

Case Report: Spontaneous Heterotopic Pregnancy Ending in Laparotomy and Curretage

Supriyono¹, M. Dimas Abdi Putra²

¹Oncologic-Gynecology Staff of Departement of Obstetri and Gynecology of dr. Ramelan Naval Hospital, Surabaya – Faculty of Medicine Hang Tuah University, Surabaya, Indonesia, ²Medical Staff of Obstetri and Gynecology of Pondok Tjandra Maternal and Child Hospital

Abstract

Heterotopic pregnancy is a very rare case. The rate of heterotopic pregnancy is reported to increase with the development of reproductive technology. This case report reports one case of spontaneous heterotopic pregnancy. Laparotomy and curettage should be performed because of massive hemoperitoneum and spontaneous abortion. Until now, early detection and treatment options for heterotopic pregnancies are still a challenge for clinicians.

Keywords: Curretage, Laparotomy, Medicine, Pregnancy

Introduction

Heterotopic pregnancy emerges when one pregnancy is intrauterine and the other is extrauterine. This is a rare anomaly, and when it does occur, it can be fatal¹. Heterotopic pregnancies are estimated to occur in 1 in every 30,000 spontaneous pregnancies. The incidence of heterotopic pregnancy has increased since the introduction of assisted reproduction techniques (ART), such as super-ovulation, intrauterine insemination, and in fertilization vitro². Tubal disease, pelvic inflammatory disease, and high levels of estradiol and progesterone, as well as high numbers of transferred embryos or ovulating oocytes in the population, are all associated with an increased incidence of heterotopic pregnancy. In women who received ART, the percentage of heterotrophic pregnancies increased by 0.09 percent -1.00 percent, or the incidence ratio reached 1:100-

1:7000 pregnancies³. Extra-uterine pregnancies are often evacuated via laparotomy, especially if manifestations of shock are present, whereas intra-uterine pregnancies are expected to proceed normally¹. Early detection of extrauterine pregnancy is critical because the majority of ectopic pregnancies result in rupture and internal bleeding, both of which can be fatal⁴. In this case report, we will describe a case of heterotopic pregnancy treated with laparotomy and curettage in this case report.

Case Report

A 25-year-old woman in her first pregnancy presented to the emergency room with severe abdominal pain, pallor, and minor vaginal bleeding. Abdominal pain that began suddenly 2 hours before while doing activities at home. The gestational age was estimated to be 9/10 weeks based on the anamnesis. An intra-uterine gestational sac at 4/5 weeks of age was not accompanied by a fetal pole, according to the previous ultrasound examination. She was found to be conscious, with a blood pressure of 100/60, a pulse

Corresponding author:

Supriyono

Email: supriyono.drspog@gmail.com

rate of 98, portio shake pain, and a hemoglobin level of 9.7 g/dL. An ultrasound examination revealed free fluid from the Douglas cavity to the Morisson pouch, as well as a gestational sac with an impression on the left adnexa. An ultrasound examination revealed a picture of a 9/10-week intrauterine pregnancy.

Doctors decided to perform an emergency laparotomy, and during the procedure, they discovered internal bleeding of 1200 ml and a ruptured left ovary pregnancy. The procedure included a bleeding evacuation and a left partial oophorectomy. Because the patient's hemoglobin level was 8.1 g/dL after

surgery, it was decided to transfuse one bag of PRC blood. The patient was discharged from the hospital without incident after three days of postoperative care. The patient returned a week after being discharged from the hospital with vaginal bleeding. An internal investigation showed bleeding, and an ultrasound examination revealed an irregular gestational sac with a fetus corresponding to 9/10 weeks, without any heart rate. At that time, the diagnosis of incomplete abortion was made, and curettage was performed. The patient had no significant complaints following curettage. The results of the ultrasound examination one week after curettage revealed no abnormalities.

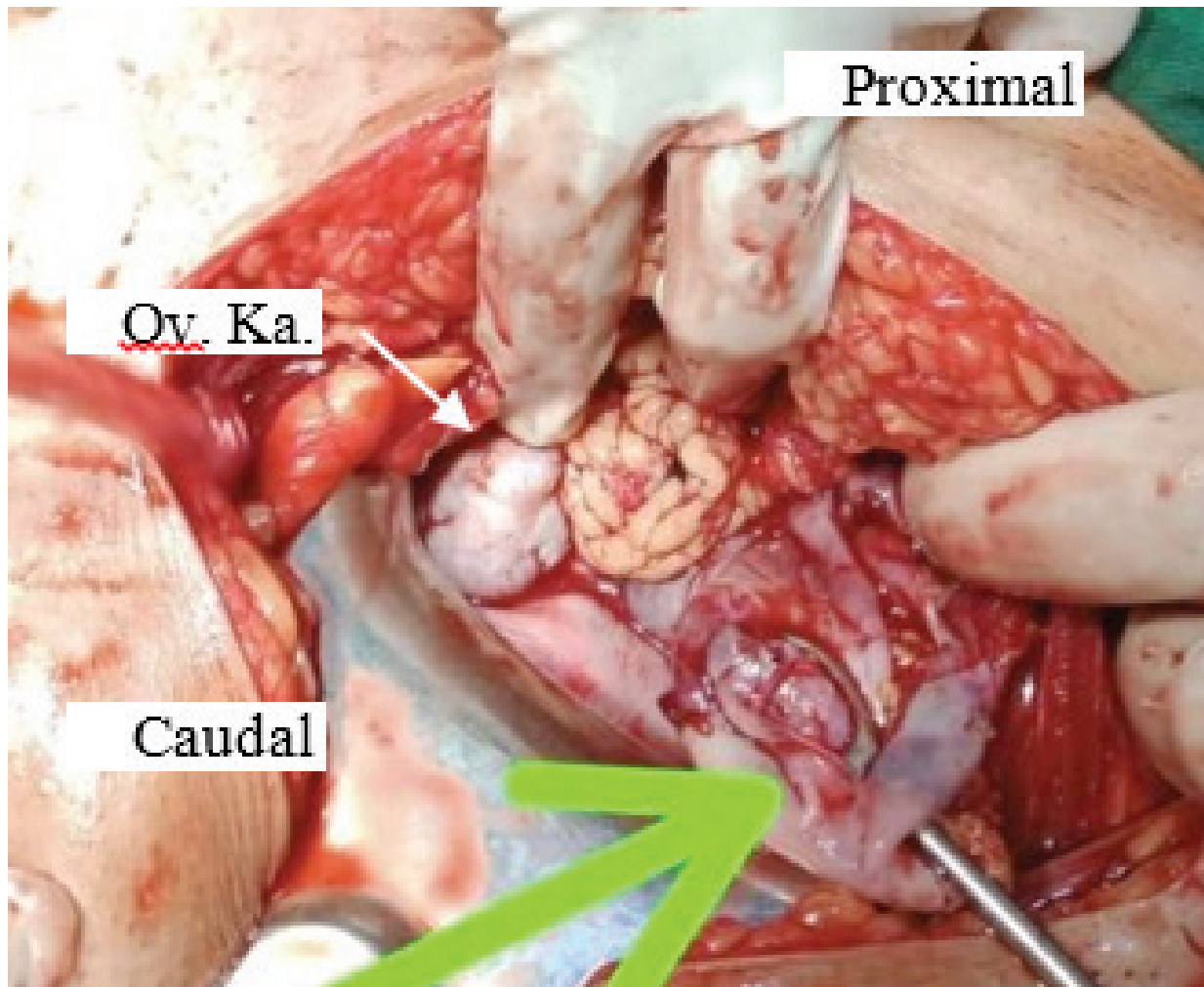


Figure 1. The Green Arrow Shows The Location of The Ectopic Pregnancy on The Left Ovary

Discussion

Risk Factors



Figure 2. Ultrasound Examination Results with Irregular Sac and Negative Fetal Heart Rate

Various studies have documented the occurrence of spontaneous heterotopic pregnancy. Multiple pregnancies with a combination of intrauterine and extrauterine/ectopic pregnancies are referred to as heterotopic pregnancy⁵. Risk factors for heterotopic pregnancy are like those of ectopic pregnancy, including the use of assisted reproductive technology for procreation, pelvic inflammatory disease, history of pelvic surgery, endometriosis, and uterine malformations⁶. In this case, none of the risk factors were discovered. The patient had been married for one year, had no prior history of contraception, no history of pelvic area surgery, no pelvic inflammatory disease was discovered, and the pregnancy occurred naturally. According to physical examination, the body mass index was 35.2 kg/m², indicating class 2 obesity. Obesity is a risk factor for pregnancy complications and poor outcomes such as

preeclampsia, stunted fetal growth, and stillbirth⁷.

The role of obesity in heterotopic events, on the other hand, is unknown. Many studies have stated that obesity is one of the factors for spontaneous abortion, and in this case report, intrauterine pregnancies also experienced spontaneous abortion^{7,8}.

Natural history kehamilan heterotopik.

Heterotopic pregnancy is distinguished by the simultaneous appearance of two types of pregnancy: ectopic pregnancy and intrauterine pregnancy. This is a pathological circumstance caused by biovular dizygotic twin pregnancies (two eggs fertilized by

different sperm), in which one egg implants into the uterine cavity and the other egg fails to develop. This phenomenon can be caused by ovulation abnormalities, differences in the speed of migration of the two embryos, and delays in the fallopian tube capturing the fertilized egg¹⁰.

Several studies on heterotopic pregnancy have shown its association with the use of assisted reproductive technology. Research conducted by Na *et al.* (2018) showed that of 64 cases of heterotopic pregnancy, 62 cases occurred with assisted reproductive technology, only 2 cases with natural conception¹¹. The incidence rate of naturally occurring heterotopic pregnancies is 1:30,000 pregnancies, while it is 1:100 pregnancies with assisted reproductive technology¹². The cause of heterotopic pregnancy in assisted reproductive technology is, among others, the process of transferring more than one embryo⁶. Heterotopic pregnancies that occur due to natural conception as in this case report are still rare. The same incident was reported by Fatema *et al.* (2016) and Siraj *et al.* (2014).

Diagnosis

Despite increased knowledge and advances in reproductive diagnostic technology, accurate early detection of heterotopic pregnancies remains a challenge for clinicians¹³. Because there are no clinical symptoms, it is difficult to make an early diagnosis of heterotopic pregnancy⁴. In around 50 % of cases, heterotopic pregnancies are asymptomatic; otherwise, they can accompany with a wide spectrum of clinical symptoms, including abdominal discomfort, adnexal distension that may be affiliated with vaginal hemorrhage, or hypovolemic shock¹⁵. Clinicians are frequently misled by the results of intrauterine ultrasounds, failing to consider the possibility of an extrauterine pregnancy.

The diagnosis was established in this case report after massive hemoperitoneum occurred. Transabdominal ultrasound examination is the gold standard for determining the location of pregnancy and is used to diagnose heterotopic pregnancy. However, transvaginal sonography has a higher sensitivity than transabdominal sonography, and it allows for better visualization of the female reproductive system, as well as easy detection of an ectopic mass with or without an embryo and detailed information about surrounding structures^{16,17}. Transvaginal sonography has sensitivity 74-84 % and specificity 84 – 99.9 % to detect heterotopic pregnancy³. In patients who have had assisted reproductive technology, intrauterine insemination, or ovulation induction, the possibility of heterotopic pregnancy should always be considered by the clinician. Transvaginal sonography can be used to assess the site of pregnancy in assisted reproductive technology pregnancies as early as 5 weeks of gestation (18 days after embryo transfer)¹⁸. HCG testing can be done in addition to ultrasound examination; if the HCG level is > 1500 IU/l, a heterotopic pregnancy is suspected¹⁹.

Management

The management of a heterotopic pregnancy is unique in that it must consider the outcome of an intrauterine pregnancy²⁰. The main goal of heterotopic pregnancy management is to use the least invasive method possible to keep the pregnancy going²⁰. Surgical or medical procedures are used to treat heterotopic pregnancy. The therapeutic procedure chosen for the patient is determined by the patient's hemodynamic condition as well as the doctor's ability and expertise. Medical therapy approach using hyperosmolar glucose and KCL. Methotrexate is not recommended because of the teratogenic risk in intrauterine pregnancy²¹. Only if the ectopic pregnancy has not ruptured and the patient is hemodynamically stable should medical management be considered²¹.

When an ectopic pregnancy is detected early and does not rupture, ectopic aspiration of gestational embryos guided by transabdominal ultrasound with or without embryo-killing drugs is the therapy of choice. This therapeutic approach has been used for many years and has the advantage of causing the least amount of damage³. Several management approaches for extra-uterine pregnancy include laparotomy and laparoscopy can be performed for surgical management approach². Surgery in heterotopic pregnancy should be performed when the patient's hemodynamic condition is not good/unstable or does not meet the criteria for continuing pregnancy and medical management. Determination of surgical technique is based on patient factors such as age, desire to get pregnant again, history of obstetrical surgery; the condition of reproduction organs; as well as the expertise and preference of doctors. Clinicians must consider the use of minimally invasive procedures when making treatment decisions²¹.

In this case, extrauterine pregnancy management options are limited due to massive hemoperitoneum and hypovolemic shock symptoms, so the doctors decided to perform a laparotomy at 9/10 weeks of pregnancy. In addition to the various therapeutic options available, laparotomy is the main choice when there has been massive hemoperitoneum with unstable hemodynamics and laparoscopy is not possible³. In contrast to laparotomy, the laparoscopic approach has several advantages, including clearer visualization of the peritoneal cavity, lighter postoperative pain intensity, and earlier ambulation. However, the use of carbon dioxide gas to create a high-pressure pneumoperitoneum can cause problems in intrauterine pregnancy such as abortion¹¹.

Intrauterine Pregnancy Outcomes

Spontaneous abortion in heterotopic pregnancies is a common complication. Previous studies have stated that the incidence of abortion is 6% to 33%

and ending with delivery is 53% to 93% after hemoperitoneum management¹¹. In this case report, the abortion occurred a week after laparotomy, and curettage was required. The incidence of abortion within one week was reported by Na *et al.* (2018), in 5 of 9 cases (55.6%). Several risk factors related to the management of ectopic pregnancy which are said to cause abortion in intrauterine pregnancy are anesthesia²² postoperative pain and gestational age at the time of laparotomy¹¹. Na *et al.* (2018) in their study stated that the earlier the gestational age at the time of laparotomy was performed, the higher the risk of miscarriage in intrauterine pregnancy. However, it is not explained in detail how many weeks of gestation are compared¹¹.

Conclusion

This case report shows that heterotopic pregnancy can occur spontaneously without significant risk factors. Until now, early detection of heterotopic pregnancy is still a challenge for clinicians. Ultrasonography is the gold standard in diagnosing heterotopic pregnancy. The principle of treating heterotopic pregnancies is to evacuate the ectopic pregnancy while preserving the intrauterine pregnancy as much as possible. Laparotomy should be performed if massive hemoperitoneum has occurred.

Conflict of Interest: The authors declare that there is on conflict of interest.

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