MERIT RESEARCH JOURNALS
www.meritresearchjournals.org

Merit Research Journal of Medicine and Medical Sciences (ISSN: 2354-323X) Vol. 7(11) pp. 422-426, November, 2019
Available online http://www.meritresearchjournals.org/mms/index.htm

Case Report

Cervical Pregnancy, Case Report

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Abstract

The current case report refers to the timely diagnosis and conservative invasive treatment of a patient with cervical ectopic pregnancy. Secundigravida with multiple pregnancy terminations on her medical history visited the emergency examination office of our clinic reporting minor vaginal blood discharge during the last few days, accompanied by a deep, mild pain located at lower abdomen and loin. Urine hCG pregnancy test was positive. Last menstrual period was not possible to be determined precisely due to repetitive termination of pregnancies during the most recent period of time. Trans-vaginal ultrasound set the diagnosis of cervical ectopic pregnancy, and a conservative surgical treatment of the patient was decided. In the Operating Room, after evacuating the endocervix and the uterine cavity, a prophylactic vaginal and cervical tamponade was performed. After two days, the patient was discharged from our clinic in good general condition. In the current paper, after the presentation of the case, a brief literature review is attempted of this rare obstetric complication, based on the current data, related to its etiopathogenesis, diagnosis, treatment and prognosis.

Keywords: Diagnosis, Ectopic cervical pregnancy, Etiopathogenesis, Prognosis, Treatment

INTRODUCTON

Ectopic pregnancy is defined as the pathologic condition during which the implantation of a fertilized ovum is performed in a place other than the endometrium of the normal cavity of the uterus. Most of the cases of ectopic pregnancy that are detected early can be treated with success, either by minimally invasive surgical procedures or by the use of specific drugs (ACOG, 2018). Many times, diagnosis of ectopic pregnancy is the result of a pregnancy of unknown location. Pregnancy of unknown location is a descriptive term of the condition when a woman has a positive pregnancy test and the location of pregnancy cannot be determined with transvaginal ultrasonography. The majority of women with pregnancy of unknown location end up with a viable intrauterine pregnancy or spontaneous abortion, while 7% - 20% of these cases will be diagnosed with ectopic pregnancy (Fields and Hathaway, 2017). Ectopic pregnancy is a high risk obstetric condition that affects 2% of the total number of pregnancies. In 80% of the cases diagnosis can be set in an early stage, while relative mortality has been decreased greatly during the last decades and is estimated to be 3.8 cases in every 10.000 ectopic pregnancies (Belics et al., 2014). The most common type of ectopic pregnancy is the tubal pregnancy, with the most frequent location the ampulla (ACOG, 2018). Rarely, pregnancies can develop in unusual locations of implantation, such as the interstitial part of the fallopian tube, the cervix, the ovary or less frequently the peritoneal cavity – abdominal pregnancy (Srisajjakul et al., 2017).

In a cervical ectopic pregnancy the implantation of the fertilized ovum is performed in the epithelium of the cavity of the endocervix. Cervical pregnancy is not common. It is an extremely rare type of ectopic pregnancy that

Figure 1. Trans-vaginal ultrasonographic imaging of amniotic sac inside the endocervical canal. The part of normal cervical canal is visible (black arrows) that is located between the uterine cavity (on the left) and the ectopic amniotic sac (on the right).

represents less than 1% of the total number of ectopic pregnancies in the United States of America (Dolinko et al., 2018). Cervical pregnancy and ectopic pregnancy in the scar of a cesarean section are rare cases of abnormal implantation of fertilized ovum. Delayed diagnosis and improper management of these pathologic conditions might lead to significant morbidity, with significant complications in the first trimester of pregnancy (Monteagudo et al., 2017). Increased vascularization that describes the epithelium of the endocervical cavity, especially in ectopic cervical pregnancies in progressed gestational age, is possible to lead to massive bleeding endangering the life of the patient (Munoz et al., 2018).

CASE DESCRIPTION

This case report is about a young foreign national secundigravida, with a history of a natural childbirth three years ago, who visited the emergency outpatient examination office of our clinic complaining about a minor vaginal bleeding during the last few days, accompanied by a mild deep pain in the location of the lower abdomen and the loin. Patient presented normal temperature, was hemodynamically stable and in a good general condition. Abdomen was soft, palpable and painless during palpation. Last menstruation was not able to be determined precisely due to repeated termination of pregnancies during the most recent period of time (4 surgical uterine evacuations due to unwanted pregnancies during the last 13 months). Urine hCG pregnancy test was positive. The results of the emergency laboratory blood examination demonstrated: Ht 37.3%, Hb 12.4 gr/dl, PLT 215x10^3/ml, WBC 12.1x10^3/ml, NEUT 76%. Clotting mechanism, bio-chemical testing and urinalysis were without pathological findings. Beta human chorionic gonadotropin (β-hCG) testing for viability of pregnancy, which was completed 48 hours later demonstrated a non-viable fetus. During the admission to the clinic, the gynecological examination demonstrated a minor vaginal bleeding of dark color. External cervical os was closed. Transvaginal ultrasonography demonstrated the presence of amniotic sac without embryonic elements inside the endocervical canal, located under the internal cervical os, which corresponded to 6weeks and 2 days of gestation.

The typical ultrasound depiction of a section of endocervical canal between the endometrial cavity and the amniotic sac (Figure 1) set the diagnosis of ectopic cervical pregnancy and conservative surgical treatment of the patient was decided. In the operating room, under general anesthesia after dilating the cervix using Hegar dilators, a therapeutic cervical evacuation was performed to the patient followed by endometrial cavity evacuation, with the use of suction curette and endometrial curretes respectively. Histologic examination of the surgical specimen confirmed the diagnosis. Intraoperative bleeding was minor and manageable. A prophylactic vaginal-cervical tamponade was performed using a long gauze that was removed 3 hours later. Following an uncomplicated post-operative period, the patient was discharged from our clinic during the 3rd inpatient day, with the instruction of re-examination at our outpatient examination office. Three weeks later the laboratory level of β-hCG was zero.

Table 1. Major risk factors that relate to ectopic cervical pregnancy

• Past dilation and curettage
• Past cesarean section
• Asherman's syndrome
• Anatomic abnormalities of uterus
• Uterine fibromas
• intrauterine contraceptive devices
• in-vitro fertilization methods
• DES exposure

DISCUSSION

The precise etiopathogenetic mechanism of implantation and development of the blastocyst on locations other than the normal uterine cavity is not yet fully clarified. The major risk factor that up until today has been incriminated for the implantation of the fertilized ovum on the epithelium of endocervical cavity is a past dilation and curettage of the endocervix, which is estimated to consist 70% of the total number of ectopic endocervical pregnancies (same as our case). Following risk factor is the history of previous cesarean section, which according to current data is responsible for 35% of the cases (Ferrara et al., 2007). In addition, Asherman's syndrome, anatomic abnormalities of the uterus, fibroids, the use of intrauterine contraceptive devices, in-vitro fertilization methods (IVF) and the exposure of women to diethylstilbestrol (DES) are included to the main causal factors that are considered responsible for this rare complication of the incipient pregnancy (Table 1). The possible disorder – damage of the architecture and receptiveness of the endometrium that the above conditions can provoke, especially the previous endometrial curettage, is considered to facilitate the implantation of the blastocyst in the lower part of the uterus, towards the endocervix and under the level of the internal cervical os (Fylstra and Coffey, 2001; Nasrolahi et al., 2008).

Ectopic cervical pregnancy diagnosis based only on clinical criteria is hard, especially when it refers to an incipient pregnancy. The main typical sign is the painless vaginal bleeding, which ranges in gravity and is presented in over 80% of the cases (Murji et al., 2015). The bleeding, which is a result of the cervical vessel's corrosion from the trophoblastic tissue and the lack of contractility of the uterine cervix, is possible to be accompanied by a bland, deep pain located in the lower abdomen and/or the loin (our case) which is caused by the mild contractions of the lower part of uterus (Kansal et al., 2006). Thus, at present, generally accepted protocol for conservative treatment of acute bleeding due to residual ectopic pregnancy in cases of cervical pregnancy doesn't exist. Cases of major vaginal bleeding have been described in literature three months after receiving treatment, which included intramuscular injection of potassium chloride, systematic administration of methotrexate and embolization of uterine vessels, due to residual ectopic cervical pregnancy (Pereira et al., 2013).

Contrary to the clinical criteria, the contribution of modern imaging techniques in the diagnosis of ectopic cervical pregnancy is crucial. The current use of trans-vaginal ultrasonography, 3D ultrasonography, Magnetic Resonance Imaging (MRI) and trans-vaginal Power Doppler ultrasonography in combination with the analysis of the human chorionic gonadotropin levels have significantly increased the diagnostic accuracy of the disease. Ultrasound findings, such as the absence of intra-uterus pregnancy, the imaging of amniotic sac under the level of the uterine vessels with peripheral blood flow and the presence of a part of normal cervical canal between the uterine cavity and the amniotic sac (our case) mainly support the diagnosis of ectopic cervical pregnancy than the diagnosis of spontaneous abortion of an intra-uterine pregnancy in progression. Differential diagnosis over the spontaneous abortion, which should highly concern every obstetrician – gynecologist, is additionally facilitated when in the embryo that resides in the cervical canal a positive fetal cardiac function is detected (Yildizhan, 2005; Jaeger et al., 2007).

In addition, the significant improvements that have been accomplished during the latest years in techniques of ultrasound imaging, which enable timely diagnosis of cervical pregnancy, provide also today the ability of a more conservative surgical approach of the condition. Performing therapeutic evacuation of intrauterine cavity and endocervical canal with or without the use of local tamponade in cases of incipient pregnancies (our case) is possible to control the bleeding conserving in the same time the fertility of the patient (De La Vega et al., 2007; Pereira et al., 2013). Thus, evacuation of endocervical canal under ultrasound management of high diagnostic accuracy is the current therapeutic choice for treating conservatively patient that desire to preserve their uterus (Jiang and Xue, 2019). Also, transvaginal clamping of uterine arteries (Zea technique) before surgical evacuation of the uterine cervix is a very efficient choice for controlling vaginal obstetric bleeding, including

patients that have been diagnosed of ectopic cervical pregnancy, in which the above technique greatly reduce the volume of blood loss (Castillo – Luna et al., 2015). In addition, embolization of uterine vessels followed by endocervical curettage is a safe, compelling and cost-effective choice of conservative treatment of ectopic cervical pregnancy (Hu et al., 2016).

Furthermore, hysteroscopic resection of the embryo using resectoscope and the use of various pharmaceutical drugs (Methotrexate, KCL) are conservative methods of treatment that have been described in international literature with positive results. Invasive hysteroscopy can form the safest and most suitable therapeutic option in pregnancies under 8 weeks of gestation, while in cases of failure of the endoscopic treatment there is the option of complementary administrating methotrexate or embolizing the uterine arteries (Tanos et al., 2019). Methotrexate can be administered systematically in combination with folic acid (50mg/m^2 single order) or intramuscular dosed 1 mg/kg of body weight (Kirk et al., 2006). Uterine arteries embolization in combination with intra-arterial methotrexate injection is considered to be an effective conservative therapeutic option in cervical pregnancy treatment (Zhang et al., 2016). Additionally, intra-amniotic KCL administration under ultrasound guidance in combination with administration of other pharmaceutical drugs (prostaglandins, progesterone antagonist RU – 486) has been used with positive outcome (Shrestha et al., 2011; Jachymski et al., 2018). Nevertheless, at present hysterectomy continues to be the option of choice in treatment of ectopic cervical pregnancy, especially in cases of progressed gestation or in cases when, apart from gestational age, the vaginal bleeding is massive, uncontrollable and life threatening (Hu et al., 2016).

Prognosis depends on the gestational age and the corrosive activity of the ectopically implanted trophoblast inside the endocervical canal. Both spontaneous bleeding and bleeding that can occur while performing conservative invasive techniques are the major complications of this condition with significantly elevated levels of maternal morbidity and mortality (Hanstede et al., 2008). Even though cervical pregnancy impose serious risks for the patient's life and require the performance of hysterectomy, in most cases uterine arteries embolization in conjunction with surgical therapeutic evacuation of the uterine cervix constitute a safe and effective treatment that allows in the same time the preservation of woman's fertility (Hu et al., 2016).

CONCLUSION

Current diagnostic approach of ectopic cervical pregnancy is a very significant step towards successful managing of this rare but in the same time dangerous for the life of the patient obstetric complication. Early recognition of the symptoms and the risk factors that relate to this condition, as well as the proper use of the modern advanced technologies nowadays allow the timely diagnosis and the immediate application of the most appropriate current therapeutic measures, in order to ensure the most conservative treatment of the condition and reduce the increased risk of maternal morbidity and mortality. At present it is estimated that the combination of transvaginal ultrasonography with the pelvic Magnetic Resonance Imaging (MRI) is a highly promising technique for pre-operating evaluation of the patients with ectopic cervical pregnancy. With the contribution of new modern techniques, in the future the big randomized clinical trials are expected to be able to develop a standardized system of grading that could assist decisively in diagnosis of high risk patients and ensure the most proper medical care for every patient (Ding et al., 2019).

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