

Conservative treatment of ectopic cervical pregnancy with uterine artery embolization and cervical curettage: a case report

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Summary

Cervical pregnancy is a rare form of non-tubal ectopic pregnancy. Although uncommon, this condition can determine serious complications with massive hemorrhages and a high rate of fatality. The choice of the appropriate management depends on several factors, such as severity of vaginal bleeding, gestational age, serum β -hCG level, and on embryonic cardiac activity. However, no specific guidelines have been developed, and the “gold standard” treatment has yet to be defined. The authors report a case of cervical pregnancy successfully managed through a combined approach of percutaneous bilateral uterine artery embolization immediately followed by cervical curettage.

Key words: Cervical pregnancy; Ectopic pregnancy; Uterine artery embolization; Cervical curettage.

Introduction

Cervical pregnancy is a very rare form of non-tubal ectopic pregnancy, in which the gestational implants are found in the uterine cervix. It represents less than 1% of all ectopic pregnancies [1] and its incidence is approximately 1:9.000 pregnancies within the general population [2]. The early diagnosis (and a subsequent effective treatment) is essential to reduce the risk of potentially catastrophic consequences such as massive hemorrhages, the need of hysterectomy, and death [3].

Different therapeutic approaches have been described for women with ectopic cervical pregnancy; however, due to the uncommon occurrence of this condition, no specific guidelines have been developed, and the “gold standard” treatment has yet to be defined. Obviously, for women who desire fertility preservation, conservative treatments have become the first-line approach, while the traditional surgical approach with hysterectomy is currently considered only as a “life-saving” procedure for women with massive active bleeding or failed conservative treatment [3].

In the last years, the widespread diffusion of the percutaneous uterine artery embolization (UAE) technique, has led to an increasing use of this minimally invasive approach even for the management of non-tubal ectopic pregnancy.

The authors present the case of a woman with a singleton spontaneous cervical ectopic pregnancy, successfully treated with UAE, immediately followed by dilatation and curettage (D&C).

Case Report

A 30-year-old woman came to the emergency room of the present institution because of painless and heavy vaginal bleeding. According to her obstetric history, she had been experiencing amenorrhea for seven weeks and had undergone a positive home pregnancy test just one week prior. The patient had no previous pregnancy and no previous gynecologic disease.

Gynecological examination revealed a slightly enlarged uterus and no palpable adnexal masses; the uterine cervix was increased in volume, soft, and engorged. Active bleeding from the loose external os of the cervix was observed by cautious vaginal speculum examination. β -hCG serum level was 80.639 mU/ml.

The transvaginal ultrasounds showed an empty uterine cavity, and a 19.3×11.6-mm-sized gestational sac located within the endocervical canal, containing a single embryo (crown-rump length 8.8 mm) with detectable cardiac activity (Figure 1). Doppler examination showed a rich vascularity of the cervix and a typical trophoblastic flow around the gestational sac.

Given the young age of the patient, her nulliparity, and her desire for future pregnancies, the authors proposed a conservative approach. In addition, considering the active bleeding and the low hemoglobin serum level, a prompt resolution of bleeding was necessary; therefore the authors opted for UAE, followed by D&C. To avoid severe post-embolization ischemic pain, continuous epidural analgesic injection with fentanyl and ropivacaine hydrochloride hydrate was started before the UAE procedure. A intravenous administration of 1 gram cefazolin was performed before the procedure. After the administration of a local anesthetic in the right ileo-inguinal area, an introducer system was inserted into the common femoral artery.

Using X-ray guidance, a catheter was inserted into the left uterine artery: a contrast media injection provided the roadmap for the direction of the guidewire and of the catheter as they were maneuvered into the uterine artery to gain the distal part of the cer-



Figure 1. — Transvaginal ultrasounds showing a 19.3×11.6-mm-sized gestational sac located within endocervical canal, containing a single viable embryo.

vico-vaginal branch (Figure 2). A microcatheter system was used to inject a mixture of absorbable gelatin sponge particles of 1-2 mm diameter and contrast medium until contrast stagnation was obtained. The same routine was repeated for the right side. At the end of the procedure, the introducer was removed and gentle pressure was applied to stop any bleeding.

Immediately after the UAE, a complete cessation of bleeding was achieved. Subsequently, D&C procedure under ultrasound guidance was performed. The D&C procedure was completed within four hours from UAE.

No immediate or delayed complication was reported by the patient. At the subsequent follow up visit (three weeks after the procedure), the serum β -hCG level was undetectable, the transvaginal ultrasounds showed a completely restored cervical morphology and a normal flow in the uterine arteries was detected via power Doppler evaluation. Histological examination of the curetted specimen confirmed the products of conception.

The patient resumed a normal menstruation cycle four weeks after the procedure. A written permission was obtained from the patient to describe the clinical case.

Discussion

Although quite rare, cervical pregnancy can be a life-threatening condition because of a high risk of massive hemorrhages. For this reason, a correct diagnosis and a prompt effective treatment are essential.

In previous studies, various conservative approaches have been proposed, in an attempt to reduce bleeding, to avoid hemorrhages, to preserve the uterus, and to maintain fertility. However, there is currently no consensus regarding the best conservative approach for women with cervical pregnancy, mainly because of a lack of evidence derived from large case series or from randomized control trials comparing different treatment modalities.

The conservative procedures currently available include local or systemic administration of various chemotherapeutic agents (methotrexate, etoposide, actinomycin D, and cyclophosphamide), alone or followed by cervical D&C, and possibly also associated with hemostatic techniques

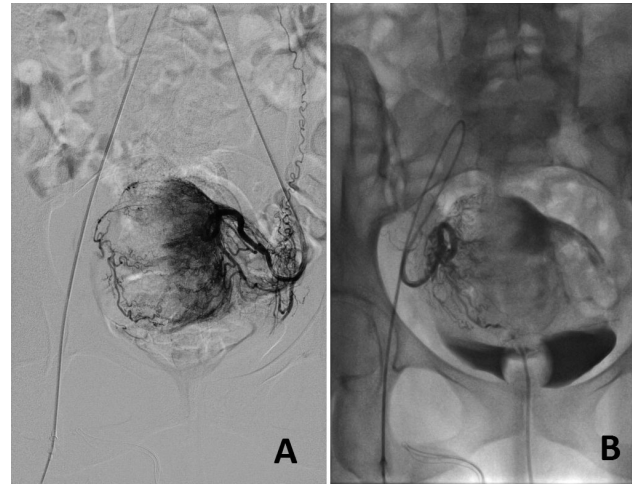


Figure 2. — Digitally subtracted image of the left (A) and right (B) uterine artery demonstrating mildly hypertrophied terminal branches and increased blood supply to uterus.

(balloon tamponade, uterine artery ligation, cerclage, cervical stay sutures, and injection of prostaglandin F₂ α) [3]. The traditional D&C approach can be used after chemotherapy but should not be the first-line approach in cervical pregnancy because of the risk of perforation and catastrophic hemorrhage [3]. The use of systemic methotrexate is probably the most commonly used therapy, because of low costs and high success rate in selected cases. However, cervical pregnancies that present with a serum β -hCG level of over 10,000 mIU/mL, gestational age \geq 9 weeks, embryonic cardiac activity, or crown-rump length \geq 10 mm have been found to be associated with a high failure rate since, in such conditions, unexpected massive bleeding was often observed, and additional procedures were necessary for hemostasis [4].

In recent years, UAE has been widely used as a highly effective technique for controlling acute and chronic uterine bleeding (e.g. uterine fibroids, postabortion hemorrhages or postpartum hemorrhages). Furthermore, in their recent reports, some authors have proposed this technique for the conservative management of cervical ectopic pregnancy, with encouraging results [5-12].

The uterine arteries provide the main blood supply to the uterine cervix, thus the occlusion of the arterial flow by UAE significantly reduces the bleeding. This efficient hemostatic effect could make the subsequent procedures (such as D&C) easier and safer with lower risks for the patient.

The optimal interval between UAE and surgical evacuation of the pregnancy has not been established; however, a collateral circulation starts to develop within a few hours after the complete occlusion of the uterine arteries by UAE, so, if the cervical ectopic pregnancy is not evacuated immediately after UAE, some gestational tissues may regain blood supply and cause further bleeding [5]. For this rea-

son, as already described in previous published reports [5-10], the present authors decided to perform D&C immediately after UAE in order to minimize the risk of delayed bleeding from the reestablishment of collateral circulation. Moreover, in the present case, before the D&C procedure they performed a blood transfusion to maintain the patient hemodynamically stable and to restore adequate hemoglobin levels.

When a UAE procedure is performed to treat a cervical pregnancy, as insightfully stressed by Zhou *et al.* in their report [11], the choice of the embolizing agent should be considered as a crucial part of the procedure. The present authors opted for the use of absorbable gelatin sponge particles, that considerably reduce circulation in the catheterized region for 24 hours: a complete recanalization of the vessels will take place within 2-6 weeks [13], potentially having a low impact on the future uterine function.

Although quite rare, serious complications after UAE have been described in recent case reports [14] and reviews [15], including endometrial atrophy with permanent amenorrhea, premature ovarian failure, uterine necrosis, pulmonary embolism or deep venous thrombosis, and infection. Several cases of pregnancy after UAE for uterine fibroids have recently been reported [16]; however, whether this procedure influences the fertility and the outcome of future pregnancies needs further clinical investigation, even through randomized controlled trials [7]. As already reported in a recent Cochrane review [16], there is also the theoretical risk of an adverse effect on placental blood flow following UAE. Therefore, the incidence of pregnancy complications such as intrauterine growth restriction, preterm labour, and postpartum hemorrhage could be increased, but further data are needed to clarify these risks.

In the present case, no immediate or delayed complication was reported by the patient, and it is reassuring that she has experienced a rapid return of regular menses after the procedure.

The present case suggests that UAE followed by D&C can be considered a safe and effective approach for conservative management of cervical pregnancy in selected cases, and can help avoid the administration of chemotherapeutic agents in such patients. However, despite the advantages of UAE in controlling uterine bleeding, it may not always be the appropriate choice. It is therefore important to approach each patient individually, and accurate counseling is mandatory.

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