

Ruptured cornual ectopic pregnancy: case report

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Abstract

Ectopic pregnancy, defined as the placement of an embryonic sac somewhere other than the uterine wall, is the most common life-threatening emergency seen during early pregnancy. Interstitial ectopic pregnancy is defined as the placement of an ectopic pregnancy to the uterine part of the fallopian tubes and makes up about 2-4% of all ectopic pregnancies. Compared to other tubal pregnancies, they rupture later during pregnancy and gross hemorrhage is seen as a result of this rupture. Maternal mortality risk is 2 to 5 times more in interstitial ruptured pregnancy in comparison with other tubal pregnancies. Early diagnosis and treatment of interstitial ectopic pregnancy is therefore very crucial, as they carry a very high risk of morbidity associated with the rupture. In this case report, we present a case presenting with severe abdominal pain and amenorrhea for 3 months to our clinic. After examination, the patient was diagnosed with a cornual ectopic pregnancy which was late for a case like this. We would like to discuss this case with a literature review on this subject.

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Introduction

The definition of cornual ectopic pregnancy is still debated. Most of the authors accept “interstitial” and “cornual” as synonyms, however some use the “cornual” term in pregnancies developed in bicornuate or septate uterus cornuate regions.^{1,2}

Interstitial ectopic pregnancy is a rare tubal ectopic pregnancy form characterized by the attachment of the gestational sac to the intramural side of fallopian tubes.³ This type of ectopic pregnancy is seen in 1/2500-1/5000 of all pregnancies and 2-4% of all ectopic pregnancies.⁴⁻⁶ The interstitial part of the fallopian tube contains more vascularized and muscular tissue. Due to this vascular and connective tissue support and anatomic localization,

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diagnosis and treatment is usually late and rupture takes place later during pregnancy term and causes massive hemorrhage. For this reason, the mortality risk is 2-5 times more than other ectopic pregnancies.^{7,8} It is difficult to diagnose an interstitial ectopic pregnancy before the rupture; however, early diagnosis and treatment of this condition is essential for reducing morbidity and mortality risk.

Case Presentation

A 32-year old female patient presented to our Emergency Department of Gynecology Clinic for severe acute abdominal pain and amenorrhea for 3 months. The patient had 7 vaginal births without complications in the past. There was widespread sensitivity in lower left quadrant of the abdomen during physical examination. The patient had regular menstrual periods and the last menstrual period of the patient was 3 months ago. In the gynecological examination, minimal mixed type vaginal discharge was present, collum movements were very painful and the uterine size cannot be measured due to the patient's severe pain. However, there was a palpable mass with regular borders in the left pelvic side area that cannot be clearly differentiated from the uterus during bimanual examination. Ultrasonographically, there was no gestational sac in endometrial cavity and minimal fluid was seen in the rectouterine cavity. On the left uterine cornual area, there was a pregnancy with negative fetal cardiac activity that cannot be clearly viewed (Figure 1). Arterial blood pressure (BP) was 100/60 mmHg, pulse was 88/min and body temperature was measured as 36.5 C. In laboratory results, the patient had

Hemoglobin: 10.2 g/dL, HCT: 31%, WBC: 14,300/mm³ and beta human chorionic gonadotropin e (Beta-HCG) level was 16,057 mIU/mL. The patient was hospitalized with an initial diagnosis of ectopic pregnancy. Despite negative fetal cardiac activity, methotrexate treatment was not considered due to the emergency situation, gestational week and high beta-HCG levels of the case.



Figure 1: Ultrasonographic view of cornual ectopic pregnancy

The patient underwent an emergent laparotomy due to hemodynamic instability and decreasing hemoglobin levels. A ruptured ectopic pregnancy which was bordered with omentum and 300 cc of blood were detected in the left cornual area (Figures 2, 3). Cornual resection including necrotic areas was performed. Then tissue integrity was provided by suturing with 0 and 2.0 polyglactin sutures. We paid attention to preserve the anatomical structure of uterus and adnexa. The patient was discharged after 3 days and advised to come for controls.



Figure 2: Ectopic fetal and placental structures during operation



Figure 3: Intraoperative view of left cornual rupture

Discussion

Ectopic pregnancy is defined as the attachment of a gestational sac on areas other than the uterine cavity. Cornual pregnancy is one of the life-threatening medical situations in women, especially in underdeveloped

countries. In recent years, ectopic pregnancy incidence is on the rise. Possible explanations for this increase are increased risk factors (sexually transmitted diseases, assistive reproductive techniques, increased tubal surgery and sterilizations) and the development of diagnostic methods (transvaginal ultrasonography and measurement of Beta-HCG).⁹

There were no risk factors for ectopic pregnancy in our case. Ectopic pregnancies, caused by abnormal implantation of blastocysts, are mostly (95-98%) seen in the fallopian tubes.^{6,9} Ectopic pregnancies are also seen in the ovaries, cervix and abdominal cavity, although these are rare. Since those anatomical regions are not suitable for placenta placement and embryonic development, there is always a risk of rupture and bleeding in those situations.¹⁰ Cornual ectopic pregnancy makes up about 2-4% of all ectopic pregnancies.⁴⁻⁶ Cornual ectopic pregnancies are more commonly ruptured later in pregnancy compared to other ectopic pregnancies. They cause a massive hemorrhage when ruptured and carry 2-5 times more mortality risk in comparison with other ectopic pregnancies.^{7,8,11} It is difficult to diagnose an interstitial ectopic pregnancy before rupture happens; however, it is crucial that this situation to be diagnosed before rupture to reduce morbidity and mortality risks. In the past, since the diagnosis could only be confirmed by laparotomy, about 50% of interstitial ectopic pregnancies ended with hysterectomy. Today, thanks to advancements in diagnostic methods such as transvaginal ultrasonography and Beta-HCG measurements, they can

be diagnosed early; however, misdiagnosis and delays in treatment are still common.

In Doppler USG studies, "high velocity and low impedance characterized trophoblastic blood flow pattern" supports the diagnosis of a non-ruptured ectopic pregnancy.¹²

Magnetic resonance imaging (MRI) is a good option to detect abnormal pregnancies like this early in gestation. High imaging-quality of soft tissue and usability in pregnancies are the advantages of MRI. Parkers et. al, illustrate the importance of MRI in detecting gynecologic and non-gynecologic pathologies in patients with acute abdominal pain at the emergency service.¹³ Fang's study revealed that MRI is more sensitive in detecting the placement of ectopic pregnancy than if the placement is ectopic or not, 94.9%, 82.1% respectively.¹⁴

We are working in a Sub-Saharan state hospital which was far away from the capital and the big city hospitals. So we only used the USG and CBC to make the correct diagnosis. Our presented case was symptomatic and the diagnosis of cornual ectopic pregnancy was made using 2-dimensional TVU and serum B-hCG levels under emergency conditions.

The misdiagnosis of interstitial ectopic pregnancies as intrauterine pregnancies causes delays in treatments. Sometimes, the uterine corpus is wrongfully interpreted as a cervical myoma, therefore interstitial pregnancies can receive a normal intrauterine pregnancy diagnosis.¹⁵ Timor-Tritsch et al. defined the

diagnostic criteria as an empty uterine cavity, the chorionic sac seen separately and more than 1 cm from the most lateral edge of uterine cavity and a thin surrounding myometrial tissue.¹⁶

Systemic and intralesional MTX, uterine artery embolization, ultrasonographically guided KCl injection, hysteroscopy, laparotomy and laparoscopic treatment modalities can be used but there is no evidence which one is best.^{17,18} There are some criteria to specify the treatment methods. β -hCG levels under 5000 mIU/ml, a small gestational sac and hemodynamic stability are some of these criteria. If the cornual pregnancy is diagnosed early in gestation, it's preferable to use systemic MTX with high success rates.^{28,19} We think that systemic MTX may be tried in patients with fetal cardiac activity, although it's not recommended. But to do this, it's suggested that the patient be hospitalized and monitored with a surgical team which is ready for operation. Conversely, surgical treatment methods are recommended in patients with high β -hCG levels (>5000 mIU/ml) whose ectopic gestational sac measurement is above 3 cm. Hemodynamic instability is one of the other criteria that lead us to choose surgical treatment.²⁰

Treatment options for interstitial ectopic pregnancies are local or systemic methotrexate treatment, localized KCl injections, conservative laparoscopic surgery, uterine artery embolism, cornual resection or when necessary, hysterectomy.²¹ The choice of treatment depends on the size of gestational sac, the desire of the patient to keep her fertility and the experience of the surgeon.²²

We preferred surgical treatment because of hemodynamic instability. A ruptured left uterine corn was seen which had been bordered by omentum. Maybe this could be the reason which prevented the patient from massive intraabdominal bleeding. We performed a cornual resection, limited to necrotic areas, especially on the posterior side, with reconstruction to provide normal anatomy. We preserved the bilateral ovaries and salpinges.

Conclusion

As a result, even though it is hard to diagnose interstitial ectopic pregnancies before rupture, early term diagnosis and treatment is essential to reduce morbidity and mortality risks. It's recommended to keep a high index of suspicion of ectopic pregnancy rupture in any young women brought in a state of shock from a village to a municipal hospital in developing countries lacking established prenatal care.

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