

# Spontaneous Heterotopic Pregnancy, Simultaneous Salpinx And Intrauterine: A Case Report

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## Abstract

Heterotopic pregnancy is a rare condition defined as the presence of both intrauterine and ectopic pregnancies in spontaneous pregnancy without assisted reproductive technology. A case of heterotopic pregnancy was confirmed in a 31-year-old woman who presented to the emergency department with acute and severe abdominal pain as a complaint. The ectopic pregnancy was successfully removed through laparoscopic surgery and the intrauterine pregnancy was preserved. One week after surgery, the patient was hospitalized for threatened abortion due to lower abdominal pain accompanying vaginal bleeding and succeeded in vaginal delivery at 39 weeks gestation without any problem. The important lessons from this case are that the possibility of spontaneous heterotopic pregnancy should be recognized and the heterotopic pregnancy should be considered when acute abdominal pain is present even when an intrauterine pregnancy is diagnosed and that the abortion that may occur after surgery should be actively treated.

## INTRODUCTION

The heterotopic pregnancy is a condition defined as the presence of both intrauterine and ectopic pregnancies and has been strongly associated with both fetal and maternal morbidity and mortality due to such conditions as hypovolemic shock.(1) The general location of ectopic pregnancy is inside the fallopian tubes and rarely the cervix or ovaries. Although the incidence of heterotopic pregnancy is 1/30,000, indicating it is a rare condition, it increases up to 1/3900 when assisted reproductive technologies such as in vitro fertilization, super ovulation, and intrauterine insemination (IUI) are applied. The additional factors that increase the incidence of heterotopic pregnancy include family history of multifetal pregnancy, endometriosis, tubal disease, history of pelvic inflammation, elevated level of female hormone, adoption of fertilized egg transplantation techniques, and increased number of transferred embryos.(2, 3) We report a rare case where the hemoperitoneum was accompanied by heterotopic pregnancy in a first spontaneous pregnancy.

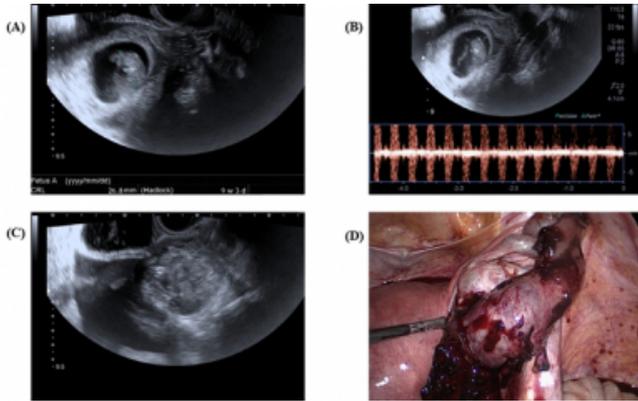
## CASE REPORT

The patient, a Korean 31-years-old female with no specific medical history presented to the emergency department with acute severe abdominal pain, dyspnea accompanied by chest

tightness, chills, back pain, and, pelvic pain as chief complaints. She was nine weeks pregnant and reported that it was spontaneous one without the aid of assisted reproductive technology. She had no family history of multifetal pregnancy or any other genetic disease. At the time of presentation, the patient's hemoglobin was 8.1 g/dL, and there were no abnormal findings in other blood tests, chest X-ray, and electrocardiogram (EKG). The beta-human chorionic gonadotrophic hormone (b-hCG) level of 114,635 mIU/mL suggested pregnancy. In vaginal ultrasonography, the fetus was confirmed by the gestational sac in uterus. The fetus had a crown-rump length of 26.8 mm, corresponding to nine weeks gestation, and heart rate was over 150 beats/min.(Fig 1) In addition, a large fluid collection was found in the pelvic cavity and a mass of shade similar to hematoma was observed toward the right adnexa.(Fig 1) Based on the findings from ultrasonography and blood test results, intrauterine pregnancy accompanying ruptured right tubal pregnancy or ruptured right ovarian cyst was suspected.

**Figure 1**

(A) Intrauterine pregnancy was confirmed by ultrasonography by checked fetus. (B) Fetal heart beat was checked over 150 beats/min. (C) Fluid collection was seen in pelvic cavity and mass of shade similar to hematoma was observed toward the right adnexa by ultrasonography. (D) Ruptured right tubal pregnancy was observed by laparoscopy.



After providing sufficient explanation and consultation to the patient and caregiver about the patient's condition, it was decided to perform diagnostic laparoscopy. Laparoscopy confirmed ruptured right tubal pregnancy (Fig 1) and right salpingectomy and hemoperitoneum aspiration were successfully performed. While the preoperative diagnosis was normal intrauterine pregnancy accompanying ruptured right tubal pregnancy or ruptured right ovarian cyst, the postoperative diagnosis was normal intrauterine pregnancy accompanying ruptured right tubal pregnancy. The pathological report noted aligned thrombus, protein debris, and chorionic villi as product of conception in right fallopian tube, being evidence of ectopic pregnancy. The patient was discharged without any particular problem at POD #3, and four days after discharge, she presented to hospital again with lower abdominal pain accompanying vaginal bleeding as complaint and was re-hospitalized with diagnosis of threatened abortion. Absolute bed rest was performed while micronized progesterone 200mg was administered as a vaginal tablet once a day. The patient was discharged five days after re-hospitalization with improved symptoms, and succeeded in vaginal delivery at 39 weeks gestation without any problem.

## DISCUSSION

The heterotopic pregnancy is a condition defined as the presence of both intrauterine and ectopic pregnancies. It was reported that intrauterine pregnancy accompanied by ectopic one occurs most frequently at fallopian tube (72.5%). (4) It was known that most of heterotopic pregnancy occurred

after the use of clomiphene and assisted reproductive technologies. Although the incidence of natural heterotopic pregnancy has been reported to be 1/10000 -1/50000, due to the increase in the use of assisted reproductive technologies, it has risen up to 1% in a study. (5)

There is a clinical difficulty in diagnosing heterotopic pregnancy. Clinically, heterotopic pregnancy often presents with non-specific symptoms such as abdominal pain, vaginal bleeding, and spotting that are found in both normal pregnancy and abnormal obstetric complications. Heterotopic pregnancy may also present as an adnexal mass with or without peritoneal irritation in the enlarged uterus in pregnancy. (1,6) While normal intrauterine gestational sac is detected early, the detection of abnormal adnexal mass is delayed, which leads to delayed diagnosis.(1) The presence of a normal intrauterine gestational sac should not rule out the possibility of heterotopic pregnancy, and careful history taking and physical examination are very important in identifying risk factors of heterotopic pregnancy. (6) In patients with history of fallopian tube injury, ectopic pregnancy, use of assisted reproductive technology, and a family history of multifetal pregnancy, heterotopic pregnancy should be suspected if there are related symptoms.

Removal of an ectopic gestational sac while preserving intrauterine one is one of minimally invasive treatment for heterotopic pregnancy. (3, 7) Many studies have compared the results of surgical and non-surgical treatment methods. Although laparoscopic salpingectomy is the most reliable treatment for ectopic pregnancy and also recommended for treatment of ruptured corneal pregnancy, it has the potential of bleeding requiring hysterectomy. And this may affect the patient's current pregnancy status as well as the possibility of future pregnancy. (8) The surgical treatment may cause the spontaneous abortion of normal intrauterine pregnancy. Non-surgical treatment methods for heterotopic pregnancy include, under ultrasound guidance, potassium chloride injection into the fetal heart in the corneal sac or ectopic sac, which has advantage of avoiding both anesthesia and surgery. However, it is known that the probability of abortion is higher in non-surgical treatment than in surgical one by 13-50%. (4, 9)

Although the incidence of heterotopic pregnancy has increased considerably over the past decade due to the increased use of assisted reproductive technology, other factors for heterotopic pregnancy should not be ignored. (4, 10) According to a statistic in U.S., 2/3 of the increase in

twin birth rates over the past decade is attributable to the use of assisted reproductive technology, and remaining 1/3 is attributable to other factors such as family history of multifetal pregnancy, hormone therapy, diet, and ethnicity.(6, 9, 11)

The reported case, unlike previously reported cases of heterotopic pregnancy, is a natural heterotopic pregnancy without using assisted reproductive technology and other causes including family history of multifetal pregnancy. When there are non-specific symptoms such as abdominal pain, vaginal bleeding and spotting occurring in the first trimester of pregnancy in mothers with confirmed intrauterine pregnancy, and when fluid collection in the pelvic cavity is found on ultrasound and abdominal pain is accompanied, a more careful examination is needed, considering the possibility of heterotopic pregnancy.

### CONCLUSION

Heterotopic pregnancy, if early diagnosis and treatment fail, may increase both fetal and maternal morbidity and mortality. Although there is a difference in the probability of heterotopic pregnancy between natural pregnancy and the use of assisted reproductive technology, there is no difference in the outcome of heterozygous pregnancy. If an intrauterine pregnancy accompanying acute abdominal pain, abdominal tenderness, or fluid collection in the pelvic cavity is found, the possibility of heterozygous pregnancy should be considered. The early diagnosis and laparoscopic treatment for heterotopic pregnancy may reduce maternal morbidity and maintain intrauterine pregnancy. As shown in this case, any physician examining spontaneous pregnancies should always consider the possibility of heterotopic

pregnancy.

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