ACTA MEDICA LITUANICA. 2019. Vol. 26. No. 3. P. 153–158

Latvian experience in conservative management of abnormally invasive placenta: two case reports

Diana Bokučava[1],

Sandra Vītiņa[1],

Maira Jansone[1],

Mara Tirāne[3],

Zane Krastiņa[1],

Kristine Prostaka[2],

Natalija Vedmedovska[2]

[1] *Maternity Care Centre, Pauls Stradins Clinical University Hospital, Riga, Latvia*

[2] *Riga Stradins University, Riga, Latvia*

[3] *Radiology Research Laboratory, Diagnostic Radiology Institute, Pauls Stradins Clinical University Hospital, Riga, Latvia*

Background. Abnormally invasive placentation (AIP) is a clinical term that describes situation when placenta does not separate spontaneously after delivery and its manual removal causes excessive bleeding (1). Historically, the treatment of choice for this condition is hysterectomy. Lately, the new treatment option, conservative management of the AIP, has proven itself an effective alternative to hysterectomy in carefully selected patients (2). However, the use of conservative AIP management is limited in many countries, the reasoning being the lack of doctors' experience in this procedure and concerns regarding a high postpartum infection rate.

Case reports. We present the first two cases of conservative management of AIP in Latvia.

Most of prenatally diagnosed AIP cases country-wide are referred to the Paul Stradinš University Hospital, which is a tertiary referral hospital. The annual rate of AIP in the hospital varies from five to ten cases.

Two pregnant women were diagnosed with AIP prenatally, both of them refused hysterectomy and therefore went for the conservative management of AIP. During Caesarean section operation, placentas were left *in situ* after delivery of the baby. During the follow-up period of 12 and 14 weeks, both women developed infection complications, but complete placental tissue resolution was diagnosed in the end.

Conclusion. These two cases demonstrate that conservative management of AIP can be safely applied in small countries/areas with small AIP rate and management experience.

Keywords: abnormally invasive placentation, conservative management

* Correspondence to: Diana Bokučava, Maternity Care Centre, Pauls Stradins Clinical University Hospital, Pilsoņu iela 13, Zemgales priekšpilsēta, Rīga, LV-1002, Latvia. Email: diana.bokuchava@gmail.com

INTRODUCTION

Abnormally invasive placentation (AIP) includes such histological diagnoses as placenta accreta, increta, and percreta (1). The occurrence of AIP has increased tenfold over the last fifty years due to the growing number of Caesarean section deliveries (3–5). It is one of the most feared pregnancy complication, in connection with the high maternal mortality rate that can reach up to 7% (6). There are three management options for AIP: hysterectomy, conservative surgical management when the excision of invaded myometrium is performed, but the uterus is preserved, and conservative management of AIP in which case placenta is left *in situ*. We report the first two cases of AIP conservative management and the resulting complications we had to deal with.

Case report 1

A healthy 33-year-old woman gravida 3 para 1, with a previous Caesarean section, was referred to the Department of Obstetrics at Pauls Stradins Hospital. The ultrasound investigation at the 32nd gestational week revealed an anterior placenta lying 2 cm over the internal os, covering the scar, with lacunas and sub placental hypervascularity suggestive of AIP. MRI was performed at the 35th gestational week to confirm the diagnosis and showed a low-lying placenta, small areas of sub-placental haemorrhage, and sub-placental areas with undetectable myometrial layer. At the 37 gestational week, a Caesarean section was performed with a uterine incision over the placental edge to avoid damaging the placenta. A healthy baby was delivered. The placenta was left *in situ*, as the patient refused hysterectomy. The umbilical cord was cut and ligated near the placenta. The uterus was closed in two layers followed by abdominal closure. The estimated blood loss was 400 ml. During the postoperative period, antimicrobial prophylaxis with ceftriaxone 1 g IV was administrated for six days. The patient was discharged on day 7 after the surgery. Follow-up was done by serial USG monitoring for the size of the uterus and placenta (Figure 1 (a, b, c)), weekly human chorionic gonadotropin (HCG), C-reactive protein (CRP) levels, and a full blood count (Table 1).

Four weeks after the operation, the HCG started to decrease significantly and dropped to <2 mIU/ml on day 44. During the follow-up period, the patient reported constant lower abdominal pain and had two admissions to the hospital due to pain elevation. At the fist admission, she had febrile temperature; the smear taken from the cervix revealed *Enterococcus* sp. and *Candida albicans* infection. The patient received antibacterial treatment of the combination of clindamycin 300 mg orally administered every 8 h for ten days, and gentamicin 240 mg IV for six days. On the second admission, D&C was performed and antibacterial therapy with ciprofloxacin 500 mg orally twice a day was prescribed for 14 days. After the D&C procedure, the patient's complains resolved.

Table 1. Levels of HCG and CRP in patient blood samples during postoperative follow-up period in first case

Postoperative day	HCG mIU/ml	CRO mg/l
3	6295.9	
6	5291.5	7.44
25	55.5	47.2
29	32.0	28.37
43	2.5	46.6
44	<2	4.88

Twelve weeks after the Caesarean section, the patient had her first period and a complete resolution of the placenta was diagnosed during ultrasound examination (Fig. 1(d)).

Case report 2

A healthy 42-year-old woman gravida 3 para 2, with a history of two D&C procedures after the first vaginal delivery and one after the second delivery, in both cases due to postpartum endometritis. She presented to the outpatient clinic at the 17th gestational week with the second episode of vaginal bleeding; the ultrasound examination revealed short cervix of 12 mm and placenta *praevia totalis* with the signs of AIP (loss of clear zone, myometrial thinning, abnormal placental lacunae, and subplacental hypervascularity) and succenturiate lobe on the posterior wall. MRI investigation confirmed the diagnosis of AIP. The patient was closely observed till 36 weeks and six days, when an elective Caesarean delivery was scheduled. Pre-operative prophylactic bilateral balloon insertion into the internal iliac arteries was performed. The abdominal wall was opened

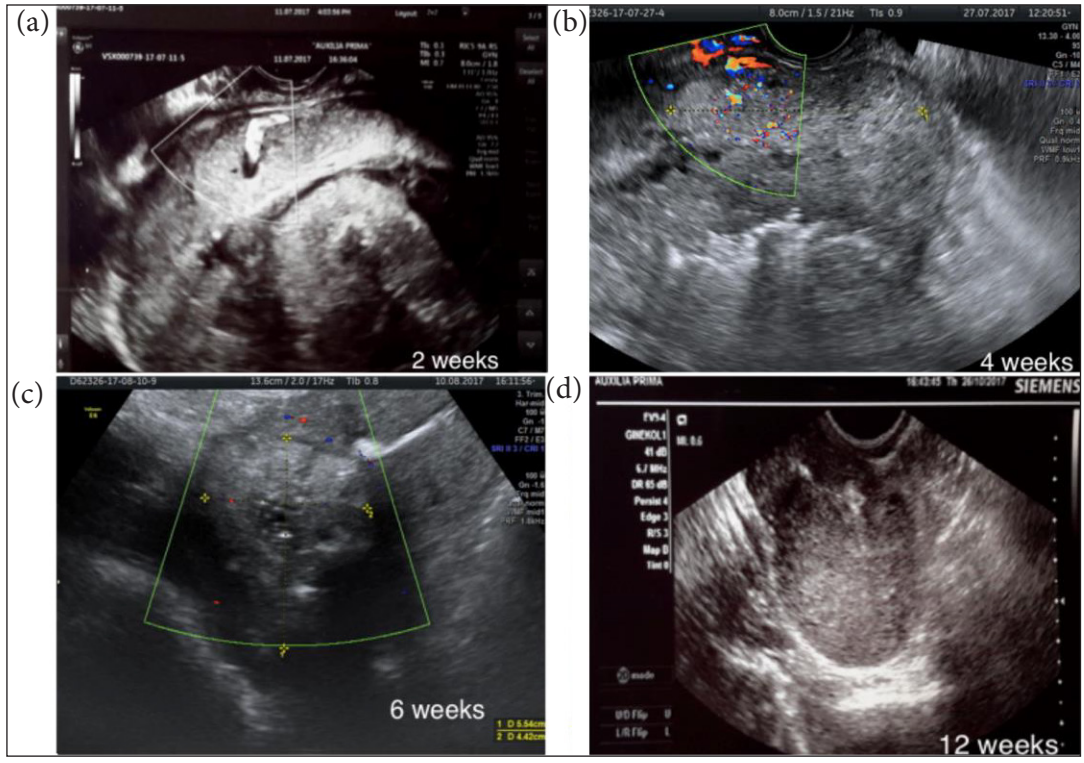

Fig. 1. Ultrasound images showing resorption of placenta in case 1. Two weeks after the Caesarean section, the hyperechogenic mass (11 × 11 cm) with rich vascularization (a) was detected; four weeks after operation a decrease in hyperechogenic mass size (6 cm) and vascularization (b); six weeks after, the hyperechogenic mass (5 cm) without vascularization (c); 12 weeks after the operation, a complete resolution of the placenta was diagnosed (d)

with a mid-abdominal incision, displacement of the bladder was performed and, in order to avoid placental bed, a transverse uterine fundal incision was performed. A healthy baby was delivered. The placenta was left *in situ* per patient request. The uterus was closed in two layers followed by abdominal closure. The estimated blood loss was 300 ml. There was no need for the infiltration of the balloon inserted in the iliac arteries as there was no excessive bleeding. However, bilateral embolization of the uterine arteries was performed at the end of the operation. The abnormal branches of the internal iliac arteries reaching the uterus were revealed by angiography; they were embolized. The patient was discharged on day 3 after the operation. Ceftriaxone 1 g. IV was administrated for six days to avoid infection. Follow-up was done by serial USG monitoring (Fig. 2 (a, b, c)) for the evaluation of the uterus and the placenta, regular HCG, CRP levels, and a full blood count (Table 2). On the 31st post-operative day, the patient started to complain of febrile temperature 39°C and the vaginal discharge with odour. She received a seven-day-long antibacterial treatment with clindamycin 300 mg orally administered every 8 h for ten days. Regardless of the antibacterial treatment, the patient was admitted to the hospital on the 42nd post-operative day with complaints of lower abdominal pain elevation, febrile temperature, and bloody purulent vaginal discharge. The D&C was performed and antibacterial treatment, consisting of the combination of ciprofloxacin (200 mg IV every 12 h) and metronidazole (75 mg IM), was initiated. On the 3rd day after admission, the antibacterial regimen was changed to tazocin (4.5 mg every 8 h for ten days), as patient still had febrile temperature and purulent vaginal discharge. On ultrasound colour Doppler examination, a rich vascularization of the placental bed was still observed, therefore oral methotrexate was prescribed. She was discharged on the 55th post-operative day, 48 hours after the last temperature rise. Fifteen weeks after the operation, the patient had her first menstrual

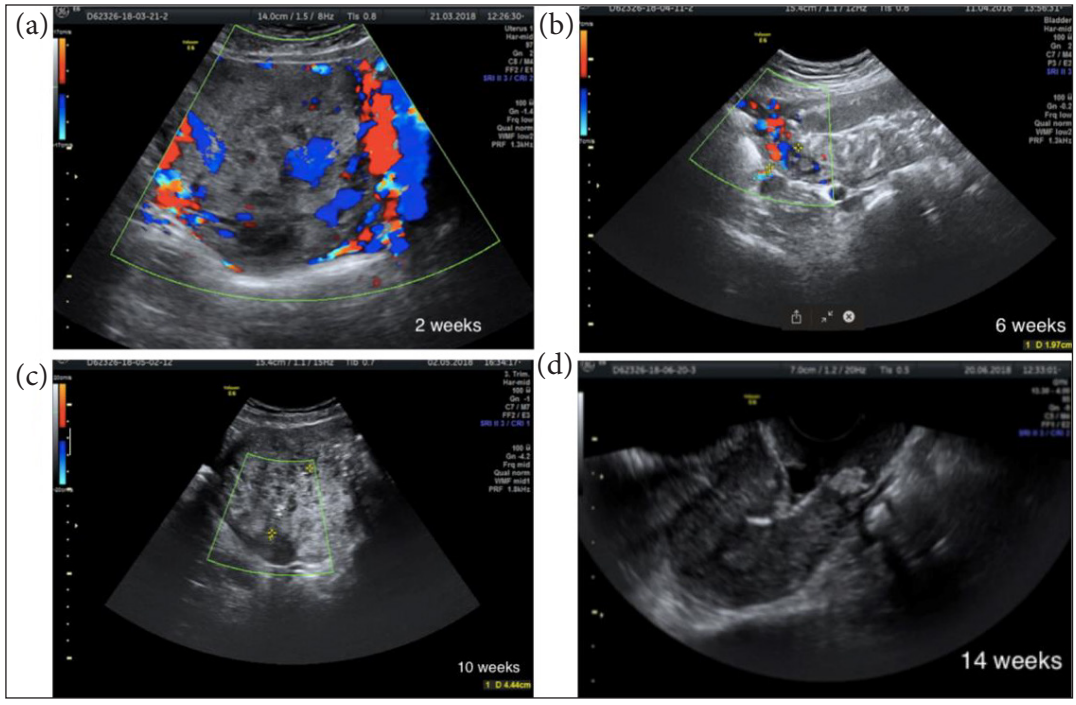

Fig. 2. Ultrasound images showing resorption of placenta in case 2. Two weeks after Caesarean section on colour Doppler, the placental tissue has and increased blood flow (a); six weeks after the operation, a decrease in blood flow is prominent (b); after ten weeks, no placental vascularization was observed (c); 14 weeks after the operation a complete resolution of the placenta was diagnosed (d)

period and complete placental tissue resolution was diagnosed by ultrasound at week 14 (Fig. 2 (d)).

Table 2. Levels of HCG and CRP in patient blood samples during postoperative follow-up period in case 2

Postoperative day	HCG mIU/ml	CRO mg/l
3	10316.0	
7	5967.5	
14	1977	
23	1231	60.0
37	274	157.8
43	125.56	159.12
48	66.07	74.88
51	63.93	63.96
55	30.22	78.45
74	<1	33.7

DISCUSSION

Although historically hysterectomy is the most common and preferred management of AIP, it is associated with a higher perioperative blood loss and bladder and bowel injury (7). Alternative management options are conservative surgical and conservative therapy. There are several conservative surgical management techniques described by different authors, but the main part of the operation is excision of the part of the myometrium which is invaded by placenta and suturing the remaining uterus (7–9). This technique is associated with a lower perioperative blood loss if performed by experienced surgeons in a well-equipped hospital, but is technically very sophisticated (7–9). In the case of conservative surgical management, even though uterus is preserved, it is not recommended to plan future pregnancies as there is a big post-operative myometrial defect and a high risk of uterine rupture (10). However, conservative management option allows fertility conservation in patients who desire future pregnancies. This procedure includes leaving the placenta in place after a Caesarean delivery of the baby and closing the hysterotomy incision (2). Despite the fact that conservative management decreases the risk of bladder and bowel injury, it is associated with a high rate of postpartum complications with severe maternal morbidity reaching up to 10% (2). The postpartum infection rate can be as high as 47%, and 7% of the patients may develop

sepsis (2). In both cases described above, post-operative infection was the main concern; both patients required hospitalization and combined antibacterial treatment due to it. Although surgical management is not usually necessary in acute postpartum endometritis, the decision to perform D&C was taken in both cases. It was based on the consideration that infection was caused by the retained placental tissues and therefore they needed to be removed. It is known from published case series that spontaneous complete placental resolution can be achieved in 75% of cases and additional hysteroscopic resection and/or D&C is needed in 25% (2). Methotrexate was administrated to one of our patients due to clinical complications and a rich vascularization of the placental bed revealed by colour Doppler examination as well as plateau in HCG level. Four days after methotrexate administration HCG level dropped by half. However, methotrexate use is not routinely advocated in the management in AIP, as its effectiveness is not proven, but breastfeeding should be interrupted, as well as there is a high side effect risk due to its toxicity (11–12). In the second case an elective Caesarean delivery was performed at 36 weeks and 6 days due to high risk of haemorrhage. There is still no recommendation about the optimal gestational age of delivery because potential maternal benefits of earlier scheduled delivery must be weighed against the consequences of premature birth. In some studies, up to 27% of the women for whom caesarean delivery was planned due to AIP underwent emergency Caesarean deliveries because of early haemorrhage (13).

Both our patients were interviewed after complete placental resolution and pointed out that they did not expect that the treatment course would be so psychologically difficult for them. But in spite of that, they would undergo it again. Therefore, candidates for conservative management must be carefully selected and thoroughly counselled about short and long-term risks. They should also be informed about high psychological stress they might go through during the treatment course. Our case reports illustrate that even though conservative treatment of AIP is difficult in management, it can be safely applied in a tertiary referral hospital with adequate equipment and resources, in case the woman is well motivated and agrees to meticulous follow-up monitoring.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests regarding the publication of this paper.

ACKNOWLEDGEMENTS

The authors thank the patients for allowing them to use their cases for medical education.

The first case was presented as "Conservative management of morbidly adherent placenta: the first Latvian experience" in the Poster Discussion Hub of the 28th World Congress on Ultrasound in Obstetrics and Gynaecology. Natalija Vedmedovska, Diana Bokucava, Maira Jansone, Sandra Vitina, Zane Krastina, Mara Tirane, Kristine Prostaka.

Received 3 July 2019
Accepted 3 September 2019

References

1. Chantraine F, Langhoff-Roos J. Abnormally invasive placenta-AIP. Awareness and pro-active management is necessary. Acta Obstet Gynecol Scand. 2013; 92: 369–71.
2. Sentilhes L, Ambroselli C, Kayem G, Provansal M, Fernandez H, Perrotin F, et al. Maternal outcome after conservative treatment of placenta accreta. Obstet Gynecol. 2010; 115(3): 526–34.
3. Wu S, Kocherginsky M, Hibbard JU. Abnormal placentation: twenty-year analysis. Am J Obstet Gynecol. 2005; 192: 1458–61.
4. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. Am J Obstet Gynecol. 1997; 177: 210–4.
5. Greenbaum S, Wainstock T, Dukler D, Leron E, Erez O. Underlying mechanisms of retained placenta: Evidence from a population based cohort study. Eur J Obstet Gynecol Reprod Biol. 2017; 216: 12–7.
6. O'Brien JM, Barton JR, Donaldson ES. The management of placenta percreta: conservative and operative strategies. Am J Obstet Gynecol. 1996; 175: 1632–8.
7. Sentilhes L, Goffinet F, Kayem G. Management of placenta accreta. Act Obst Gynecol Scand. 2013; 92: 1125–34.

8. Doumouchtsis SK, Arulkumaran S. The morbidly adherent placenta an overview of management options. Acta Obstet Gynecol Scand. 2010; 89(9): 1126–33.
9. Timmermans S, van Hof AC, Duvekot JJ. Conservative management of abnormally invasive placentation. Obstet Gynecol Surv. 2007; 62: 529–39.
10. Pinas Carrillo A, Chandraharan E. Placenta accreta spectrum: Risk factors, diagnosis and management with special reference to the Triple P procedure. Womens Health (Lond). 2019 Jan–Dec; 15: 174.
11. Butt K, Gagnon A, Delisle M. Failure of methotrexate and internal iliac balloon catheterization to manage placenta percreta. Obstet Gynecol. 2002; 99: 981–2.
12. Collins Sally L., et al. Evidence-based guidelines for the management of abnormally invasive placenta: recommendations from the International Society for Abnormally Invasive Placenta. Am J Obstet Gynecol. 2019; 220: 511–26.

Diana Bokučava, Sandra Vītiņa, Maira Jansone, Mara Tirāne, Zane Krastiņa, Kristine Prostaka, Natalija Vedmedovska

LATVIJOS MEDIKŲ PATIRTIS TAIKANT KONSERVATYVŲ GYDYMĄ ĮAUGUS PLACENTAI: DVIEJŲ ATVEJŲ PRISTATYMAS

Santrauka

Įvadas. Įaugusi placenta (neįprastai invazinė placenta (abnormally invasive placenta - AIP)) yra klinikinis terminas, apibūdinantis situaciją, kai placenta po gimdymo neatsiskiria savaime, o rankinis jos pašalinimas sukelia gausų kraujavimą [1]. Anksčiau ši liga buvo gydyma histerektomija. Pastaruoju metu naujas gydymo būdas, vadinamasis konservatyvus AIP valdymas, pasirodė esąs veiksminga histerektomijos alternatyva kruopščiai atrinktoms pacientėms [2]. Tačiau daugelyje šalių kol kas konservatyvus AIP valdymas yra ribojamas. Priežastis – gydytojų patirties stoka atliekant šią procedūrą ir dažnos infekcijos po gimdymo.

Atvejų aprašymas. Pateikiami ir aprašomi pirmieji du konservatyvaus AIP valdymo atvejai Latvijoje.

Didžioji dalis prenatališkai diagnozuotų AIP atvejų nukreipiami į tretinio lygio Paulo Stradinšo universiteto ligoninę. Metinis AIP rodiklis ligoninėje svyruoja nuo 5 iki 10 atvejų.

Dviems nėščioms moterims AIP buvo diagnozuotas prenataliniu laikotarpiu. Abi nesutiko su histerektomija, todėl joms buvo taikytas konservatyvus AIP gydymas. Atliekant Cezario operacijas placentos nebuvo pašalintos. Abiems moterims 12 ir 14 savaičių stebėjimo laikotarpiu išsivystė infekcijos komplikacijos, tačiau galiausiai buvo diagnozuota visiška placentos audinio redukcija.

Išvados. Šie du atvejai rodo, kad konservatyvus AIP valdymas gali būti saugiai taikomas ir nedidelėse šalyse / teritorijose, turinčiose mažą AIP dažnį ir gydymo patirtį.

Raktažodžiai: įaugusi placenta, konservatyvus gydymas