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Pathology of placentation and minimally invasive surgery method of organ preserving operation

Pathology of placentation, namely its dense fixture and, especially, its increment (placenta accreta) continues to be one of the most severe complications of childbirth, leading to serious consequences for a woman. This pathology is accompanied by significant bleeding, and in some cases even ends with the removal of the uterus. The issues of tactics and use of various treatments for placentation pathologies remain topical for a long time. When speaking of increment the search for methods of organ preserving surgical techniques is of great concern.

The tight fixture of the placenta or the false increment (placenta adherens) is among the most common placentation pathology, when the chorionic villi are located in the basal layer of the decidua due to atrophy of the sponge layer of detaching shell. The true placenta increment also happens, caused by partial or complete absence of sponge layer of decidua, as a result of which the chorionic villi have reached the muscles of the uterus (placenta accreta), have grown it through (placenta increta), or have grown into the muscular and serous layers of the uterus (placenta percreta). The latest variants are extremely rare. The increment of placenta is of two types — complete or partial depending on the area to happen.

The true placenta increment (placenta accreta) occurs with a frequency of 1 in 3500 births cases to 1 in 500 cases according to different authors[1]. In most cases placenta increment appears on the basis of the scar on the uterus or placenta previa, although there are also ideopathic cases discussed[2].

Frequent abortions, abnormal birth, endometritis have been defined as main reasons for the pathology of placenta increment, leading to degenerative changes in the lining of the uterus. On the other hand, sometimes chorionic villi penetrate deeper into the uterine wall because of increasing activity of proteolytic enzymes.

In order to define the factors causing pathology of the placenta increment the clinical and statistical analysis of pregnancy and childbirth in 80 women with dense placenta fixture has been conducted. The examined women were aged 21–40 years,

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[1] Kitao K., Makihara N./Clin Exp Obstet Gynecol. 2009; 36 (1): 53–4.

[2] Soleymani Majd H., Srikantha M., Majumdar S., B-Lynch C.//Arch Gynecol Obstet. 2009 May; 279 (5): 713–5.

among them women aged 21–25 years (46.2%) prevailed, there were slightly less women aged 31–35 years (30.8%) and 15.4% were aged 36–40 years. The majority of women dense placenta fixture have given birth for the first time (76.9%), delivered on time (92.3%). All women have had complications during pregnancy, burdened obstetric history. 46.15% of examined women have had burdened somatic history, mostly connected with obesity, kidney disease. 30.8% of patients have had burdened gynecological history often with uterine fibroids cases.

All examined women have had complications during childbirth, in addition they have been recorded to experience primary and secondary weakness of delivery activity, premature rupture of membranes. Having analyzed perinatal sequences of dense placenta fixture we have observed 7.7% of women with newborn children having asphyxia; the same number have experienced fetal distress, prematurity; and the birth of a large fetus was registered in 15.4% of women.

Consequently the studies have shown that the pathology of placenta increment is accompanied with complicated pregnancy and childbirth, occurs at the background of burdened obstetric, somatic and gynecologic history, has an effect on perinatal outcomes of a child delivery. Of course, while these complicated deliveries in all the cases the blood loss exceeded the norm and to separate the dense fixed placenta the manual detachment and removal of the placenta have been applied accompanied with reducing agents with subsequent prescription of antibiotics therapy.

It is known that in case of failure to separate the placenta during its manual detachment, the conclusion is made to define it as the placenta accreta. Tactics, according to the regulatory document of Ministry of Health of Ukraine — Protocol "Obstetric bleeding" (order № 205 dated by 24.03.2014), defines the step-by-step conservative and surgical hemostasis, full recovery of the volume of blood circulating, the use of organ preserving techniques of surgical hemostasis (balloon tamponade, tying up of uterine and ovarian vessels). And with placenta accreta — immediate laparotomy with hysterectomy to be conducted.

According to the guideline of reputable world-known medical organizations like the American College of Obstetricians and Gynecologists (ACOG, 2006) and the Royal College of Obstetricians and Gynecologists (RSOG, 2011), the endovascular blockage of blood flow (in the fallopian or common iliac arteries) is an advanced and highly effective treatment of massive postpartum hemorrhage. This organ preserving surgery has been conducted in Moscow (the Russian Federation) since 2006.

In Ukraine, currently there are 4 cases described of uterine artery embolization (EMA) in cases of placenta accreta performed in Kharkiv city plus one such minimally invasive surgery was performed in a private medical center in Vinnytsya city[1].

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[1] Трегуб В. В., Е. К. Тарасюк/Медицинские аспекты здоровья женщины. № 9 (95). 2015. С. 13–18.

In the latter case, a woman had a partial placenta accreta, has undergone treatment on the 29th day after giving birth naturally for the detachment of particles of placenta increment using the method of EMA. The ultrasound has visualized the remainder of placena increment with diameter of 6 cm. Following the embolization of uterine artery intraoperatively during the angiography the need for additional embolization of one of the ovarian arteries has been defined. Consequently, the blood flow in the vessels that came to the site of the placenta was stopped, which was confirmed by ultrasound control during this operation.

The operation is minimally invasive, performed by vascular surgeons. It is important the uterus and reproductive potential of women is being preserved. The patient was 27 years, it was her first child delivery and she had a reproductive plan. The postoperative period passed well, she was discharged home on the 3d day. The consequences of this operation — on the 66th day after the child delivery (37th after the EMA) the remainder of the placenta has expulsed from the uterus without pain and bleeding. Thus, the goal — to detach the part of the increment placenta was achieved. Thus, the EMA method allowed to save the uterus and reproductive function of the patient.

Based on the results achieved, we can conclude that to develop the tactics of treatment of women with placenta increment pathology, and especially with placenta accreta, the ultrasound during pregnancy is recommended to identify the relevant criteria. Using EMA is a promising minimally invasive method which allows to stop the bleeding and save the woman's uterus.

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