysis had a history of more than two uterine surgeries, and the short time from the previous uterine surgery also increased the depth of placenta accreta. Due to the increasing of uterine surgeries and the insufficient time since the last uterine surgery, the endometrium cannot regenerate the strong decidua layer at the scar site. Placenta previa is commonly found at the lower segment of the uterus muscle layer which is relatively thin, placental tissue is easy to penetrate muscle layer and even invades the bladder and other important organs. In addition, maternal high collar increases the probability of cesarean section and placenta previa.

Ultrasound has specificity in prenatal diagnosis of placenta accreta and MRI can be regarded as a supplement

The results of a meta-analysis indicated that in 3707 pregnancies, the specificity and sensitivity of ultrasound in the diagnosis of PAS were about 90.72% and 96.94%, among which the accuracy of color Doppler ultrasound was the highest, with sensitivity and specificity reaching 90.74% and 87.68% [14]. MRI is another method used for prenatal diagnosis of PAS. A meta-analysis showed that the overall specificity of MRI for PAS was 84.0%, and the sensitivity was 94.4% [15].

A prospective study of 1256 women at high risk, such as prior uterine surgery and placenta previa, showed that ultrasound at 12 to 16 weeks was highly predictive for the occurrence of placenta accreta during the third trimester of pregnancy, with only one false positive result for all 13 cases in the detected population that suggested placenta accrete [16]. In the study, ultrasound examination could show the placenta position. Among the 8 patients with intraoperative placenta previa, ultrasound indicated that the placenta covered the internal cervix or was in a low position in 6 cases. In all cases of placenta percreta, ultrasound examination showed that the boundary between placenta tissue and muscularis uteri was not clear, and some of them showed too thin muscularis uteri and abundant blood flow signals.

In cases 9, 15 and 16, MRI was more accurate in distinguishing the degree and area of placenta accreta. MRI may be more accurate when placenta accreta is suspected, particularly when the placenta may extend into the bladder, rectum, cervix, or parametrial tissues or when the placenta is found in the posterior and bottom wall of uterus [17].

Different treatment plans should be adopted for different implantation areas and depths

Pathologists have classified it into three subtypes: (1) superfi-

cial placenta accreta: The villi is directly attached to the surface of myometrium, but without invading the myometrium; (2) Placenta increta: The villi penetrating into the myometrium of uterus and extending to the outer layer; (3) Placenta percreta: In which invasive villous tissue reaches and penetrates the uterine myometrium and serosa [18].

Placental adhesion or shallow implantation

According to the experience of our hospital, for patients with shallow placental implantation without penetrating the myometrium, uterine artery embolization can temporarily block the uterine blood supply and reduce the total amount of blood loss. Intra-arterial injection of low dose MTX during embolization can make it act locally on the uterus and placenta, effectively promoting the necrotic absorption of residual placenta tissue. After surgery, the placental blood supply at the implantation site was evaluated by Doppler color doppler ultrasound, and uterine clearance was performed under ultrasound guidance or hysteroscopy when there was no obvious blood flow signal. In cases 12, atrophy of placental tissue was observed under hysteroscopy, and resistance and blood loss were significantly reduced during uterine clearance.

Placenta percreta

PAS is the main cause of peripartum hysterectomy, with up to 64% of PAS patients undergoing hysterectomy [19,20]. And 40%-50% of the patients will still have serious postoperative complications, and 7% of the early maternal death [21]. Triple P procedure is a new uterus preserving surgical technique, which includes three steps: Partial location of placenta accreta before ultrasound or MRI examination before surgery; Selective internal iliac artery embolization or use of pelvic artery occlusion balloon catheter to lower blood supply to the placenta; The implanted placenta and its attached myometrium were removed without separation and the uterus was further repaired. It was first proposed in 2004 and has recently been widely referred to as Triple P procedure [22]. Conservative treatment can significantly reduce the amount of bleeding in patients with a small implantation area, while resection (removal of all the uteroplacental implantation and closure of the gap) can reduce the amount of bleeding and preserve fertility in patients with a large implantation area that is difficult to repair [23].

Due to abundant angiogenesis at the implantation site, uterine artery embolization can not always effectively block uterine blood supply, and uterine clearing is also easy to cause uterine perforation, massive bleeding and other complications. When it was found that placenta was only implanted locally and most placentas developed normally, Triple P procedure removed placenta tissue as much as possible without attempting to separate placenta and muscle, which greatly reduced intraoperative bleeding and other potential risks during placenta absorption as much as possible, so as to preserve female reproductive function. Cases 1, 3, 6, 8, 9, 10 and case 14 all had good prognosis after Triple P procedure.

According to the treatment experience of our hospital, in patients with large-area placental penetration implantation, blood vessels in the old scar of the lower uterine position are common in operation, and the placental tissue penetrates from the uterine muscle layer, which is difficult to forcibly peel and prone to

massive bleeding, and due to the thin uterine base, accompanied by uterine weakness. When the penetrating implantation area is too large ($>10 \times 10 \text{ cm}^2$), local resection of the placenta and its attached myometrium will result in a large area of myometrium loss, and it is difficult to restore the normal anatomical structure of the uterus. Due to the excessive wound area, the risk of causing bleeding and infection is increased, hysterectomy is performed in some cases. Hysterectomy is a traditional practice, either as an selective or emergency plan for massive bleeding. But the downside is a higher damage rate for neighbouring organs such as the ureter or bladder, and the inevitable permanent loss of fertility.

Placenta retention in situ may be risky

Expectant management refers to the preservation of part or all of the placenta in situ. A study of 167 cases showed that 78% (131/167) of PAS patients did not require hysterectomy after expectant management, and the average time of placenta expulsion in successful expectant management patients was 13.5 weeks. However, 22% (36/167) of PAS patients still needed hysterectomy due to severe complications (bleeding, severe infection) during the expectant treatment [24]. Other studies have found similar findings [25].

After fetus delivered, the umbilical cord should be ligated as close to the placenta as possible without attempting to isolate the placenta from the uterine wall. There is an advantage of placenta in situ which is minimizing the possibility of intraoperative bleeding. Case 15 in this study had postpartum placenta retention and was generally in good condition upon admission. The placenta was planned to be retained in situ and treated with anti-inflammatory hemostatic therapy. On the third day of conservative treatment, a large amount of vaginal bleeding occurred, accompanied by infection symptoms such as elevated body temperature and abnormal verification indicators. Finally, total hysterectomy was performed. Case 16, blood HCG on admission: 1075 mIU/mL, blood HCG decreased less than ideal within 2 weeks after placenta retention in situ, and MTX treatment was finally performed.

Placental retention in situ requires a long period of regular ultrasound and follow-up to determine HCG to ensure the placental tissue reabsorbed completely, which could require good patient compliance. Due to progressive necrosis, it takes more than 4 months for the placental tissue to fully absorb, during which time there is a high stake of sepsis and secondary bleeding. According to our hospital's experience, the in situ placental retention scheme is only suitable for cases with placental adhesion area less than $3 \times 3 \text{ cm}$ and blood HCG less than 200 mIU/mL.

Conclusion

The number of PAS cases has increased exponentially in the last couple of years, and this data seems to increase further in the years ahead due to the increase of assisted reproductive technology and caesarean section. As the incidence increases, so does the clinician's experience, the crux to improving infant and maternal outcomes is prenatal diagnosis. Ultrasound is as accurate as MRI in diagnosing PAS, especially when the placenta invading the uterine wall and in a low segment. The increase in placenta accreta has also created the requirements of innovation in surgical techniques that are more conservative, and reduce the happening of psychological and physical effects of hysterectomy. Of

these, Triple P procedure has proven a good prognosis, with a low rate of postpartum bleeding, allowing women who wish to conceive again to remain fertile after a period of contraception.

Besides the surgical technique chosen, women with higher degree of suspicion or confirmation of PAS should be treated by a multidisciplinary team at a medical facility with surgical expertise. The team should have complex case management experience, blood products, interventions, Neonatal Intensive Care Units (NICU) and Intensive Care Units (ICU) are all necessary. Termination of pregnancy at 35 to 37 weeks is recommended to attain the optimum balance between the risk of preterm birth and natural birth.

Declarations

Patient consent statement: All Patients were tested for their immediate recall and medical history of information presented recorded, and signed on informed consent documents.

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