

Jakub Kornacki, Jana Skrzypczak. Zastosowanie badania dopplerowskiego w drugiej połowie ciąży.

W większości ciąży powikłanych sIUGR typu II zaleca się elektywne cięcie cesarskie przed 30 tygodniem ciąży [2, 25, 28].

W III typie sIUGR obecność zmiennego przepływu w tętnicy pępowinowej mniejszego płodu jest wynikiem obecności dużej anastomozy tętniczo-tętnicznej [2]. Ten typ zaburzeń cechuje stosunkowo wysoki odsetek niespodziewanej śmierci mniejszego płodu (ok 15%) oraz znaczny odsetek (ok. 38%) późniejszych, pourodzeniowych uszkodzeń neurologicznych u większego płodu [26]. Zwykle zaleca się w tym typie zaburzeń elektywne zakończenie ciąży po ukończeniu 32 tygodnia [2].

Zastosowanie badania dopplerowskiego w ciąży jednokosmówkowej powikłanej TAPS

Ocena dopplerowska PSV w tętnicy środkowej mózgu jest niezbędnym badaniem w diagnostyce tego powikłania w okresie prenatalnym. Kryteriami rozpoznania TAPS są: PSV MCA >1,5 MoM u dawcy i PSV MCA <1,0 MoM u biorecy [20]. Bez względu na wartości PSV w tętnicach środkowych mózgu obu płodów wykorzystywane są między innymi w klasyfikacji stopnia zaawansowania TAPS [29].

Zespół ten jest rzadkim (ok. 3%), pierwotnym, powikłaniem w ciąży bliźniaczej jednokosmówkowej [22]. Świadomość możliwości wystąpienia tego powikłania nakazuje wykonywanie badania dopplerowskiego, w tym oceny PSV w MCA, w każdej ciąży jednokosmówkowej.

Podsumowanie

Badanie dopplerowskie, jakkolwiek często nadużywane, jest podstawowym badaniem diagnostycznym w wybranych patologiach 2. połowy ciąży. Podstawowymi wskazaniem do jego wykonywania jest IUGR uwarunkowany niewydolnością łożyska, z lub bez współistnienia stanu przedrzucawkowego, podejrzenie niedokrwistości u płodu oraz powikłania ciąży bliźniaczej jednokosmówkowej. Warty podkreślenia jest konieczność w tych przypadkach oceny przepływu krwi zarówno w naczyniach tętniczych, jak i żylnych płodu oraz jednoczesna świadomość występowania różnych wariantów progresji zmian hemodynamicznych u płodu.

W odniesieniu do IUGR wartym podkreślenia są zalecenia co do wykorzystywania Dopplera w różnicowaniu IUGR i SGA. Podobnie jak w 1. trymestrze ciąży, także w jej połowie, ocena przepływów w tętnicach macicznych znajduje przydatność w predykcji wystąpienia IUGR i stanu przedrzucawkowego, zwłaszcza ich wczesnych postaci.

Oświadczenie autorów

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Successful treatment of Placenta Percreta through a combinatorial treatment involving a Bakri Balloon and Methotrexate – a case report

Skuteczne leczenie balonem Bakriego i metotreksatem z powodu łożyska przerośniętego: opis przypadku

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Abstract

Placental percreta is a complication involving an abnormally deep placental attachment to the myometrium, resulting in obstetric hemorrhage and peripartum hysterectomy. A 38-year-old pregnant woman, with a history of 2 Cesarean births, myomectomy, 9 pregnancies, and 6 spontaneous abortions, was admitted after experiencing intrauterine fetal death, which occurred at 19 weeks gestation. The patient was referred to our institution after 8 days of unsuccessful medical treatment. Doppler ultrasonography and vacuum curettage revealed possible signs of abnormal placentation. Because of the unsuccessful separation of the placenta and massive bleeding, we used a Bakri Balloon to treat excessive bleeding during the acute phase, followed by the conservative administration of parenteral methotrexate to treat the spontaneous involution of the placenta at 7 weeks of conservative therapy.

Bakri Balloon and methotrexate application to treat bleeding after curettage is a useful choice in placenta percreta and hemorrhage after abortion.

Key words: **placenta percreta / hemorrhage / methotrexate / therapy /**

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Streszczenie

Łożysko przerośnięte jest powikłaniem polegającym na zbyt głębokim, nieprawidłowym przyrośnięciu łożyska do myometrium, skutkującym krwotokiem płożniczym i okołoporodowym usunięciem macicy. Kobieta ciężarna 38 letnia, po dwóch cięciach cesarskich, miomektomii, 9 ciążach i 6 poronieniach samoistnych została przyjęta z powodu obumarcia wewnątrzmacicznego w 19 tygodniu ciąży. Pacjentka została przekazana do naszego ośrodka po 8 dniach nieskutecznego leczenia. Badanie dopplerowskie oraz odessanie zawartości macicy wykazało oznaki prawdopodobnie nieprawidłowego zagnieżdżenia się łożyska. Z powodu nieskutecznej próby oddzielenia łożyska i masywnego krwotoku użyto balonu Bakriego celem leczenia ostrej fazy krwotoku a następnie podawano pozajelitowo metotreksat aby uzyskać samoistną inwolucję łożyska.

Balon Bakriego oraz metotreksat jako terapia krwotoku po łyżeczowaniu macicy jest przydatnym wyborem w przypadku łożyska przerośniętego oraz krwotoku po indukowanym poronieniu.

Słowa kluczowe: **łożysko przerośnięte / krwotok / metotreksat / leczenie /**

Introduction

Placenta percreta is a complication involving anchoring placental villi that penetrate the myometrium into the uterine serosa or adjacent organs, resulting in a morbidly adherent placenta [1]. Placental implantation abnormalities are characterized as 1) placenta accreta, where chorionic villi attach to the myometrium rather than the decidua; 2) placenta increta, where chorionic villi penetrate into the myometrium; and 3) placenta percreta, where chorionic villi penetrate the myometrium into the uterine serosa or adjacent organs [1]. From 1930-1950, the prevalence of placenta accreta was 1/30,000; since then, the prevalence has increased, and the current prevalence of placenta accreta is 1/2500 [2]. Abnormalities of placental implantation are common in patients with uterine surgery and placenta previa, leading to severe maternal morbidity and postpartum bleeding that might require emergency hysterectomy [1-3]. The increase in Cesarean births might reflect the observed increase in the incidence of placenta percreta observed in recent years. Doppler ultrasound [1] and magnetic resonance imaging (MRI) [2] are typically used for the diagnosis of this condition.

Main goal of treatment and follow-up after Cesarean section is to reduce intraoperative and postoperative bleeding. Postpartum hemorrhage is treated through uterine de-vascularization or operative procedures, such as B-Lynch brace suture, Bakri Balloon Tamponade (BBT), or combinatorial methods involving uterine artery embolization [3], arterial embolization and internal iliac artery balloon occlusion or ligation [1-10]. Hysterectomy during Cesarean section is often performed to treat severe hemorrhaging; however, patients who wish to preserve their fertility are treated through methotrexate implementation to increase the regression of placental retention [4, 5, 6]. In this manuscript, we present a case study of a patient with severe bleeding after curettage due to placenta percreta treated with BBT application combined with conservative treatment and methotrexate therapy for placental involution.

Case report

A 38-year-old woman, with a history of 9 pregnancies, 6 abortions, 2 parities, 2 live births (2 Cesarean sections at 5 and 7 years before) and a myomectomy in the prior year, was referred to our gynecology and obstetrics outpatient clinic after experi-

encing intrauterine fetal death (19 weeks gestation). Treatment through the application of intra-vaginal misoprostol (200 µg) at 6 times a day for 8 days was unsuccessful in other hospitals. Doppler ultrasound revealed that deformed intra-uterine fetal death with anhydramnios occurred at 16 weeks gestation, according to the femur length Doppler ultrasound.

Moreover, the Doppler ultrasound revealed 10 x 2-cm lacunar regions compacted with placenta and 3.5 x 2-cm blood flow with a pulsatility index of 4.63 and arterial resistivity index of 1.32, consistent with myometrium invasion. MRI showed results consistent with placenta percreta (Figure 1 A). The blood test results were normal. The pelvic examination revealed a 1-cm cervical opening and placental tissue in the cervix. Vacuum curettage was performed under the general anesthesia. After removal of the fetus, there was no separation of the placenta. For the hemostasis of massive bleeding, we used uterotonic agents, uterine massages and a BBT inflated with 250 cc of saline. Approximately, 1400 cc of blood was lost during vacuum curettage. Therefore, 3 units of freshly donated whole blood, 2 units of erythrocyte suspension, and 2 units fresh frozen plasma were transfused to the patient after operation during vacuum curettage. After transfusion, the hemoglobin levels were elevated from 9.2 mg/dl preoperative to 11.9 mg/dl. A total 630 cc blood loss was detected from BBT at 24 hours after operation. The Bakri Balloon was deflated 50 cc at 20 hours postoperatively because the drained blood remained below 100 cc for at least 6 hours. However, massive bleeding started at 2 hours after the balloon was reduced, and the Bakri Balloon was subsequently re-inflated to its initial volume. On the second postoperative day, 150 cc of blood was observed in the Bakri Balloon drainage. The Bakri Balloon remained in the uterus because of continual blood drainage.

On the third postoperative day, 100 cc of drained blood was observed in the Bakri Balloon. The Bakri Balloon was removed in the operating room. Treatment with ceftriaxone (1 g, 2x1) and metronidazole (500 mg 2x1) was initiated during the postoperative period. Minimal bleeding was detected during the follow-up period.

On the fourth postoperative day, informed consent was obtained from the patient and a multiple dose of 1 mg/kg/day methotrexate was administered every other day for 7 days (days 1, 3, 5 and 7). The application of 0.1 mg/kg/day folic acid was

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administered every other day for 8 days (days 2, 4, 6 and 8). The hematological and biochemical measurements remained within the normal limits during hospital follow up. There was no bleeding during the follow-up period and the blood β -hCG level was 18,8 on the 10th postoperative day.

On the 15th postoperative day, 100 mg of ferrous glycine sulfate (1x1) and 500 mg of ciprofloxacin (2x1) were administered, and the patient was discharged with a healthy condition.

During the follow-up examination, no pathology was detected and spontaneous placental involution occurred after 7 weeks of curettage, as detected using Doppler ultrasound and MRI (Figure 1 B). The patient was completely healthy after 12 months, according to the β -hCG level and Doppler ultrasound examination.

Discussion

Combined treatment using BBT and conservative methotrexate therapy was successful in the present study. Bakri Balloon is currently used for atony of the uterus, associated with severe bleeding. In this study, we described the first combinatorial use of BBT and conservative methotrexate treatment for the management of placenta percreta resulting from second trimester obstetric bleeding.

Abnormalities of placental implantation (particularly placenta percreta) have been associated with severe maternal morbidity, causing postpartum bleeding that might require emergency hysterectomy. In recent years, the increased incidence of placenta percreta might reflect an increase in Cesarean births [2, 3, and 4].

As this case, placenta percreta can be diagnosed in early gestational weeks using Doppler ultrasound and MRI. Both diagnostic methods are also important tools for therapeutic monitoring.

It is possible to reduce intraoperative and postoperative bleeding through the de-vascularization of the uterus, B-Lynch brace suture, hypogastric artery ligation, intrauterine BBT application and the combined use of uterine artery embolization³, arterial embolization and internal iliac artery balloon occlusion. In severe cases of hemorrhaging, a hysterectomy is performed during the Cesarean section; however, patients who wish to preserve their fertility are treated through methotrexate implementation to increase the regression of placental retention [4, 5, and 6].

BBT was successful in 80% of postpartum patients with placental invasion [7]. BBT is useful in patients with vaginal bleeding due to abnormality of placental implantation when conservative treatment is necessary after delivery [7, 8].

The approach used in the current case study was unique because we used BBT and methotrexate during the early stage of pregnancy and vaginal bleeding. Studies concerning the treatment of abnormal placentation using conservative therapy have shown inconsistent results. No case reports or studies have shown the combinatorial use of the Bakri balloon and conservative management through methotrexate treatment during early pregnancy. Here, we have described the use of the Bakri balloon and conservative methotrexate treatment for the successful management of placenta accreta in term deliveries. Tocce et al. recommended planned hysterectomy for second trimester abortions in patients with placenta accreta [8]. As in the present case, these patients are advised to establish definite diagnosis using color Doppler ultrasonography, MRI, and cystoscopy to assess the risk factors before hysterectomy [8]. In a retrospective study, Sentilhes et al.

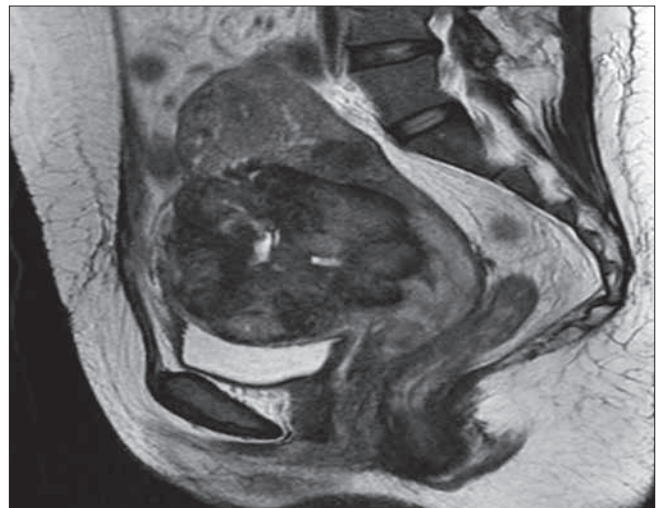


Figure 1A: MRI shows the placenta percreta before the treatment. The sagittal T2-weighted cross-section noncontrast image shows the heterogeneous intensity and lobulated contoured mass lesions, consistent with placenta percreta, along the anterior-inferior of the uterine corpus.

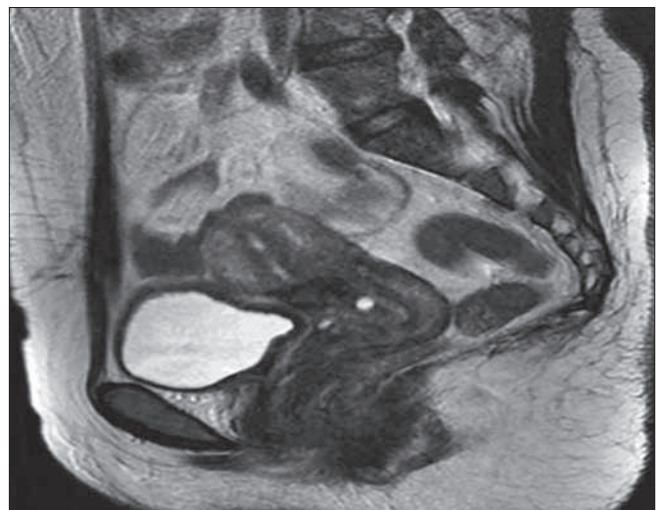


Figure 1B: MRI image after the treatment. The T2-weighted contrast-enhanced sagittal plane cross-section image after methotrexate treatment of the uterine corpus shows significant reductions in the sizes of the lesions.

assessed the maternal outcomes after the conservative treatment of placenta accreta among 167 patients: 18 patients experienced primary hysterectomies, 18 patients experienced delayed hysterectomies, and 131 patients underwent conservative treatment. Spontaneous placental resorption was observed in 75% of the patients at 13.5 weeks after labor [9]. These authors concluded that the conservative treatment for placenta accreta helps women avoid hysterectomy and leads to a low rate of severe maternal morbidity in centers with adequate equipment and resources [9].

A systematic review showed that invasive placentation and uterus preserving treatment modalities lead to 50-67-73% pregnancy rates and a hysterectomy ratio of 1/16 (6%) after methotrexate treatment [10, 11].

Another study showed that BBT could be used as an alternative treatment for hemodynamic stable patients with inactive bleeding [4].

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In conclusion, patients with placenta percreta can be managed through conservative treatment with BBT and parenteral methotrexate; initial diagnoses and follow-up examinations using serial Doppler ultrasound and MRI and assessments of the blood β -hCG levels are also required.

Furthermore, well-designed studies are needed concerning the treatment of placental implantation disorders.

Authors' contribution:

1. Nermin Akdemir – concept, analysis, interpretation of data and article draft, critically revision of the manuscript, corresponding author.
2. Arif Serhan Cevrioğlu – analysis and interpretation of data.
3. Selçuk Özden – analysis and interpretation of data, revised critically article.
4. Yasemin Gündüz – analysis and interpretation of data.
5. Gökçe İlhan - acquisition of data, analysis and interpretation of data.

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