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EMBOLIZATION OF THE UTERINE ARTERIES FOR LATE POSTPARTUM HEMORRHAGE DUE TO METROENDOMETRITIS: A CLINICAL CASE

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Abstract

Bleeding between 24 hours and 42 days after delivery is called "late postpartum bleeding" or "secondary postpartum bleeding, which is a serious obstetric complication due to the danger to the life and health of a woman. The main causes of bleeding in the late postpartum period are the retention of parts of the placenta in the uterine cavity and the hematometer. Both conditions lead to a violation of the contractility of the uterus with the development of its subinvolution, an inflammatory reaction of the endometrium and, as a result, uterine bleeding against the background of the progressive clinical picture of postpartum endometritis. The lack of a single algorithm for the treatment of late postpartum bleeding can lead to a variety of approaches and treatment results from different doctors. Uterine artery embolization (UAE) can successfully control severe uterine bleeding, it should be considered as one of the primary means to reduce the risk of unwanted hysterectomy, blood transfusions, and the risk of disability in the postpartum period. The world literature describes a case of uterine artery embolization in secondary postpartum bleeding on the background of placental tissue residues and metroendometritis. The overall efficiency index for UAE ranges from 86% to 96%. In 2024, in the Department of Gynecology of the Multidisciplinary City Hospital No. 1 in Astana, TAE was successfully performed in cases of late postpartum bleeding, which demonstrated the high effectiveness and safety of this treatment method

Key words: *late postpartum uterine bleeding, metroendometritis, hemostasis, transcatheter arterial embolization.*

Абстракт

ЭМБОЛИЗАЦИЯ МАТОЧНЫХ АРТЕРИЙ ПРИ ПОЗДНЕМ ПОСЛЕРОДОВОМ КРОВОТЕЧЕНИИ НА ФОНЕ МЕТРОЭНДОМЕТРИТА: КЛИНИЧЕСКИЙ СЛУЧАЙ

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Кровотечение, в период от 24 часов до 42 дней после родов, называется «отсроченным послеродовым кровотечением» или «вторичным послеродовым кровотечением, которые являются серьезным акушерским осложнением вследствие опасности для жизни и здоровья женщины. Основными причинами развития кровотечения в позднем послеродовом периоде являются задержка частей плаценты в полости матки и гематометра. Оба состояния

приводят к нарушению сократительной способности матки с развитием ее субинволюции, воспалительной реакции эндометрия и, как результат, маточного кровотечения на фоне прогрессирующей клинической картины послеродового эндометрита. Отсутствие единого алгоритма лечения поздних послеродовых кровотечений может привести к разнообразным подходам и результатам лечения у разных врачей. Эмболизация маточных артерий (ЭМА) может успешно контролировать тяжелые маточные кровотечения, ее следует рассматривать как одно из первоочередных средств для снижения риска нежелательной гистерэктомии, переливаний крови, риска инвалидизацией в послеродовом периоде. В мировой литературе описаны случай эмболизаций маточных артерий при вторичном послеродовом кровотечении на фоне остатков плацентарной ткани и метроэндометрита. Общий показатель эффективности при ЭМА колеблется от 86% до 96%. В 2024 году в отделении гинекологии Многопрофильной городской больницы №1 г.Астаны были успешно проведены ТАЭ в случаях поздних послеродовых кровотечений, продемонстрировавшие высокую эффективность и безопасность этого метода лечения

***Ключевые слова**: позднее послеродовое маточное кровотечение, метроэндометрит, гемостаз, транскатетерная артериальная эмболизация.*

Түйіндеме

КЕЗІНДЕ ЖАТЫР АРТЕРИЯСЫНЫҢ ЭМБОЛИЗАЦИЯСЫ КЕШ БОСАНҒАННАН КЕЙІНГІ ҚАН КЕТУ ФОНЫНДА МЕТРОЭНДОМЕТРИТА: КЛИНИКАЛЫҚ ЖАҒДАЙ

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Босанудан кейінгі кешіктірілген қан кету, сондай-ақ босанғаннан кейінгі қайталама қан кету деп аталады, бұл акушерліктің ауыр асқынуы әйелдің денсаулығы мен өміріне қауіпті әсер етуі мүмкін. Босанудан кейін 24 сағаттан 42 күнге дейін пайда болатын бұл қан кету көбінесе жатыр қуысында плацента фрагменттерінің сақталуы және гематометра сияқты себептерден туындайды. Бұл жағдайлар жатырдың жиырылу қабілетінің бұзылуына әкеледі, бұл оның толық емес жиырылуына, эндометрияның қабыну реакциясына және осылайша жатырдан қан кетуіне әкеледі. Босанудан кейінгі кеш қан кетуді емдеудің бірыңғай алгоритмінің болмауы әртүрлі дәрігерлердің әртүрлі тәсілдері мен нәтижелеріне әкелуі мүмкін. Жатыр артерияларының эмболизациясы (ЖАЭ) жатырдың ауыр қан кетуін тиімді басқара алады және босанғаннан кейінгі кезеңде қажетсіз гистерэктомия, қан құю және мүгедектік қаупін азайтудың негізгі әдістерінің бірі ретінде қарастырылуы керек. Әдебиеттерде плацентарлы тіндердің қалдықтары мен метроэндометриттің фонында босанғаннан кейінгі екінші қан кетудің сәтті ЖАЭ жағдайлары сипатталған және бұл әдістің жалпы тиімділігі 86% - дан 96% - ға дейін. 2024 жылы Астана қаласының №1 көпбейінді қалалық ауруханасының гинекология бөлімшесінде босанғаннан кейінгі кеш қан кету жағдайында ТАЭ (трансартериалды эмболизация) сәтті рәсімдері жүргізілді. Бұл осы емдеу әдісінің жоғары тиімділігі мен қауіпсіздігін көрсетті. Мұндай инновациялық тәсілдер асқынуларды азайтуға және босанудан кейінгі әйелдердің нәтижелерін жақсартуға ықпал етеді.

***Түйінді сөздер:** босанудан кейінгі жатырдан кеш қан кету, метроэндометрит, гемостаз, транскатетерлі артериялық эмболизация.*

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Introduction

The problem of late postpartum complications remains extremely relevant to date. Bleeding between 24 hours and 42 days after delivery is called "delayed postpartum bleeding" or "secondary postpartum bleeding that is caused by rupture, infection, or fragments of the placenta or membranes, or both, remaining in the uterus and causing infection or preventing uterine contraction. The specific frequency of occurrence is unknown, in low-income countries it is probably a serious cause of maternal mortality. In the structure of the causes of maternal mortality (MS), pregnancy, childbirth and the postpartum period (obstetric causes) accounted for 54%, with extragenital diseases - 46%. Obstetric bleeding remains in the first place among obstetric causes (37%) [The concept of development of the maternal and child health service in the Republic of Kazakhstan for 2024-2030 "Every woman is every child", 2023]. The share of late postpartum bleeding accounts for 0.2 to 3% of cases. According to the literature, it is difficult to determine the true frequency of bleeding in the late postpartum period, since statistical data record only cases of severe blood loss. Massive late postpartum bleeding is rare, there are currently no randomized controlled trials to inform the treatment of women with secondary postpartum bleeding. There is no regulated therapeutic and diagnostic algorithm, standard of emergency care for late postpartum bleeding. In this regard, practitioners most often rely on their own experience and build tactics for managing patients based on the principle of excluding ineffective treatment methods [8, 15]. Treatment options for secondary PCR in Kazakhstan mainly include medication and surgical treatment. Medical treatment may include uterotonics, antibiotics, and tranexamic acid [3]. Surgical treatment is the emptying of the uterine cavity by vacuum aspiration, curettage and hysterectomy.

Recently, there have been promising developments in foreign medical reviews based on knowledge of pathogenesis, and the use of the latest pharmacological and surgical technologies, building continuity mechanisms between all stages of obstetric and gynecological care for a woman who has given birth. Fertility preservation is the main advantage of conservative surgical intervention. In addition, if a hysterectomy is avoided, the likelihood of surgical complications will be less. However, there are no specific guidelines on how to evaluate secondary PRK and when to use these strategies of management and treatment tactics and emergency care for women in labor with late postpartum bleeding [7], [8]. The difficulty is caused by the fact that the treatment of late postpartum bleeding may be ineffective with traditional treatment. The use of endovascular occlusion of the uterine arteries, as an alternative to hysterectomy, in the absence of placental tissue residues in the cavity, significantly reduces the proportion of complications and unjustified obstetric aggression towards this group of patients. Transcatheter arterial embolization (TAE) is a minimally invasive method of treating postpartum bleeding with convincingly high positive results of the effectiveness of stopping bleeding without traditional surgical intervention [4]. For this reason, international guidelines recommend that TAE be considered before surgery in cases where a specialized radiological center is available in a timely manner [7,8]. TAE has proved to be an effective method, since hemostasis is achieved in more than 90% of cases [9, 10,11]. The American College of Obstetricians and Gynecologists included TAE 2017 in its recommendations for the treatment of postpartum bleeding in order to preserve the uterus and potentially future fertility [12]. In addition, the International Federation of Gynecology and Obstetrics (FIGO) also states in its recommendations for the treatment of postpartum bleeding in 2022 that "uterine artery embolization is recognized as a relatively safe method when maintaining the fertility of the patient is a priority" [13].

Aim: to describe a clinical case of uterine artery embolization in massive late postpartum bleeding

Materials and methods. A retrospective and prospective analysis of the clinical case of a patient diagnosed with Late postpartum bleeding who was undergoing inpatient treatment at the Multidisciplinary City Hospital No. 1 in Astana was carried out.

Clinical observation. Patient B., 31, was taken by an ambulance team to the emergency department of a multidisciplinary clinic with complaints of general weakness, dizziness, abundant bloody discharge from the genital tract with clots.

It was found out from the anamnesis that 9 days ago a live full-term male fetus weighing 3530 grams was delivered, on the 3rd day of the postpartum period she was discharged home with the diagnosis: "Spontaneous labor 3 at 39 weeks 4 days in occipital presentation. Moderate anemia. Moderate myopia. Eczema. Erosion of the cervix. Bacterial vaginosis (sanitation)."

During the postpartum period, the patient experienced spotting from the genitalia. Three hours prior to admission to the hospital, the spotting progressed to bleeding, accompanied by general weakness. According to the patient's report, she changed 4-5 pads prior to the arrival of the medical team. Previously, the dispatch center had been informed about the patient's condition 5 minutes prior to the emergency team's arrival. The patient was transported to the anti-shock ward on a stretcher, with an ongoing infusion of 400 mL of saline solution. The patient's blood pressure was 80/50 mmHg and her pulse was 98 beats per minute.

Anamnesis of life. She grew and developed according to her age. Botkin's disease, tuberculosis, and venereal diseases are denied. Of the transferred diseases, he notes colds. Heredity for rheumatic diseases: not burdened. Blood transfusion: denies. He has no bad habits.

Allergoanamnesis: not burdened.

Epidemiological history: denies contact with infectious patients, has not traveled outside the region or abroad for the last month.

Gynecological history: menarche at the age of 13, the menstrual cycle was established immediately, menstruation for 3-4 days after 28 days, regular, moderate, painless. Sex life since the age of 23, in an official marriage. There were no gynecological diseases or surgeries. Obstetric anamnesis: 1st pregnancy -03.05.2017: Urgent delivery at 39 weeks, male child, weighing- 2900.0 grams, pregnancy without peculiarities, the postpartum period proceeded without peculiarities; 2nd Pregnancy 06.2020 g: Frozen pregnancy at 6 weeks gestation with surgical curettage, without complications; 3rd Pregnancy on 07/14/2022: Urgent delivery at 39 weeks, male, weight- 3200.0 grams, pregnancy without complications, the child is alive, healthy, the postpartum period proceeded without peculiarities; 4th Pregnancy-

02.01.2024 Urgent delivery at 39 weeks of 4 days. She was discharged on the 3rd day of the postpartum period.

On objective examination, the general condition is severe due to bleeding and hemorrhagic shock. My mind is clear. The physique is normosthenic. The skin is pale and clean. Breathing is vesicular, there is no wheezing. BH – 20 beats per minute. The heart tones are clear, rhythmic. AD - 80/50 mmHg PS - 98 in min. Body weight - 36.6 0C. The tongue is dry. The abdomen is soft and painless on palpation. Symptoms of peritoneal irritation are negative. The liver and spleen are not enlarged. The symptom of pounding is negative on both sides. The chair was decorated today. Urination is painless. There is no visible swelling.

On examination: the external genitalia are developed correctly. The mucous membrane of the vagina and the vaginal part of the cervix ectopia of the cylindrical epithelium, the external pharynx is slit-like, bloody discharge is abundant. The PV vagina is capacious, the cervix is located midway up to 1.0 cm long, the cervical canal passes 2 n / a through the inner pharynx, there are blood clots in it. The body of the uterus is enlarged to 13 weeks of conditional pregnancy, it is soft and relaxes on palpation. Appendages are not palpable, their area is painless. Traction for the cervix is painless. The vaults are free

According to the results of clinical and laboratory examination, anemia of mild severity (hemoglobin 99 g/l), an increase in the level of C-reactive protein to 130.0 mg/l, procalciotonin to 0.65 ng/ml, as well as an increase in the level of cancer markers: neuron-specific enolase (NSE) 29.58 ng/ml (reference values 0-16.3 ng/ml), protein S 100 — 0.373 mcg/l (reference values

Ultrasound of the pelvic organs. The uterus is 123x80x102 cm, the uterine cavity is expanded to 27mm Conclusion: hematometer. Remnants of placental tissue?

In the emergency room, she was examined by a council of doctors, a clinical and laboratory examination was conducted, resuscitation measures to combat hemorrhagic shock, uterotonic, hemostatic, and antibacterial therapy were initiated. Surgical hemostasis was performed in an expanded operating room by vacuum curettage of the uterine cavity under ultrasound control. Blood clots and liquid blood were removed, the total blood loss is 750 ml and continues. Total blood loss is 1000.0 ml. In the early postoperative period, given the stable hemodynamics without vasopressors, the absence of coagulopathy, continued bleeding, and the absence, it was decided to perform percutaneous transcatheter embolization of the uterine arteries. For the purpose of temporary hemostasis during transportation to X-ray surgery, balloon tamponade of the uterus with a Foley catheter was performed.

Operation: Uterine artery embolization. Selective angiography of the uterine arteries revealed hypervisualization in the cervical region. Next, a microcatheter was superselectively performed. Sequential embolization of the left and right uterine arteries with microspheres was performed under constant X-ray control. Control – blocked blood flow through the left and right uterine arteries with a long delay in small branches.

Complication: No.

Bleeding: up to 20 ml. Radiation dose: 0.74 Msv.

The patient was examined by a medical council in the postoperative period. The dynamic condition is stable. The patient is active within the ward. There are no active complaints. The skin is pale, the turgor of the tissues is reduced. The body temperature is 36.0 C. The mammary glands are soft, the nipples are clean. Lactation is sufficient, it is expressed. Hemodynamics is stable, blood pressure is 136/82 mmHg. Heart tones are muted, arrhythmic, tachycardia with a heart rate of 90-96 beats /min. The abdomen is soft, and reacts on palpation in the projection area of the uterus. There are no peritoneal symptoms. Peristalsis is preserved. The uterus is dense, the bottom is 12 cm above the womb. Urination through the urethral catheter, urine is yellow, diuresis is controlled. Discharge from the genital tract is hemorrhagic, moderate.

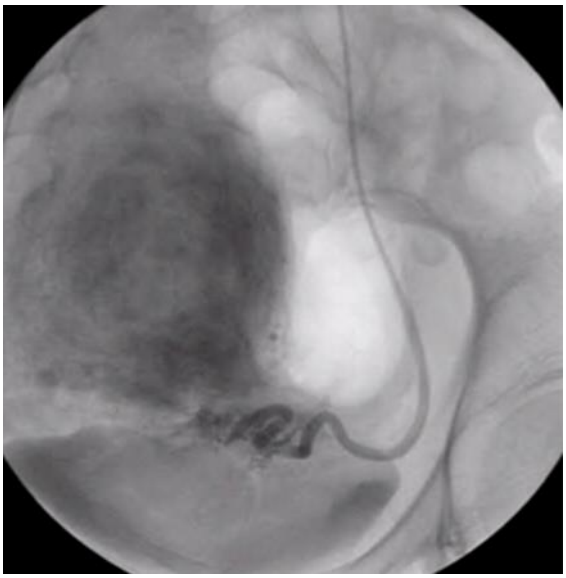

Fig. 1. Embolization of uterine vessels.

On examination, the external genitalia are developed: correctly, hair loss according to: female type

On the mirrors: The mucous membrane of the vagina is pale in color, the cervix is clean, the external pharynx is closed. Discharge: hemorrhagic, moderate.

Bimanual examination: The cervix is not formed, deviated posteriorly, of a soft consistency, up to 2.0 cm long, the outer pharynx passes 1.0 cm beyond the inner pharynx. Uterus: the body is enlarged to 11-12 weeks of pregnancy, of a testy consistency, sensitive to palpation. Appendages on both sides are not palpable, painless. Arches: free, painless.

The conclusion of the consultation: Late postpartum bleeding. The postpartum period is 10 days. Postpartum metroendometritis. The condition after curettage of the uterine cavity. The condition after the EMA. The decision of the council to continue conservative treatment of metroendometritis for 36-72 hours with an assessment of the effectiveness of ABT.

On the 1st day after uterine vascular embolization surgery, a CT scan of the pelvic segment was performed, without contrast. The uterus is located anteversio anteflexio, its contours are smooth, clear, and the structure of the myometrium is homogeneous. The transverse size is 10.06 mm, the length is 6.91mm, the transverse size at the neck level is 3.20mm. The uterine cavity is heterogeneous due to hyperdensive contents with a density of up to +73-79HU, and multiple pneumatic inclusion densities. Conclusion: Signs of hematometry.

The Department of Gynecology continued antibacterial therapy Ceftriaxone 1.0 g x 2 times Gentamicin 240 mg x 1

times; Levosin 500 mg x 2 timesbefore and after embolization painkillers: ketotope 2.0 No. 3, antianemic therapy: Rotofer 2.0 ml + NaCl 0.9% - 200 ml I /v after the test, anticoagulant therapy for the preventive purpose of PE (very high risk on the Caprini scale): Fraxiparin 0.3 U / k x 1 times 2 days after uterine artery embolization, a pelvic ultrasound was performed Conclusion: uterus 70x57x85 mm, M-echo-16 mm *Conclusion:* Hematometer. The condition after the EMA, positive dynamics.

Conclusion of the histology of scraping from the uterine cavity: serous purulent deciuditis, subacute endometritis. The patient was discharged home on the 7th day in satisfactory condition.

Discussion

Late postpartum bleeding is one of the severe and rare postpartum complications, the clinical manifestation of which is uterine bleeding, unstable hemodynamics, and may also be accompanied by pain in the lower abdomen. The most common causes of secondary postpartum bleeding are postpartum metroendometritis, remnants of placental tissue. The least rare causes are obstetric sepsis, coagulopathy, submucosal uterine fibroids, chorioncarcinoma, arteriovenous vascular malformation, cervical cancer.

In the case presented by us, the cause of late postpartum bleeding was postpartum metroendometritis, which prevents uterine contraction. This was confirmed by clinical and laboratory-instrumental data. At the stage of emergency rest, emergency care was initiated, including infusion, uterotonic, antibacterial therapy, prostaglandin administration, as well as surgical curettage of the uterine cavity. The main difficulty for performing UAE was the presence of uterine bleeding on the background of postpartum endometritis, since in Kazakhstan the method of vacuum aspiration of the uterine cavity is mainly used to empty blood clots and placental tissue residues, with no effective therapy - surgical treatment in the volume of total hysterectomy. Taking into account the young age of the woman, the absence of coagulopathy, clinical and laboratory manifestations of sepsis, the presence in this clinic of an X-ray machine, a trained interventionist radiologist in order to preserve fertility for the treatment of PD, doctors chose the UAE method as a minimally invasive and highly effective method of stopping bleeding. An important problem remains the lack of regulated documents for the management of maternity hospitals with massive late postpartum bleeding in Kazakhstan: in practice, the frequency of hysterectomies in this pathology remains high. A favorable outcome at the stage of inpatient care for patients with late PD depends on the availability of a developed algorithm, correct routing of the patient, equipment with an X-ray machine and trained personnel to provide highly qualified care to women of reproductive age, namely organ-preserving management and treatment tactics according to world literature data, which significantly reduces the percentage of surgical aggression and related intras- and postoperative complications, reduces the stay of maternity hospitals around the clock. We propose to further develop and implement an algorithm for the management of patients with late postpartum bleeding from 24 hours of the postpartum period to 42 days.

Conclusion: The problem of late postpartum complications remains extremely relevant to date. The development of modern treatment algorithms, minimally invasive, highly effective technologies, which today may be endovascular occlusion of uterine and internal iliac vessels, is promising. Building continuity mechanisms between all stages of obstetric and gynecological care for a woman who has given birth.

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