

Heterotopic pregnancy

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Abstract

Heterotopic pregnancy is defined as a condition when intrauterine and extra uterine pregnancy occur simultaneously. It is a life-threatening condition that requires immediate and accurate diagnostics and treatment. It is difficult to diagnose and easily missed. The incidence in the general population is estimated to be 1 in 30,000. With the advent of Assisted Reproduction Techniques (ART) and ovulation induction, the overall incidence of heterotopic pregnancy has risen to approximately 1 in 3,900 pregnancies. Other risk factors include a history of pelvic inflammatory disease (PID), tubal damage, pelvic surgery, uterine Mullerian abnormalities, and prior tubal surgery. Heterotopic pregnancy is a potentially fatal condition, rarely occurring in natural conception cycles. Most commonly, heterotopic pregnancy is diagnosed at the time of rupture when surgical management is required. We present a case of a 30-year-old secondi gravida with history of one spontaneous abortion and pelvic inflammatory disease, who conceived spontaneously and at her fifth week of amenorrhea, was presented to the emergency department with acute pain in lower abdomen, moderate vaginal bleeding and weakness. Laboratory tests and transvaginal ultrasonography revealed the diagnosis of heterotopic pregnancy.

Keywords: Heterotopic pregnancy; extra uterine pregnancy; intrauterine pregnancy; transvaginal ultrasound.

Introduction

Heterotopic pregnancy is the coexistence of a living or dead intrauterine pregnancy, single or multiple and extra uterine pregnancy located in the oviduct, ovary, uterine corner, cervix or peritoneal cavity. The first case was described in 1708 – at that time the diagnosis was established during autopsy [1]. It is associated with significant morbidity and mortality for both mother and fetus including hypovolemic shock, fetal loss and maternal mortality, and early diagnosis is critical [2]. While being relatively uncommon in spontaneous conception with 1 in 30,000 cases reported, the incidence of heterotopic pregnancy increases to 1 in 3900 when conception is enhanced with various assisted reproduction techniques (ART) including in vitro fertilization, super ovulation, and intrauterine insemination. Additionally, other important risk factors for the development of heterotopic pregnancy includes a family history of multiple gestations, endometriosis, tubal disease, history of pelvic inflammatory disease, elevated levels of female hormones, embryo transfer technique, or increased number of transferred embryos [3, 4]. The current case occurrence of heterotopic pregnancy complicated with hemoperitoneum in a patient with natural conception.

Case Report

We present a case of a 30-year-old secondi gravida with history of one spontaneous abortion, who conceived spontaneously and at her sixth week of amenorrhea was presented to the emergency department with acute pain in lower abdomen, moderate vaginal bleeding and weakness. In medical interview regular menstrual cycles – every 30 days, quite abundant, lasting 5 days, with accompanying abdominal pain. The patient had not undergone surgeries, suffered from no chronic diseases, no extra uterine pregnancy risk factors were stated in the medical interview. On admission do the Clinic, satisfactory general condition, she was hemodynamically stable. arterial blood pressure 130/70 mm Hg, pulse 78/min, body temperature 36.5°C. In physical examination the abdomen was soft, tender to palpation, mainly in the left lower abdomen, with no pathological resistance and surgical abdomen symptoms, Ultrasonographic findings were highly suspected of heterotopic pregnancy. Of admission, on transvaginal ultrasound into the uterine cavity, a gestational sac with diameter 5 mm was noted (which corresponds to a 5th week of gestation) and simultaneously in the left adnexal area, a morphological structure highly pathognomonic to ectopic pregnancy with d 20x 20 mm is visualized (**Figure 1**).

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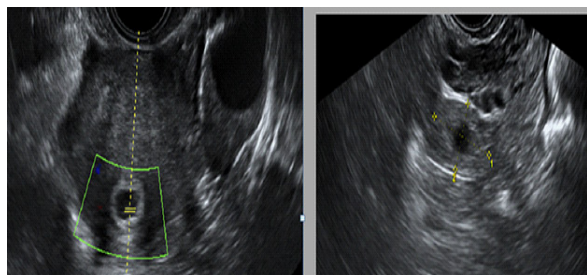


Figure 1: Pelvic ultrasound showing the intrauterine pregnancy (gestational sac with diameter 5 mm, absent fetal echo) and extrauterine left adnexal pregnancy with diameter 20x 20 mm.

Laboratory tests on admission: Laboratory tests on admission: white blood cells (WBC) $12.2 \times 10^9/L$, red blood cells (RBC) $3.50 \times 10^{12}/L$, haemoglobin (Hgb) 12.3 g/dl, haematocrit (HCT) 32.8%, platelets (PLT) $286 \times 10^9/L$, normal general urine test. The value of beta chorionic gonadotropin (B-HCG) was 6500 mIU/ml. . The patient was immediately hospitalized in the Department of Emergency Gynecology, and during the clinical and laboratory investigations, she complained of intensification of the genital bleeding and expulsion of a larger tissue mass. Transvaginal ultrasound was repeated and showed the presence of residual masses in the uterine cavity, a finding in support of incomplete abortion. Left ovary was measured 30x27 mm and over the superior pole a well-defined thick-walled vesicle was visible, of the diameter of 20 mm, with an increased vascularization; no pathological changes over right adnexa; trace amount of fluid in the pouch of Douglas (**Figure 2**). Because of heavy bleeding, patient underwent suction dilatation and curettage (D&C) for incomplete abortion. Moderate amount of product of conception (POC) was collected during D&C, which pathologic examination showed to be decidua and chronic villi.

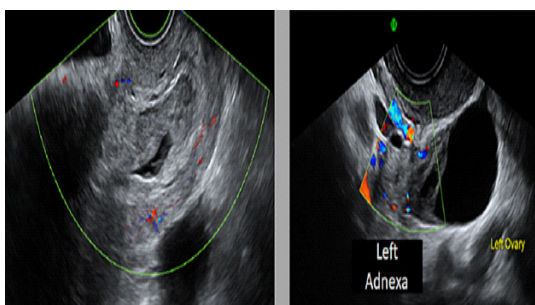


Figure 2: Collapsed gestational sac with residual masses in the uterine cavity and morphological structure for ectopic pregnancy in left adnexa.

The patient was kept for observation and further evaluation. The next day a BHCG control titer was performed, with an increase of 9540 mIU/ml, and the patient's hemogram showing a reduction in hemoglobin and hematocrit. She subjectively complained of severe lower abdominal pain, weakness, dizziness, nausea and vomiting. A control vaginal ultrasound was performed on which a hemoperitoneum and a complex heterogeneous left handed adnexal mass were noted. The patient was immediately transferred to the operating room, where an emergency laparotomy was performed revealing an approximately 4 cm x 3 cm ruptured ectopic pregnancy at the ampulla of the left fallopian tube, as well as an intact ovarian

corpus luteal cyst. A left salpingectomy and evacuation of 500 cc of hemoperitoneum was performed. The material was sent for histopathological analysis and showed a ruptured ectopic pregnancy.



Figure 3: Surgical specimen, showing ruptured left uterine tube.

Discussion

Because of the high risk of tubal rupture, the importance of early diagnosis and treatment for the ectopic pregnancy becomes clear in the light of this paper. Around 50% of heterotopic pregnancies are asymptomatic [5]. When symptomatic, the main clinical manifestations are abdominal pain due to peritoneal irritation, adnexal mass with or without vaginal bleeding and hypovolemic shock.

However, heterotopic pregnancies may be obscured in the presence of intrauterine pregnancies, due to the difficulty of differential diagnosis between ectopic pregnancy and hemorrhagic corpus luteum, abortion, neoplasia and adnexal torsion. Many of these can be associated with normal pregnancies, thus resulting in delayed diagnosis [6]. In normal pregnancies with blood β -hCG levels above 1,500–2,000 mIU/mL, the intrauterine image of the pregnancy should already be detectable. However, identifying the intrauterine image does not exclude the possibility of heterotopic pregnancy, which is more frequent with fertility treatments [7, 8]. Thus, adequate viewing of the adnexa becomes necessary in all assessments on the start of pregnancy. The most commonly present extrauterine images in transvaginal in heterotopic pregnancies consist of complex cysts or adnexal masses, which may comprise hematosalpinx, tubal ring, or even a live embryo, with or without accompanying free fluid in the peritoneal cavity [6]. [1] Among the risk factors of intra- and extrauterine pregnancies one can list: chronic inflammation in the region of lesser pelvis, surgical procedures on adnexa of uterus, undergone extrauterine pregnancies, sexually transmitted diseases, the use of intrauterine device and assisted reproductive techniques (ART) According to Reece et al. [6] the most frequent location of extrauterine pregnancy coexisting with intrauterine pregnancy are oviducts (93.9%), definitely more rarely the pregnancy is located in the ovary (6%). More frequent incidence of pregnancies in the left oviduct in comparison to the right oviduct has been observed (31.8% vs. 36.3%). In the described case, the pregnancy was localized in the left oviduct. The authors also report about incidences of single or multiple intrauterine pregnancy and extrauterine pregnancy localized in cervix, uterine corner or peritoneal cavity and also the coexistence of pathological intrauterine pregnancy, e.g. blighted ovum and

living extrauterine pregnancy. Heterotopic pregnancy diagnosis is one of the most difficult clinical problems. To the most frequent symptoms belong: abdominal pain – 80%, adnexa tumor – 43%, body of the uterus enlargement – 42%, vaginal bleeding – 32%. According to Tal et al. [6] the major symptoms are abdominal pain – 83%, surgical abdomen symptoms and shock – 13% and vaginal bleeding – 50% of cases. [9] In the presented case the majority of symptoms occurred – the patient reported abdominal pain and vaginal bleeding. Because of the early period of pregnancy development no pathological resistance in gynecological examination was stated. Nevertheless, precise imaging of the adnexa of the uterus area by means of transvaginal ultrasound enabled to visualize a pathological structure which might have referred to a pregnancy implanted in the oviduct (thick-walled, peripherally vascularized fluid reservoir, characteristic for implanting trophoblast). This confirms the opinion that the basic diagnostic method in case of heterotopic pregnancy is transvaginal ultrasound examination, particularly recommended in patients after ART between 4th and 6th week of pregnancy, however, some authors say that the sensitivity of this method is insufficient and equals about 56%. It is estimated that 10–14% of heterotopic pregnancies is diagnosed preoperatively [10].

Conclusion

The visualization of normal pregnancy in the uterus in ultrasound examination does not release a doctor from a necessity of precise imaging of adnexa of the uterus. Thanks to this we can establish the diagnosis earlier and introduce adequate procedure, limiting the possibility of complication occurrence and assuring optimal conditions for the developing intrauterine pregnancy.

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