Cervical pregnancy
– approaches in conservative therapy

MARIOLA KRZYŚCIN, MARIOLA ROPACKA-LESIAK,
ANNA DERA, GRZEGORZ H. BRĘBOROWICZ

Abstract
Cervical pregnancy, an uncommon type of ectopic pregnancy, is associated with high morbidity and unfavorable consequences for future fertility. So far there are no specific recommendations for the best treatment of this state. Paper presents a case of 22-year-old nullipara at 5 weeks of cervical pregnancy. A conservative treatment with 5 doses of methotrexate, then subsequent medication of misoprostol and surgical management under general anesthesia involved suction curettage and cerclage of cervix, was performed. The cerclage was removed on day 10th.

Key words: cervical pregnancy, conservative therapy

Introduction
The cervical pregnancy is an uncommon condition and its frequency varies according to the region. The reported incidence of cervical pregnancy is less than 1% of all ectopics, that makes out from 1:1000 to 1:18000 of all reported pregnancies [1, 2]. They result from the passage of the blastocyst through the uterine cavity and its implantation in the mucosa of cervix canal. The pregnancy settled in this region is a high-risk condition due to the significant risk of massive hemorrhage leading to the most common cause of pregnancy related deaths in the first trimester [3]. The etiology of cervical pregnancy is unknown but probably it results from the combination of factors including local cervical pathology. The risk factors described as predisposing to develop pregnancy in cervix area are changed conditions in uterus cavity for the placentation; there are mentioned: previous induced abortion, uterine curettage, intrauterine device, anatomical anomalies like uterine fibroids or endometritis, in vitro fertilization or embryo transfer [4].

Clinically cervical pregnancy mostly appears with vaginal bleeding sometimes connected with the pain in lower abdomen as well as urinary problems. The findings by examination are diverse but mostly include enlargement and distension of the cervix and opening of the external cervical os.

Historically the diagnosis of cervical pregnancy was made by histological analysis of the uterus cut out because of strong bleeding. In 1978 there was the first publication described the usefulness of transvaginal ultrasonography (TVS) in diagnosis of cervical pregnancy [5]. Nowadays TVS is the most accurate diagnostic tool. Thanks to its increasing popularity and accuracy in imaging an early pregnancy ultrasound and the rapid assay of serum unit $\beta$ of human chorionic gonadotropin ($\beta$HCG) provided the means of earlier clinical diagnosis enabling successful application of conservative treatment. The sonographic symptoms of cervical pregnancy are empty uterus cavity, barrel-shaped cervix, visualization of vascularised haemorrhagic mass, gestational sac or a live embryo located in the area of cervix, below the level of uterine arteries. Confirmation of doppler blood flow around the mass is needed to distinguish the cervical pregnancy from the spontaneous abortion [6].

This paper presents a case of early diagnosed cervical pregnancy.

Case report
A 22-year old patient was transferred from hospital in Gniezno after three-day hospitalization with the diagnosis of ectopic cervical pregnancy. The patient was classified as gravida two with a history of one abortion. The patient was referred to our clinic in a good clinical condition. On admission she was at 5th weeks of gestation by last menstrual period (LMP). Bimanual examination showed enlarged cervix with closed external os and no other abnormalities was found by palpation. Transvaginal ultrasound showed an empty uterus cavity, barrel-shaped cervix and the presence of gestational sack (GS) in the cervix area, below the level of internal os (Fig. 1).
Fig. 1. Transvaginal ultrasound picture shows an empty uterus cavity, enlarged cervix and the presence of gestational sack with yolk sack and embryo below the level of internal os GS measured 23 mm with visible embryo (CRL – 7.8 mm that corresponded to 6 + 2 weeks) within cardiac activity. Color Doppler showed the intensive vascularisation around the mass (Fig. 2).

Fig. 2. Color Doppler function proves the presence of intensive vascularisation around the gestational sack and lack of cardiac activity

The patient’s quantitative βHCG level was found to be 38558 mIU/ml on admission. Routine laboratory tests were within reference limits. Than 100 mg metotrexat (MTX) i.m. was administered. Due to persistent serum βHCG levels, the MTX was repeated in the same dosage 4 times every 3-5 days. After the last dose the woman marked vaginal spotting and the level of βHCG dropped to 430 mIU/ml. Because the spotting did not result in discharging the ovum, per vaginal misoprostol pills were administered with consecutives doses. This medication did not result in spontaneous abortion as well. Afterwards the patient underwent a hysteroscopy with the ovum evacuation and a cerclage on the cervix. The operation was successful. The controlled βHCG was 45 mIU/ml and after 20 days it was negative. After the procedure a hematoma in the place of the ovum was observed for a few months (Fig. 3 and Fig. 4). It did not enlarge and after 12 months was absorbed.

Fig. 3. The hematoma that developed in the cervix area 4 days after removal of the ovum

Fig. 4. The organized hematoma in the place of cervical pregnancy 5 months after therapy

The patient was dismissed home with the recommendation of using oral contraception for six months.

Discussion

Historically, the diagnosis of cervical pregnancy was not made, until the total hysterectomy had been performed to control the bleeding. Thus only 30 years ago the hysterectomy was still the classical therapy for this condition. For the women, especially the ones who still desire fertility preservation, a conservative therapy of ectopic cervical pregnancy is essential. Following advance diagnosis, a conservative management has become a possible treatment option for women suffering from this condition. An early accurate diagnosis is the first requirement for conservative therapy. A range of con-
Cervical pregnancy – approaches in conservative therapy

Conservative treatment options for cervical ectopic pregnancy in the first trimester has been described, systemic MTX, local MTX or KC1 injection, curettage followed by local prostaglandin installation, cervical cerclage, local hemostatic sutures, intracervical balloon tamponade, ligation of descending branches of the uterine arteries, stepwise devascularization of the uterus, uterine artery embolisation, bilateral hypogastric arteries ligation [7]. Most reports of a successful conservative therapy involve the use of a combination of these methods. For second or third trimester cervical pregnancy and for uncontrolled bleeding, still the hysterectomy is recommended [8].

The first attempt of conservative treatment for cervical pregnancy was mechanical dilation and curettage, with applying cervical balloon tamponade or cerclage to prevent blood loss. This procedure applied itself had a high failure rate and resulted in hysterectomy in 22% of patients [9].

In the late nineties the techniques of local injections of potassium chloride or MTX in ectopic pregnancy gained the popularity. The agent was infused by means of transvaginal ultrasound guidance. The effectiveness was high (close to 100%) and complication rate low [10]. These techniques were mostly used as a treatment option for heterotopic intrauterine and cervical pregnancies.

Nowadays the most popular medication used as conservative treatment for all ectopics is chemotherapy by MTX. In cervical pregnancy it was first reported to be used in 1983 [11]. So far a lot of case reports considering the local or systemic use of MTX either as a single or serial doses have been described.

Its efficacy in cervical ectopic pregnancy was examined by Kung et al. in 1999 on 62 cases. Although there was no standard protocol adopted in this trial the author attempted to estimate the efficacy of systemic MTX use that was calculated on 91%. The successful outcomes were connected either with surgical removal of the pregnancy or local injection of the chemotherapeutic agent [12].

The report of Verma and Goharkhay [16] takes the management of this potentially life-threatening disease a major step forward by administering systemic methotrexate alone or in a combination with ultrasound-guided potassium chloride into the fetal heart. The authors investigated a relatively large number of patients in early cervical pregnancy [16]. On the basis of their results, the authors developed a protocol in which they managed to reduce the ratio of acute hysterectomies as a final consequence of the disease.

The success rate of primary systemic MTX administration in cervical pregnancy differs in various authors, ranging from 55 to 83% [13]. Factors that are associated with a high failure rate of primary systemic MTX use are positive cardiac activity, initial serum βhCG levels greater than 10 000 mIU/ml, a gestational age of greater than 9 weeks or a CRL of greater than 10 mm [12-14].

Based on these results, it seems that systemic MTX administration could be an ideal choice when a patient has none of poor prognostic factors. However, the favorable management for the rest of the patients is still in consideration. MTX is a folate acid antagonist which inhibits DNA proliferation in S phase. The long-term use of this drug can cause massive side effects, such as suppression of the bone marrow or liver and kidney damage, although a single dosage is exempt from complications because methotrexate only affects those cells that are in the S-phase of the multiplication process [15].

In our study, the patient had high initial βhCG level. Nevertheless, the initial treatment option was series systemic MTX injections because it is noninvasive, dose not cause procedure-related bleeding and reduces the bioactivity of trophoblast through the inhibition of deoxyribonucleic acid synthesis and cell division [12]. The initial systemic MTX treatment failed to cause a total drop dawn of serum βhCG but it resulted in a slow-down in the production of serum βhCG. Only the subsequent doses of MTX resulted in gradual decrease of the βhCG level. The usage of misoprostol to our patient contributed to minimize the risk of hemorrhage during mechanical evacuation of the ovum and curettage. The cerclage tied on the cervix had to compress a surrounding tissue and prevent producing a haematoma. Our patient had the cervical cerclage removed a few days after the procedure because it seemed appropriate to follow the hCG titers to ensure inactivity of the placentation site and on the other hand to reduce the risk of bleeding.

These study shows the success of conservative, fertility preserved treatment of cervical pregnancy. The protocols require to be farther improved and standarized. The essential one is that the patient should be counseled about the future risks of possible ectopic pregnancies, second-trimester pregnancy losses, and the potential need of subsequent prophylactic cervical cerclage.

References


