

Conservative treatment of cervical pregnancy with selective unilateral uterine artery embolization

Rūta Nadišauskienė, Edvardas Vaicekavičius¹, Viktorija Tarasevičienė, Daiva Simanavičiūtė

Department of Obstetrics and Gynecology,

¹Department of Radiology, Kaunas University of Medicine, Lithuania

Key words: cervical pregnancy; methotrexate; uterine artery embolization.

Summary. *Background.* Cervical pregnancy is a rare form of ectopic pregnancy, and the most effective method of its treatment is still under investigation. We would like to call attention to selective uterine artery embolization as an effective modern treatment method.

Case. A patient with suspected cervical pregnancy and 7-week amenorrhea was admitted to the hospital after unsuccessful use of emergency contraception. Transvaginal ultrasound showed gestational sack located 11 mm from the external cervical os. Crown-rump length was 11.2 cm, and the fetal heartbeat was present. The level of serum chorionic gonadotropin was 31 930 U/L. Treatment with systemic methotrexate was unsuccessful, and unilateral uterine artery embolization was performed followed by dilatation and curettage of the cervical canal. Three days after the procedure, sonographic examination showed contracted cervical canal. After a period of two months, normal uterine artery flow was registered by Doppler ultrasonography on both sides.

Conclusion. Uterine artery embolization in case of cervical pregnancy reduces the risk of bleeding and can be the method of choice when treatment with methotrexate fails. Unilateral embolization is effective when angiography shows unequal disposition of the arterial connections supplying the embryo.

Introduction

Cervical pregnancy is a rare form of ectopic pregnancy, which accounts for about 0.1% of such pregnancies (1). Until recently, it usually necessitated hysterectomy because of profuse life-threatening bleeding, but improved ultrasound diagnostics has led to earlier diagnosis and allowed prevention of uncontrolled bleeding. Several treatment options have been described, including systemic or intraamniotic injection of methotrexate with or without simultaneous feticide, oral mifepristone, injection of local vasoconstrictive agents into the uterine cervix, ligation of the cervical, uterine or hypogastric arteries, performance of cervical cerclage suture, tamponade of the uterine cervix with a Foley catheter, and embolization of the uterine or hypogastric arteries.

Case report

A 25-year-old parous woman with 7-week amenorrhea was admitted because of suspected cervical pregnancy after unsuccessful use of emergency contraception. Vaginal examination showed an engorged, soft, and voluminous uterine cervix. On transvaginal ultrasound examination, a gestational sack with a live

embryo of 11.2-mm crown-rump length, located 11 mm from the external cervical os, was noted. The level of serum chorionic gonadotropin (hCG) was 31 930 U/L.

Treatment with systemic methotrexate (50 mg/m² intramuscularly) was initiated. The next day after the first dose, the fetal heartbeat was still present, and a second dose of methotrexate was administered. Over the next four days, no embryonic growth was noted, but hCG level increased to 81 500 U/L. A decision to try embolization of the uterine arteries was made. Selective uterine artery angiograms were obtained through a percutaneous transfemoral approach. The embryonic vessels were predominantly filled up from the left side uterine artery (Fig. 1). Embolization was started from the left uterine artery and was successfully performed under local anesthesia. The superselective catheterization was performed with a hydrophilic 5F direct catheter with an angled tip. The catheter was deeply inserted up to the first branching of uterine artery. Embolization was stopped just before the contrast medium could flow back from the uterine artery. (Fig. 2, 3) Embolization was performed with gelatin sponge (Gelfoam®) resorbable particles mixed with

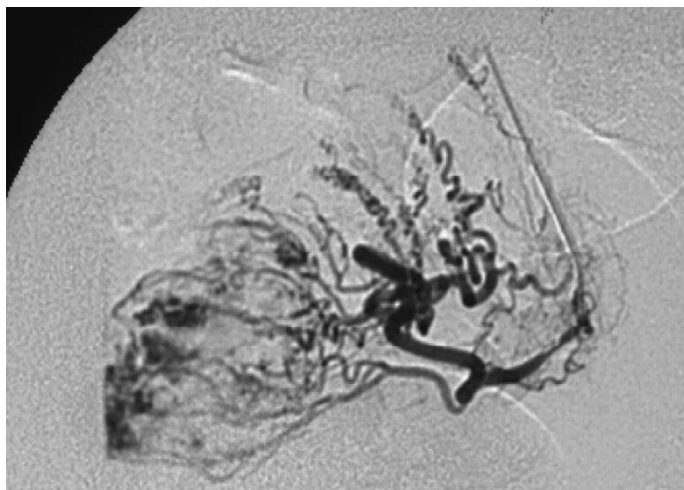


Fig. 1. The superselctive arteriogram of left uterine artery before embolization
The embryo's vessels were predominantly filled up from the left side uterine artery.



Fig. 2. Arteriogram of left uterine artery after the first stage of embolization
The first stage of embolization.
The embryo's vessels are closed; however, the collateral circulation is very intensive.



Fig. 3. The final arteriogram after embolization
Residual collateral circulation is seen.



Fig. 4. The superselective arteriogram of right uterine artery

The embolization from the right site was not performed because embryo's vessels were not visible.

diluted contrast material. Afterwards the angiogram of the right artery showed no filling of the embryo vessels from right side (Fig. 4), and a decision was made not to perform embolization there.

Three hours after the embolization procedure, dilatation and curettage of the cervical canal was done with an estimated blood loss of 150 mL. After the procedure, severe pelvic pain persisted for two days, and narcotic analgesics had to be administered. A Foley catheter was inserted into the cervix after the procedure for hemorrhage prophylaxis, and it was removed next day. Three days after the procedure, hCG level had decreased 80 times, to 1331 U/L. The level of maternal hemoglobin decreased from 131 g/L to 102 g/L. Sonographic examination showed a contracted cervical canal. Pathologic examination of the evacuated contents confirmed the products of conception. Normal menstrual cycle recurred after 30 days. Doppler ultrasonography after two months showed normal uterine artery flow on both sides.

Discussion

Because cervical pregnancy is so infrequent, no authoritative or randomized controlled trials on treatment options exist. Case reports may add new knowledge, particularly on new ways of minimizing the risk of hysterectomy, which may be disastrous for a young woman. Chemotherapy and uterine artery embolization can be used alone or in combination, but after 9-week gestation, when a fetal heartbeat is present, with a fetal crown-rump length of more than 10 mm or maternal serum β -hCG level of more than 10 000 IU/mL,

systemic methotrexate is not likely to be effective (2). However, exceptions have been described, and some authors suggest that it may be worthwhile to start treatment with intramuscular methotrexate (3), because direct puncture of the amniotic cavity may provoke incomplete abortion with life-threatening hemorrhage (4).

Embolization of the uterine artery has been well described in obstetrics and gynecology and may be the best option of treatment of cervical pregnancy, which does not respond to systemic methotrexate, even up to 12 weeks of gestation (5). Most of the women conceived after this procedure and delivered healthy newborns at term (5). Embolization with gelfoam considerably reduces circulation in the catheterized region for about 24 hours and provides only temporary occlusion of the vessel for 2–6 weeks. It is mostly done bilaterally (6), but unilateral embolization (5) can be used when angiography shows unequal disposition of the arterial connections supplying the embryo. This may be preferable because less pelvic pain and fewer cases of temporary or consistent amenorrhea caused by tissue ischemia occur. All patients usually experience some degree of crampy pelvic pain after the embolization procedures, mostly on the first day, resolving within a week. Cervical dilatation and curettage was performed after uterine artery embolization, because this favors more secure removal of the pregnancy tissue and reduces follow-up and cost. Prior angiographically directed embolization reduces the risks inherent to the surgical procedure and appears to be the method of choice when treatment with methotrexate fails.

Kaklelinio nėštumo konservatyvus gydymas atliekant selektyvią vienos pusės gimdos arterijos embolizaciją

Rūta Nadišauskienė, Edvardas Vaicekavičius¹, Viktorija Tarasevičienė, Daiva Simanavičiūtė
Kauno medicinos universiteto Akušerijos ir ginekologijos klinika, ¹Radiologijos klinika

Raktažodžiai: kaklelinis nėštumas, metotreksatas, gimdos arterijų embolizacija.

Santrauka. Kaklelinis nėštumas – reta negimdinio nėštumo forma, kurios gydymas dėl gausaus kraujavimo neretai baigiasi gimdos pašalinimo operacija. Todėl efektyviausio gydymo metodo dar tebeieškoma. Norėtume atkreipti dėmesį į selektyvią gimdos arterijų embolizaciją, kaip į šiuolaikinį efektyvų gydymo metodą.

Straipsnyje aprašomas atvejis, kai hospitalizuota moteris įtarus septynių savaičių kaklelinį nėštumą. Tiriant makštiniu ultragarsiniu davikliu, gemalinės pūslytės implantacija rasta 11 mm nuo išorinių gimdos kaklelio žiomenų. Viršugalvio – uodegikaulio matmuo – 11,2 cm, užfiksuota vaisiaus širdies veikla. Serumo chorioninis gonadotropinas – 31930 U/l. Skirtas konservatyvus gydymas metotreksatu buvo neveiksmingas, todėl nuspręsta atlikti gimdos arterijų embolizaciją ir gimdos išgramdymą. Tiriant ultragarsu, praėjus trimis dienoms po procedūros, gimdos kaklelis buvo susitraukęs, o po dviejų mėnesių, tiriant gimdos arterijų kraujotaką Dopleriu, ji buvo normali.

Išvada. Gimdos arterijų embolizacija, esant kakleliniam nėštumui, sumažina kraujavimo pavojų, be to, yra geras pasirinkimo metodas, kai konservatyvus gydymas neveiksmingas.

Adresas susirašinėti: V. Tarasevičienė, KMU Akušerijos ir ginekologijos klinika, Eivenių 2, 50009 Kaunas
El. paštas: viktorija.taraseviciene@gmail.com

References

1. Heikinheimo O, Leminen A, Cacciatore B, Rutanen EM, Kajanoja P. Advanced cervical pregnancy: uterus sparing therapy initiated with a combination of methotrexate and mifepristone followed by evacuation and local hemostatic measures. *Acta Obstet Gynecol Scand* 2004;83(2):211-3.
2. Hung TH, Shau WY, Hsieh TT, Hsu JJ, Soong YK, Jeng CJ. Prognostic factors for an unsatisfactory primary methotrexate treatment of cervical pregnancy: a quantitative review. *Human Reprod* 1998;13(9):2636-42.
3. Sieck UV, Hollanders JM, Jaroudi KA, Al-Took S. Cervical pregnancy following ultrasound guided embryo transfer. Methotrexate treatment in spite of high β -hCG levels. *Human Reprod* 1997;12(5):1114.
4. Yitzhak M, Orvieto R, Nitke S, Neuman-Levin M, Ben-Rafael Z, Schoenfeld A. Cervical pregnancy – a conservative stepwise approach. *Human Reprod* 1999;14(3):847-9.
5. Eblen AC, Pridham DD, Tatum CM Jr. Conservative management of an 11-week cervical pregnancy. A case report. *J Reprod Med* 1999;44(1):61-4.

Received 14 June 2007, accepted 9 November 2007

Straipsnis gautas 2007 06 14, priimtas 2007 11 09