

HETEROTOPIC PREGNANCY IN THE STUMP OF THE FALLOPIAN TUBE AFTER BILATERAL SALPINGECTOMY AND ASSISTED REPRODUCTIVE TECHNIQUES – CASE REPORT

Stefani Markova¹, Zlatko Kirovakov^{1,2*}, Radoslav Goranov¹

¹ University Multi - profile Hospital for Active Treatment –Burgas, Burgas 8000, Bulgaria;

² Prof. d-r Asen Zlatarov Univeristy - Burgas, Faculty of Public Health and Health Care, Burgas 8000, Bulgaria.

*Corresponding Author Zlatko Kirovakov

University Multi - profile Hospital
for Active Treatment –Burgas,
Burgas 8000, Bulgaria.

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Abstract: We present a clinical case of a 36-year-old woman who presented urgently to the Gynecology Department of „UMBAL Burgas" with symptoms of acute gynecological abdominal pain. The patient is nine weeks pregnant after in vitro fertilization (IVF) procedure and embryo transfer of two embryos. In the previous year, as part of preparation for the upcoming IVF procedure, she underwent bilateral laparoscopic salpingectomy due to primary infertility with tubal factor.

Keywords: Heterotopic pregnancy, Bilateral salpingectomy, IVF, Laparoscopy, Acute abdominal pain, Haemoperitoneum.

Introduction

Heterotopic pregnancy refers to the simultaneous development of intrauterine and ectopic pregnancy. Its frequency is 1:30,000 in spontaneous conception [1] and increases to 1-5:100 with the use of assisted reproductive techniques [2]. The percentage of pregnancies in the fallopian tube is 1.16% of all ectopic pregnancies [3]. Two important risk factors leading to the occurrence of heterotopic pregnancy and its increasing frequency in recent years are pelvic inflammatory disease and assisted reproductive techniques. The percentage of pregnancies in the stump of the resected fallopian tube is 1.16% of all ectopic pregnancies.

Diagnosis is challenging because the pathology is rare and presents with nonspecific symptoms. According to a literature review on heterotopic pregnancies following assisted reproductive techniques (ART), 70% are diagnosed at 7-8 weeks gestational age, 20% are diagnosed at 9-10 weeks gestational age, which includes our case, and 10% are diagnosed after 11 weeks gestational age [4].

Case report

We present a clinical case of a 36-year-old woman who presented urgently to the Gynecology Department of "UMBAL Burgas" with symptoms of acute gynecological abdominal pain. She had a history of severe diffuse abdominal pain, diarrhea syndrome, and vomiting. The symptoms started 12 hours before hospitalization and progressively worsened.

According to her medical history, the patient was 9 weeks pregnant following in vitro fertilization (IVF) procedure and embryo transfer of two embryos. Gravidia-1. In the previous year, as part of preparation for the upcoming IVF procedure, she underwent bilateral laparoscopic salpingectomy due to primary infertility with tubal factor.

During the physical examination, the patient was in a severe overall condition, lying in a forced supine position and limiting her movements, with pale skin and visible mucous membranes, but still stable hemodynamics. Superficial breathing, tachypnea with a frequency > 20, blood pressure of 110/70 mmHg, and rhythmic heart rate of 90 beats/min. The abdomen was distended at the level of the chest with pronounced defense in the hypogastrium and mesogastrium. Gynecological examination did not reveal uterine bleeding. Due to severe pain, the patient did not allow thorough bimanual palpation.

Imaging diagnostics was limited to transabdominal ultrasound, again due to the strongly expressed pain syndrome. Presence of heterotopic pregnancy was visualized. An intact intrauterine pregnancy with a live embryo measuring CRL – 2.57cm, corresponding to 9+2 weeks gestational age, was observed. A second gestational sac was located in close proximity to the uterine body, on its right side, also with an embryo present. A significant amount of free-moving fluid and probable clots in the pelvis were visualized.

Fig. 1 Ultrasound Finding - Heterotopic Pregnancy.



Fig. 2 Ultrasound Finding - Intact Intrauterine Pregnancy.



Laboratory investigations revealed blood loss anemia without coagulation abnormalities. Hemoglobin (Hb) was 79.0 g/l, Red Blood Cells (RBC) 2.29×10^{12} /l, Hematocrit (Hct) 0.21 l/l, and elevated levels of White Blood Cells (WBC) 18.9×10^9 /l, along with hypoproteinemia. There were no laboratory deviations in coagulation status and liver function.

The goal of treatment in heterotopic pregnancy, especially in the context of assisted reproduction, is to preserve the highly desired intrauterine pregnancy. Attempts at conservative treatment through local application (under ultrasound guidance) of Methotrexate or KCl in the ectopic component are permissible only when the diagnosis is made very early in pregnancy and the ectopic component is intact.

Given the late diagnosis with complications in our clinical case, our preferred therapeutic approach was emergency laparoscopy. Upon entering the abdominal cavity, massive hemoperitoneum with multiple large fresh and old clots filling the entire abdominal cavity and pelvis was visualized. Referring to evidence-based guidelines for laparoscopy during pregnancy [4], we aimed to maintain an intra-abdominal pressure of 12mmHg. However, the low pressure and massive hemoperitoneum made it difficult and delayed the localization of the bleeding source. Due to the worsening hemodynamic parameters of the patient despite resuscitative measures, a decision was made to convert to laparotomy. Pfannenstiel laparotomy was performed, revealing a ruptured ectopic pregnancy in the stump of the right Fallopian tube – the isthmic part of the tube was left intact during the previous bilateral salpingectomy. Obviously, one of the two transferred embryos implanted here. The embryo from the heterotopic pregnancy was found among the freely moving blood masses in the abdominal cavity - see Fig. 3. Due to the long-standing nature of the process, involvement of the adjacent appendix with a bleeding area on its serosal surface was identified, but without visible inflammatory changes. The remaining damaged part of the Fallopian tube was removed, and suturing of the uterine horn was performed. The appendix was removed by the abdominal surgeon.

Fig. 3 Embryo from the ectopic component.



During the intraoperative period, we received data indicating a decrease in hemoglobin to 56 g/l. Due to the shock state resulting from massive blood loss, it was necessary for the patient to stay in the Intensive Care Unit (ICU) postoperatively. During the hospital stay, a total of 580ml of erythrocyte concentrate and 280 ml of fresh frozen plasma were transfused. The postoperative period went smoothly. Before discharge, a follow-up ultrasound was

performed, which showed a preserved intrauterine pregnancy with a live embryo corresponding to its gestational age.

The patient continued to monitor the pregnancy in outpatient settings. According to the available data, she did not experience any other complications during the course of the pregnancy or infectious pathology. However, at 22 GW, the patient returned to us, this time diagnosed with a progressing miscarriage and loss of the intrauterine pregnancy.

Discussion

According to data from a literature review, 66.2% of intrauterine pregnancies in heterotopic pregnancies result in live births, while 33.8% end in miscarriage, with 8.5% of them occurring in late pregnancy [4]. Transfer of more than one fertilized egg necessitates active monitoring and exclusion of the diagnosis of heterotopic pregnancy to prevent severe complications such as hemoperitoneum and shock in case of ectopic pregnancy rupture. Early diagnosis and treatment would significantly improve the chances of maintaining the highly desired intrauterine pregnancy.

The presence of an intrauterine pregnancy and prior bilateral salpingectomy, as demonstrated in the current case, are not indicators for excluding the possibility of a heterotopic pregnancy.

Diagnosing a heterotopic pregnancy at an early stage, with an intact ectopic component, allows us to choose the most appropriate and gentle treatment method, thereby maximizing the chances of preserving and developing the intrauterine pregnancy.

Conclusion

The present clinical case aims to draw attention to the with increasing frequency of heterotopic pregnancy against the background of the widespread application of assisted reproductive techniques. Untimely diagnosis and treatment of both ectopic and heterotopic pregnancies can lead to a fatal outcome.

Heterotopic pregnancy can occur even in the absence of any risk factors. The lack of specific symptoms and early manifestations of the condition requires active searching and exclusion of the diagnosis, especially in cases of pregnancy following assisted reproduction.

Early diagnosis between fourth and sixth gestational week allows us to choose a minimally invasive treatment method, including local application of Methotrexate injected in to the gestational sac, under abdominal ultrasound control. Simultaneously, improving surgical techniques during salpingectomy prevents the development of ectopic pregnancy in the remaining fallopian tube.

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