Cervical Ectopic Pregnancies after Spontaneous Conception: Case Reports

Anzhel S¹²*, Kovachev E¹², Tsvetkov K¹², Zhekov Z¹², Kisvov S¹² and Aleksandrov A¹²

¹SBAGAL “Prof. d-r Dimityr Stamatov”, Ltd, Varna, Bulgaria
²Medical University “Prof. d-r Paraskev Stoyanov”, Varna, Bulgaria

*Correspondence: Simona Anzhel Georgieva, Obstetrics and Gynaecology Department, Medical University, Varna, Bulgaria, E-mail: simona.ivanova7@abv.bg

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Case Report

Abstract

Cervical pregnancy (CP) is a rare form of ectopic pregnancy (< 1%) located on the lining of the endocervical canal with frequency at about 1 in 1 000 to 1 in 18 000 deliveries. Cervical gestation is extremely rare beyond 20 weeks and there are few reports in the literature of vaginal live birth with a high mortality risk. Awareness and early diagnosis is essential due to the possibility of a life-threatening hemorrhage, treated with hysterectomy in the past. Cervical ectopic pregnancy can be mistaken on ultrasound examination with similar pathologies and due to the differences in the management and the outcome an accurate diagnosis is of a great importance. Authors describe two cases of ectopic pregnancies in the isthmico-cervical region successfully terminated with a nonsurgical approach.

Keywords: Cervical pregnancy, Suction curettage, Hemorrhage, Ultrasound diagnosis

Abbreviations: IVF: In Vitro Fertilization; CP: Cervical Pregnancy; CEP: Cervical Ectopic Pregnancy; MTX: Methotrexate; hCG: Human Chorionic Gonadotropin; UAE: Uterine Artery Embolization

Introduction

Low-lying ectopic implantation in the uterus can occur in the cervix, the isthmico-cervical region and in the area of a previous Cesarean scar. Cervical pregnancy (CP) is a rare form of ectopic pregnancy (< 1%) located on the lining of the endocervical canal. It was first described in 1817, but first reported in the literature in 1860. Its incidence is about 1 in 1000 to 1 in 18,000 live births, 0.1% of in vitro fertilization (IVF) pregnancies and 3.7% of IVF ectopic pregnancies [1].

Risk factors for cervical ectopic pregnancy (CEP) are the same as ectopic pregnancy at all: pelvic inflammatory disease, induced abortion, uterine anomalies, fibroids, Asherman syndrome, uterine or cervical surgery, intrauterine device use, previous cesarean delivery, previous pelvic surgery, smoking, previous ectopic pregnancy, in-vitro fertilization, diethylstilbestrol exposure [1,2]. Majority of women with cervical pregnancy have a low parity [3].

Cervical ectopic pregnancy can be mistaken on ultrasound examination with similar pathologies like low implantation of normal uterine pregnancy, incomplete abortion, cesarean scar pregnancy, cervical mass, nabothian cyst, heterotopic pregnancy. Due to the differences in the management and the outcome an accurate diagnosis is of a great importance.

Treatment of cervical ectopic pregnancies in the past included surgical intervention and hysterectomy was considered as a first option. This leads to loss of reproductive functions and is associated with significant morbidity and potential mortality. Nowadays such
pregnancies are treated successfully with conservative modalities, although there is no universally accepted protocol [4].

**Case Report I**

It is a case of a 39-year-old woman who complained of lower abdominal cramping, vaginal bleeding and a history of 6 weeks of amenorrhea with positive pregnancy test after a spontaneous conception. There were no previous pregnancies, no gynecological manipulations and pelvic surgeries. On admission speculum examination revealed an opened external os of the cervical canal with enlarged livid cervix. By bimanual palpation it was found a mass-like enlargement of the isthmico-cervical region. Ultrasound examination visualized gestational sac with a yolk sac in the cervical canal and decidual reaction of the endometrium (Figure 1a, b). A cervical pregnancy was diagnosed and due to the risk of diffuse life-threatening hemorrhage and the poor prognosis of pregnancy prolongation, a therapeutic abortion was performed (Figure 1c). Pregnancy was evacuated by a vacuum aspiration without prior cervical dilation and with post-procedure cervico-vaginal gauze tamponade. The post curettage period was smooth with no complications and excessive bleeding. No additional invasive procedures were required.

**Figure 1a:** Sand-glass shaped uterus - the uterine body

**Figure 1b:** Empty cavity and thickened endometrium.

**Figure 1c:** 3D visualization of the cervical pregnancy.

**Case Report II**

A 35 years old woman presented with 6 weeks of amenorrhea after stop-pill intake (Escapelle) due to unsecured intercourse. The obstetrical anamnesis included two previous life births by Cesarean section, no other surgeries and no additional diseases. Ultrasound examination revealed a low-lying gestational sac on the area of the Cesarean scar with a picture of thicker myometrium between the sac and the bladder (Figure 2a). Due to lack of genital bleeding and no abdominal cramping the patient was attended for reevaluation after few days if a differential diagnosis of cesarean pregnancy, incomplete abortion or isthmico-cervical pregnancy can be obtained. On admission a 7 weeks pregnancy with no yolk sac and no developing embryo was documented, located near the cesarean scar (Figure 2b). After explaining the poor prognosis for pregnancy prolongation, the possibilities for treatment and related risks, a single dose of 50 mg Methotrexate intramuscular injection was administered. Serial ultrasound examinations and hCG measurements confirmed a resorption of the pregnancy. No additional manipulations were necessary.

**Figure 2a:** Low - implanted 6 weeks and 6 days pregnancy with empty gestational sac.
Case report III

A 30-year old multigravida (forth pregnancy) presented with genital spotting and acute abdominal pain above the symphysis. With anamnesis of three previous Cesarean deliveries now she reported for 2-month amenorrhea and positive pregnancy test without image documentation by a gynecologist. Clinical examination found signs of peritoneal irritation without acute abdomen and negative Blumberg sign. Transvaginal sonography visualized empty uterine cavity and 7 gestational week's pregnancy, eccentric to the uterus, near the right adnexa (Figure 3). Due to suspected diagnosis of ectopic pregnancy and hemodynamically stable patient, a laparoscopy was performed. Intraoperatively it was found a gestational sac under plica vesico-uterina, implanted on a scar from previous Cesarean delivery. After the pregnancy was evacuated, a hemostatic sponge (Gelaspone) was placed without suturing.

Discussion

Cervical ectopic pregnancy (CEP) is traditionally considered as high risk for hemorrhage due to high vascularization of the lower part of the uterus, especially with advancing gestation and has historically been treated with hysterectomy. Nowadays with improvements in ultrasound, early diagnosis gives the opportunity to use conservative medical treatment and interventional measures rather than surgical management. The diagnosis of CEP is established by transabdominal and/or transvaginal ultrasound. Sonographic diagnostic criteria are (i) diffuse amorphous uterine cavity echoes with empty uterine cavity or thickened endometrium, (ii) enlarged cervix, (iii) gestational sac or placental tissue below the level of the internal os, (iv) Enlarged uterus, sand-glass shaped (v) high peritrophoblastic vascularity on Doppler examination (peak velocity > 20 cm/s, pulsatility index < 1.0). Color Doppler is the main diagnostic feature for distinguishing between the peritrophoblastic blood flow of a cervical pregnancy and a cervical abortion [5].

Incomplete abortion that is proximal to the cervix is often seen as an irregular contoured sac, without visible cardiac activity, opened internal cervical os and closed external os, with enlarged uterine cavity compared to the cervix. Vaginal sonography can also help differentiate the two due to the sliding motion of the latter against the endocervical canal as compared to the former which is implanted into the cervix [6].

The second most frequent differential diagnosis of CEP is a cesarean scar pregnancy where on ultrasound examination is found: an empty endometrial cavity and cervical canal with thinning of the myometrium between the gestational sac and the bladder.

Clinical presentation is usually painless profuse first trimester vaginal bleeding. Lower abdominal cramping is found in less than one third of patients. Pain without bleeding is rare [7]. In an article by Paalman, 5 clinical signs of cervical ectopic pregnancy were identified: (a) uterine bleeding without cramping pain after a period of amenorrhea, (b) softened and disproportionately enlarged cervix equal to or larger than the corporal portion of the uterus (an hourglass-shaped uterus), (c) products of conception firmly attached to the endocervix, (d) a snug internal os, and (e) a partially opened external os [3]. Infrequently on vaginal examination it is found a cystic lesion on the cervical lip which represents trophoblastic invasion to the cervical stroma.
Conservative management is preferred at early pregnancy with low beta-hCG levels in the absence of cardiac activity [8]. Medical options include systemic or local injection of methotrexate (single or multiple dose regimens), KCL, local or systemic prostaglandin, systemic mifepristone, local intracervical vasopressin injection and intrauterine irrigation with 3.5% H2O2. The use of intramuscular methotrexate (MTX) is effective in 80 - 90% of cases of early cervical pregnancy. Criteria for the use of methotrexate include a hemodynamically stable patient as well as ectopic gestational sac size of 3 cm or less [9]. In our case 2 a methotrexate injection was used to terminate a low-implanted 7 weeks gestational sac with no developing embryo. The patient had no renal or liver diseases and due to the location of the pregnancy near the Cesarean scar there were high risk of uterine rupture if curettage was performed. Because of the above mentioned we choose MTX application.

Kirk et al. analyzed 90 cases of cervical ectopic pregnancies evaluated in the period April 1997 and September 2004. The overall success of conservative management was 95.6% (86/90). Only 4.4% (4/90) of women needed a hysterectomy. However, only 21.1% (19/90) of women needed an additional procedure to control bleeding, such as insertion of a Shirodkar suture, uterine artery embolization or Foley catheter balloon tamponade [10].

For more advanced pregnancies with positive fetal cardiac activity is preferred combined treatment with multidose MTX and intraamnionic and/or intrafetal injection of KCL.

Surgical management involves suction evacuation, cervicotomy and hysteroscopic resection for the purposes of fertility preservation [11]. In cases of massive hemorrhage and hemodynamically unstable patient, emergency hysterectomy is the best option. The main complication of dilatation and evacuation is a high incidence of severe hemorrhage which can be reduced by preoperative measures like transvaginal ligation of cervical branches of the uterine arteries, cervical encerclage - Shirodkar type, angiographic uterine artery embolization.

Verma et al. analyzed 25 cervical ectopic pregnancies in different gestational ages, managed with methotrexate. Only one, with the most advanced gestation in the case series - a 15-week-sized fetus, showed persistent presence of fetal bones within the uterine cavity, 8 weeks after initial treatment. Only in this case the patient underwent additional procedure which was scheduled dilation and evacuation with removal of retained fetal tissues. In four cases conservative management complicated with an excessive bleeding, treated only with balloon tamponade and uterine artery embolization [12,13].

Uterine artery embolization can be used as part of urgent minimally invasive treatment of cervical ectopic pregnancy. It has reportedly been used in combination with medical management, curettage, and office hysteroscopic resection for treatment of CEP. To date, there are no established criteria for the use of UAE in CEP. In an article by Zakaria et al., the indication for UAE is as follows: initial beta-hCG is > 34,000 mIU/mL and when patient is unable to tolerate methotrexate and leucovorin [7].

If dilation and suction evacuation is preferred, a key point measure is no cervical dilation before initiation of the passage of an appropriately sized suction cannula. Dilation can disrupt implantation and immediately lead to heavy vaginal bleeding. Following curettage, a Foley balloon tamponade and prostaglandin F2α injection can reduce hemorrhage. Sharp curettage should be avoided. In 2014, Donald reported 13 cases of first trimester cervical pregnancy successfully treated with a suction curettage with no complications and need of subsequent hysterectomy. The author concluded that 1st trimester cervical pregnancies, even heterotopic, can be easily and safely treated with a suction curettage and a post curettage balloon tamponade [14]. In our case 1 due to the early diagnosis by ultrasound, no excessive bleeding and no previous manipulations, a suction evacuation was performed with no need of additional procedures.

Laparoscopy is a gold standard for diagnosis and treatment of tubal ectopic pregnancy [1,2]. In case 3, due to atypical localization of products of conception, abdominal pain and vaginal spotting a laparoscopy was performed and a diagnosis of uterine scar pregnancy was evaluated.

**Conclusion**

Cervical ectopic is a challenging to manage with a high rate of incorrect diagnosis as a cervical miscarriage. It is the rarest type of ectopic pregnancy with life-threatening risk of severe hemorrhage. Vacuum aspiration with no prior dilation of the cervical canal can be a measure of first choice in the low lying ectopic pregnancies. Our reports indicate that the conservative approach of cervical ectopic pregnancy is a safe and viable option.
Although conservative management is possible also in advanced gestations, these pregnancies are associated with higher morbidity and may require use of multiple nonsurgical modalities. Following cervical pregnancy there are increased incidence of cervical insufficiency and preterm labor. Spontaneous pregnancies after conservative management is possible but uterine artery embolization may affect future fertility with decreased ovarian reserve.

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References


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