PRACA POGLĄDOWA

# CONSERVATIVE TREATMENT OF CERVICAL PREGNANCY – SEVEN CONSECUTIVE CASES

## *LECZENIE ZACHOWAWCZE CIĄŻY SZYJKOWEJ – SIEDEM PRZYPADKÓW*

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ABSTRACT

Cervical pregnancy is the most rare occurring and, at the same time the most serious form of ectopic pregnancy. The frequency of this medical condition is estimated at the level of 0,15–0,2% of all types of ectopic pregnancies. Ultrasonography makes it possible to diagnose early stages and to perform conservative treatment, which preserves reproductive function of the patient. We described the diagnostic methods, treatment and its results in 7 patients hospitalized in our clinic between 2005 and 2008. In 2 patients, ectopic cervical pregnancy was diagnosed with a live embryo. Conservative treatment was introduced in all patients. The patients were administered Methotrexate (MTX) intravenously (iv) or intramuscularly (im) together with folic acid. The effectivness of treatment was monitored by estimation of β-HCG every two days and by consecutively performed vaginal ultrasonography. Performed conservative treatment resulted in the preservation of reproductive function in all described patients.

**Keywords**: cervical pregnancy, methotrexate, conservative treatment.

STRESZCZENIE

Ciąża szyjkowa jest jedną z najrzadszych i jednocześnie najpoważniejszych postaci ciąży ektopowej. Częstość występowania tego schorzenia to około 0,15- 0,20% wszystkich form ciąży pozamacicznej. Jeszcze w latach 70 minionego stulecia takie rozpoznanie było wskazaniem do wycięcia macicy z uwagi na powikłania pod postacią obfitych, zagrażających życiu pacjentek krwawień. Obecnie, dzięki diagnostyce ultrasonograficznej, możliwe jest wczesne wykrycie tej postaci patologii ciąży, co umożliwia odpowiednie leczenie i zachowanie zdolności rozrodczych pacjentek. Celem pracy jest przegląd dostępnych metod diagnostycznych i form terapii ciąży szyjkowej oraz konsekwencji leczenia dla zachowania zdolności rozrodczych pacjentek. Metody: opis diagnostyki, metod i skutków leczenia ciąży szyjkowej wśród siedmiu pacjentek hospitalizowanych w Klinice Zdrowia Matki i Dziecka w latach 2005-2008. W dwóch przypadkach rozpoznano żywą ciążę szyjkową. We wszystkich sytuacjach zastosowano leczenie zachowawcze poprzez terapię Metotreksatem (MTX) w formie dożylnej lub domięśniowej w połączeniu z kwasem foliowym. Leczenie monitorowano poprzez seryjne oznaczenia gonadotropiny kosmówkowej (β-hCG) oraz ultrasonografię dopochwową. Wnioski: zastosowana terapia umożliwiła zachowanie funkcji rozrodczych wśród wszystkich leczonych pacjentek. Leczenie ciąży szyjkowej, jeśli tylko jest to możliwe, powinno się rozpoczynać od terapii zachowawczej.

**Słowa kluczowe**: ciąża szyjkowa, Metotreksat, leczenie zachowawcze.



## Introduction

Cervical pregnancy is the most rare occurring and, at the same time the most serious form of ectopic pregnancy [1]. It is diagnosed when the gestational sac (GS) is situated in the cervix of the uterus. The frequency of this medical condition is estimated at the level of 0,15–0,2% of all types of ectopic pregnancies [2, 3]. Predisposing factors still need to be discovered. However, all factors causing injury to the cervical structure, such as: curettage of endocervix, implantation of IUD or assisted reproduction techniques, seem to play a crucial role in this pathology [4–6]. Yet in the 1970's such diagnosis was the indication to hysterectomies, due to abundant, life-threatening bleeding [1, 7]. Ultrasonography makes it possible to diagnose earlier stages and helps to preserve potential reproductive function of the patient.

## Material and Methods

Below we describe diagnostic methods, treatment and its results in 7 patients hospitalized in Department of Mother's and Child's Health of Gynaecology-Obstetrical University Clinic in Poznan between 2005 and 2011.

In 2 patients, ectopic cervical pregnancy was diagnosed with a live embryo. One of the patients was admitted to our clinic after laparoscopy performed in another hospital because of the suspicion of tubal pregnancy. In case of 5 remaining patients, fetal heart rate had not been observed [FHR(-)]. In one of these patients, laparoscopy was performed in our clinic due to suspected tubal pregnancy. In the remaining cases, the diagnosis was set at the beginning of hospitalization. Nonspecific symptoms, such as: pain in hypogastrium, spotting or bleeding from the vagina were predominant. In laboratory tests the level of β-HCG were increased and in vaginal ultrasonography the affect localized in cervix, outside the internal orifice was visible (**Figures 1**, **3**, **4**). All patients' medical history is shown in **table 1**.

In all patients, conservative treatment was introduced between the first and fourth day of hospitilization. The patients were administered Methotrexate (MTX) intrave-


**Figure 1.** Patient I. Ultrasound image on the first day of hospitalization. FHR (+). Crown-rump length 9 mm


**Figure 2.** Patient I. Ultrasound image one a day before discharge from the hospital. The diameter of the affect – 13 mm


**Figure 3.** Patient II. Ultrasound image on the second day of hospitalization. The diameter of the affect – 28 mm. FHR(+)

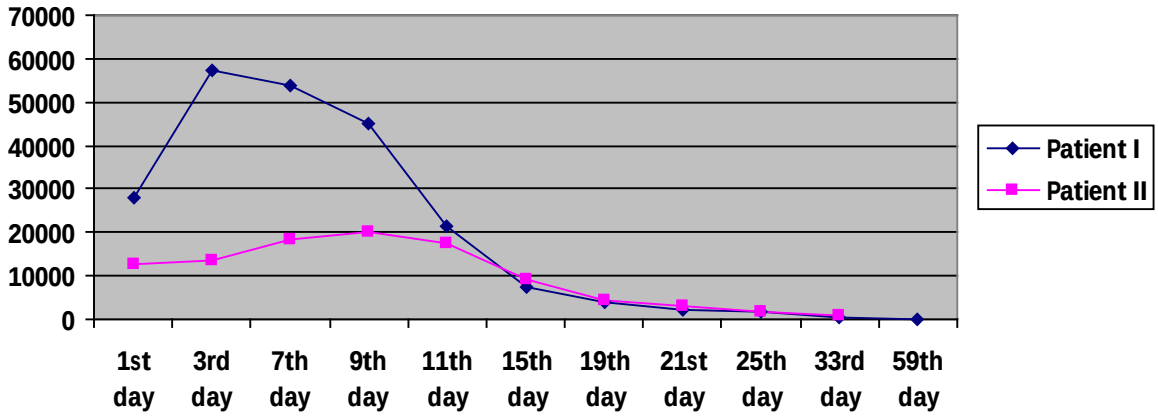


**Figure 4.** Levels of ß-HCG [mIU/ml] in patients with alive pregnancy [FHR(+)] during hospitalization

**Table 1.** Description of patients with cervical pregnancy

| Group's description | Patients with fetal heart rate FHR (+) N = 2 | Patients without fetal heart rate FHR (-) N = 5 |
|---|---|---|
| Age | 23, 33 | 28-34 |
| Parity | 1-0-1<br>0-1cs-0 | 0-0-0<br>1-0-0<br>1cs-0-1<br>1cs-0-0<br>0-0-3 |
| Week of gestation at admission | 6, 6 | 3, 4, 7, 8, 10 |
| The level of β-HCG [mIU/ml] at the moment of diagnosis | 28 190<br>12 965 | 1 498<br>1 769<br>5 511<br>7 971<br>16 055 |



**Table 2.** Description of treatment

| Treatment (No) | FHR (+) | FHR (-) | No (%) |
|---|---|---|---|
| MTX i.m. | 2 | 4 | 6 |
| MTX i.v. | 0 | 1 | 1 |
| MTX locally | 0 | 0 | 0 |
| KCl locally | 0 | 0 | 0 |
| Prostaglandins (Prostin i.v.) | 1 | 0 | 1 |
| Curettage of the uterine wall | 0 | 2 | 2 |
| Hysteroscopy | 1 | 0 | 1 |
| Laparotomy | 0 | 0 | 0 |
| Time to β-HCG decrease after the first MTX application | 8, 11 | 4, 3, 4, 8, 10 | |
| Blood transfusion | 1 | 0 | 1 |
| Effective treatment –> preservation of potential reproductive functions | 2 | 5 | 7 (100%) |

nously (i.v) or intramuscularly (i.m) together with folic acid. The highest number of medication administered (five) was noted in one of the patients with fetal heart rate. The shortest period we observed in a patient was 2 doses of MTX the level of β-HCG decreased below 0,5 mIU/ml.

In all patients the efficiency of treatment was monitored by assessment of β-HCG every two days and by consecutively performed vaginal ultrasonography (**Figure 2**). We also estimated morphology, coagulology and controlled parameters of patients' general state.

In the case of one patient with a fetal heart rate transfusion of erythrocyte mass was necessary because of severe vaginal bleeding. In three patients, after previously performed MTX treatment, the remainings of chorion

were removed from the uterus (by hysteroscopy or curettage of endocervix and endometrium). The treatment was monitored until the level of β-HCG decreased below 0,5 mIU/ml (**Figure 4**).

Performed conservative treatment resulted in the preservation of reproductive function in all described patients. The complete description of medical treatment is presented in **table 2**.

## Discussion

Four of described patients experienced previous curettage of uterus due to miscarriage. Four patients had a history of caesarean sections. These factors are described in literature as factors inducing cervical pregnancy as well as ectopic pregnancy in a previous caesarean section scar [4, 8, 9]. According to more frequent prevalence of caesarian sections, ectopic pregnancy may occur more often. None of our patients experienced previous treatment due to cervical pregnancy and had no history of IUD. According to research, there is a correlation between cervical pregnancy and in vitro fertilization (IVF) but any of described pregnancies from our clinic was not the result of IVF [10]. Nevertheless, the occurrence of heterotopic as well as ectopic pregnancy may escalate according to intensified problem of sterility. The other possible explanation of increasing frequency of cervical pregnancy may be altered uterine muscle activity due to environment pollution and changing dietary habits. The most important among these factors seem to be phytoestrogens widely spreed in modern food. The age of our patients ranged between 23–37 years. The correlation between age and cervical pregnancy has not been defined in previous studies [8]. None of our patients reported pelvic inflammatory diseases, but postinflammatory adhesions impaired ovarian tubes' peristalsis.

Four patients were admitted to the hospital with nonspecific symptoms, such as: pain in hypogastrium, spotting or bleeding from the vagina. Vaginal bleeding is described as the most frequent, although nonspecific symptom of cervical pregnancy [4, 8, 11]. In one patient, state after miscarriage with successive hydatid mole was suspected and in two other patients – tubal ectopic pregnancy, which resulted in laparoscopy.

Described cases show that early diagnosis of cervical pregnancy still remains quite problematic. Symptoms are variable and nonspecific. This makes detailed ultrasound diagnostics necessary. It was used for the first time by Raskin in 1978 [12]. Since then, due to ultrasonography, correct diagnosis of cervical pregnancy have been performed in 81,8% [4]. As the equipment becomes better and better and the experience of doctors performing ultrasonography increases, the efficiency of diagnosis made on that base systematically grows. In five of described cases the diagnosis was set on the basis of vaginal ultrasonography on admission and in one case – after excluding tubal pregnancy – on the second day of hospitalization. In the remaining patient, probably due to a very early week of gestation, we diagnosed cervical pregnancy on the third day after admission. Ushakov [4] highlights a crucial role of Doppler ultrasonography in diagnosis and monitoring of cervical pregnancy. The above mentioned diagnostic tool was introduced by Roussis who proved its significant importance [13].

During hospitalization we systematically assessed the level of β-HCG (every 2 days) and regular ultrosound examinations. In other studies the crucial role of estimation of progesterone level as the index of efficient treatment is emphasized [14]. In our opinion, the assessment of progesterone influence neither the way, nor the efficiency, of treatment.

The ways of treatment of cervical pregnancy can be both conservative as well as operative. The first way contains intraamniotic administration of methotrexate, KCl or prostaglandins, ligation or embolization of uterine artery (or internal iliac arteries), hemostatic sutures put on cervix or amputation or tamponade of cervix [4, 5, 8, 15–17]. Necessary conditions to introduce conservative treatment include: good general patient's state, the absence of gestational sac in the uterus, the diameter of the affect below 4 cm and the serum β-HCG level below 10 000 mIU/ml [1, 3]. Hung et al. [19] defined negative prognostic factors of conservative treatment of cervical pregnancy, which were: gestational age above 9 weeks of pregnancy, fetal heart rate, CRL equal or more than 10 mm. Not all of above mentioned factors were present in described cases. In two cases at the moment of diagnosis fetal heart rate was present. In spite of that fact MTX was administered, which resulted in disappearance of FHR after the first, third and the fourth dose, respectively.

Some authors reveal that in addition to MTX, intraamniotic administration of KCl (2 mEq) in cases with fetal heart rate, increases the effectiveness and shortens time of treatment [2, 8, 20]. It seems that in three above mentioned cases such a procedure could shorten the time of treatment, which could result in prevention of possible side effects of MTX. No side effects were observed in our series.

It is worth emphasizing that in spite of fetal heart rate in three described cases and the level of β-HCG above 20 000 mIU/ml (in two patients), conservative treatment with intramuscular doses of MTX (100 mg) together with

folic acid was effective and preserved reproductive functions in all patients. Only in one case was it necessary to perform transfusion of two units of erythrocyte mass (due to prolonged bleeding).

## Conclusions

1. Early diagnosis and conservative treatment of cervical pregnancy makes it possible to preserve potential reproductive functions of the patient.
2. Intramuscular treatment with MTX can be also effective in cases with observed fetal heart rate and the level of β-HCG above 10 000 mIU/ml.
3. Treatment of cervical pregnancy should start, if only possible, from conservative procedure.

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