Heterotopic Pregnancy after a Spontaneous Conception: A Case Report

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Abstract
Introduction: Heterotopic pregnancy (HP) is a rare and potentially life-threatening condition in which an intrauterine pregnancy (IUP) and an ectopic pregnancy (EP) occur simultaneously. Increased awareness and early diagnosis are crucial to preventing complications. This case highlights the importance of timely identification and appropriate management of heterotopic pregnancy.
Case report: A 32-year-old G2P1A0 pregnant woman was referred with a suspicion of heterotopic pregnancy. The patient had no prior complaints and had a spontaneous conception, there was no history of in vitro fertilization. At 2 months of gestation, an ultrasound revealed both an intrauterine pregnancy and an ectopic pregnancy. The laparoscopic diagnostic evaluation confirmed an enlarged right horn, requiring a wedge resection of the right horn. The procedure was completed successfully, and the intrauterine pregnancy progressed until term. This resulted in a cesarean section delivery of a healthy female infant weighing 3000 grams.
Conclusion: This case underscores the need for a high index of suspicion when diagnosing heterotopic pregnancy, even in asymptomatic patients. Early recognition and surgical intervention significantly improve outcomes. The findings offer valuable insights for clinical practice and highlight the importance of vigilance in the evolving landscape of reproductive medicine.
Keywords: heterotopic pregnancy, ectopic pregnancy, intrauterine pregnancy, laparoscopic surgery, spontaneous conception

Kehamilan Heterotopik Pasca Konsepsi Spontan: Sebuah Laporan Kasus

Abstrak
Pendahuluan: Kehamilan heterotopik (KH) adalah kondisi langka dan berpotensi mengancam jiwa ketika kehamilan intrauterin (KIU) dan kehamilan ektopik (KE) terjadi secara bersamaan. Kesadaran yang lebih tinggi dan diagnosis dini sangat penting untuk mencegah komplikasi. Kasus ini menyoroti pentingnya identifikasi yang tepat waktu dan manajemen yang sesuai dari kehamilan heterotopik.
Laporan kasus: Seorang wanita hamil G2P1A0 berusia 32 tahun dirujuk dengan kecurigaan kehamilan heterotopik. Pasien tidak memiliki keluhan sebelumnya dan kehamilan terjadi secara spontan, tanpa riwayat fertilisasi in vitro (IVF). Pada usia kehamilan 2 bulan, pemeriksaan ultrasonografi menunjukkan adanya kehamilan intrauterin dan kehamilan ektopik. Evaluasi diagnostik laparoskopi mengonfirmasi adanya pembesaran tuba kanan sehingga dilakukan reseksi parsial tuba kanan. Prosedur ini berhasil diselesaikan sampai kehamilan intrauterine cukup bulan dan menghasilkan kelahiran bayi Perempuan sehat dengan berat 3000 gram melalui operasi sesar.
Kesimpulan: Kasus ini menekankan perlunya tingkat kecurigaan yang tinggi dalam mendiagnosis kehamilan heterotopic termasuk pada pasien yang tidak bergejala. Pengenalan dini dan intervensi bedah secara signifikan meningkatkan hasil klinis. Temuan ini memberikan wawasan berharga untuk praktik klinis dan menyoroti pentingnya kewaspadaan dalam perkembangan ilmu kedokteran reproduksi.

Kata kunci: kehamilan ektopik, kehamilan heterotopik, kehamilan intrauterin, pembedahan laparoskopi, konsepsi spontan

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Introduction

Heterotopic pregnancy (HP) is a rare but potentially life-threatening condition characterized by the simultaneous presence of an intrauterine pregnancy (IUP) and an ectopic pregnancy (EP). The first recorded instance dates back to 1708 and was reported as an autopsy finding. This condition can occur spontaneously or as a result of assisted reproductive technology (ART).[1] The incidence of HP is approximately 1 in 30,000 for spontaneous pregnancies, but it rises significantly to 1 in 1,000 for those who have undergone assisted reproductive technology (ART). Given the increased use of ART, clinicians must remain vigilant for this condition, particularly in patients presenting with abdominal pain or vaginal bleeding in early pregnancy.[2]

Diagnosing HP is challenging since the presence of a confirmed intrauterine pregnancy can create a false sense of security, leading clinicians to overlook the possibility of a concurrent ectopic pregnancy. Many cases are diagnosed late, often after the ectopic pregnancy has ruptured, resulting in significant maternal morbidity. The lack of specific clinical symptoms further complicates the diagnosis, as up to 50% of patients with HP remain asymptomatic until complications arise. [2]

Imaging plays a crucial role in diagnosing HP, with transvaginal ultrasound being the primary modality. However, its sensitivity is limited, especially during early gestation. Moreover, serum beta-human chorionic gonadotropin (β-hCG) levels are unreliable in distinguishing between normal and abnormal pregnancies in cases of HP.[3] Therefore, clinicians should maintain a high index of suspicion when evaluating pregnant patients, particularly those with risk factors such as previous pelvic surgery, tubal pathology, or ovulation induction treatments.[4]

This case report presents a spontaneous heterotopic pregnancy diagnosed early and managed successfully through surgical intervention. By detailing the clinical presentation, diagnostic challenges, and treatment approach, this report aims to enhance awareness among healthcare providers, emphasizing the importance of early detection and timely management to improve maternal and fetal outcomes.[5]

Case Report

A referred female patient presented with a pregnancy status of G2P1A0 and was suspected of having a heterotopic pregnancy. The patient did not report any complaints at the time, and there was no bleeding from the birth canal, abdominal pain, or systemic symptoms. During a pregnancy control examination at 2 months of gestational age, the patient became aware of her twin pregnancy, with one fetus in the uterus and another outside. There was no family history of twins, no use of hormone-containing drugs or herbal medicines, and no history of in vitro fertilization. The patient also denied any chronic diseases.

Upon physical examination, the patient's vital signs were within normal limits, and no abnormalities were observed in the cardiovascular, respiratory, or musculoskeletal systems. The fundus of the uterus was not palpable, r was there any vaginal bleeding or abdominal pain. An ultrasound revealed the first intrauterine fetus with an estimated age of 10–11 weeks, while the second fetus, located outside of the uterus, was estimated at 7–8 weeks. The patient was diagnosed with G2P1A0 at 9–10 weeks of gestation with a heterotopic pregnancy. The patient's complete blood count showed hemoglobin (Hb) of 12.3 g/dL, hematocrit (Ht) of 35.8%, leukocyte count of 11,480/mm^3, and platelet count of 314,000/mm^3. Coagulation profile results were within normal limits, with prothrombin time (PT) of

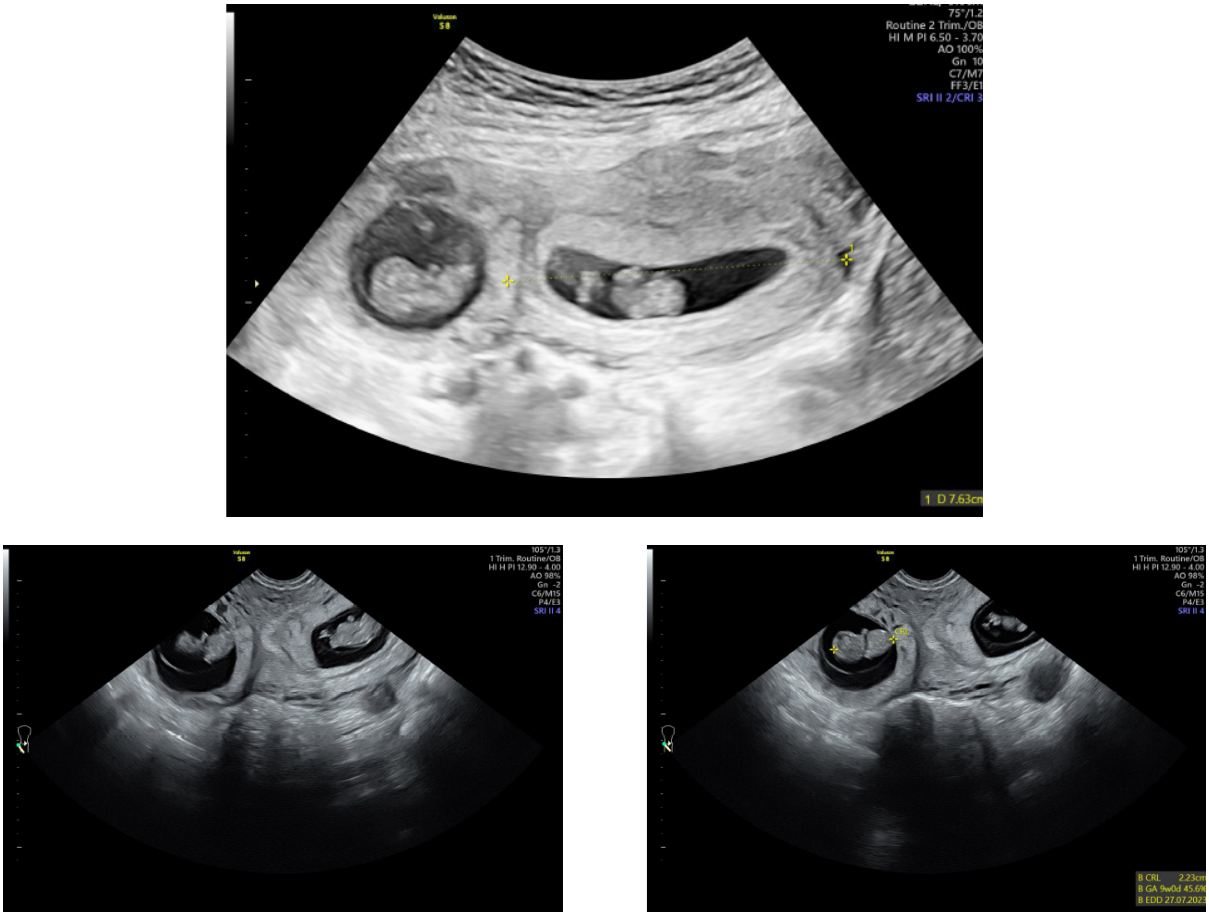

Figure 1 Ultrasonographic features of heterotopic pregnancy. The uterus was anteflexed and slightly enlarged, measuring 12.19 x 7.36 cm. An intrauterine gestational sac (GS) is visible, corresponding to 8-9 weeks; fetal pole (FP) (+) with CRL corresponding to 9-10 weeks; yolk sac (YS) (+) measuring 0.61 cm. A mass is seen at the posterior corpus of the uterus, measuring 2.03 x 1.60 cm. No retro-GS hematoma is visible. No free fluid.

14.2 seconds, activated partial thromboplastin time (APTT) of 33.40 seconds, and an international normalized ratio (INR) of 1.00.

The preoperative and postoperative preparation of the patient was administered Progesterone 200 mg intravaginally twice, Cefazoline 2gr for prophylaxis and the potential risks of the procedure were explained. The patient underwent a diagnostic laparoscopy followed by a right horn wedge resection. Aseptic and antiseptic procedures were performed, and a sub-umbilical incision was made for the Veress needle insertion. Abdominal insufflation was carried out with CO2 gas, and subsequent trocars were inserted for exploration. The right horn, indicating a right horn pregnancy, was enlarged to 6 cm x 5 cm x 4 cm. A conversion laparotomy was performed, and the right horn was resected. Suturing with PGA No. 1 controlled bleeding, and the abdominal cavity was cleaned and washed with 0.9% physiological NaCl. The surgical wound was sutured layer by layer, with a bleeding volume of 700 cc and urine production of 150 cc during surgery.

The procedure was completed successfully. The patient continued antenatal care check-up at the nearest hospital and the intrauterine pregnancy progressed until term. This resulted in a cesarean section delivery of

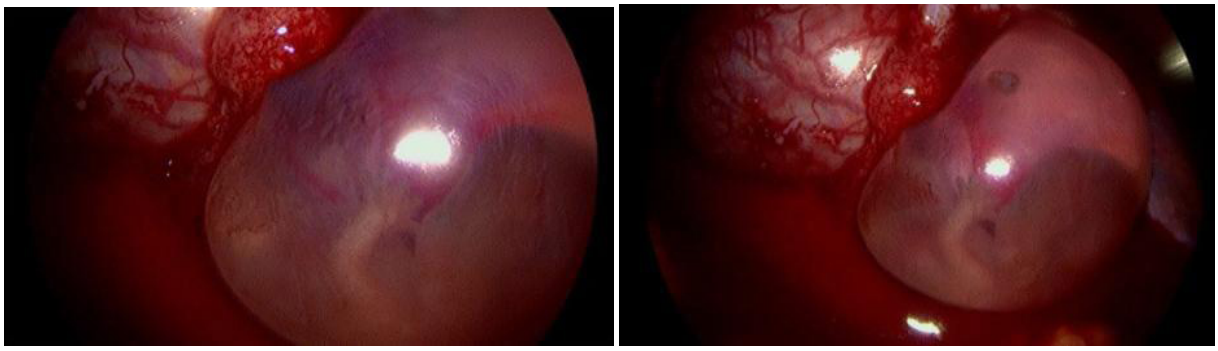

Figure 2. During exploration, the right cornu appeared enlarged, measuring 6x5x4 cm. Impression: right cornual pregnancy.

Table 1 Timeline of events

Date	Event
8 weeks	First prenatal visit, routine ultrasound
9 weeks	Referred with suspicion of heterotopic pregnancy
10 weeks	Heterotopic pregnancy confirmed by ultrasound
10^{+2} weeks	Performed right horn wedge resection
39 weeks	Elective caesarean section

a healthy female infant weighing 3000 grams.

Discussion

Heterotopic pregnancy remains a diagnostic challenge due to overlapping symptoms with normal pregnancy. In this case, the patient was asymptomatic, emphasizing the need for routine imaging. The increasing use of ART has raised awareness of HP, but spontaneous cases still pose diagnostic difficulties.[6] The presence of an intrauterine pregnancy can lead to a delay in HP diagnosis. Many clinicians assume that an intrauterine pregnancy excludes the possibility of an ectopic pregnancy. Studies suggest that nearly 50% of HP cases are misdiagnosed initially, often mistaken for corpus luteum cysts or adnexal masses.[7]

This particular case, without any identified risk factors, is classified as a spontaneous heterotopic pregnancy, an exceedingly rare occurrence. The most common site for ectopic implantation in heterotopic pregnancies is the oviduct (93.9%), followed by less frequent occurrences in the ovary (6%). Implantation may also take place in the cervix, cornu, or abdomen.[8]

Detecting heterotopic pregnancy early is often challenging due to nonspecific clinical symptoms, where signs of intrauterine pregnancy typically take precedence.[9] The four primary clinical features commonly observed include abdominal pain, the presence of an adnexal mass, indications of peritonism, and an enlarged uterus. Abdominal pain is reported in approximately 83% of heterotopic pregnancies, with 13% presenting hypovolemic shock accompanied by abdominal tenderness. Interestingly, more than half of pregnant individuals with heterotopic gestations do not experience vaginal bleeding, as it may be retrograde from the extrauterine pregnancy due to the intact endometrium of the intrauterine pregnancy.[10]

Transvaginal ultrasonography is the preferred diagnostic tool, but its sensitivity remains limited. While transvaginal ultrasound is an essential diagnostic tool,

its sensitivity in identifying heterotopic gestations can be as low as 56% at 5–6 weeks. The diagnosis is confirmed when both intrauterine and ectopic pregnancies are detected through transvaginal sonography. In cases where the fallopian tube has not ruptured, a tubal ring is seen in 68% of ectopic pregnancies, according to retrospective ultrasound studies.[11] When HP is suspected, serial ultrasounds and close monitoring of β-hCG levels are recommended. However, β-hCG levels are unreliable in distinguishing between a viable intrauterine pregnancy and a concurrent ectopic pregnancy.

Management of HP depends on the patient's hemodynamic status and the viability of the intrauterine pregnancy. Surgical intervention, either through laparoscopy or laparotomy, remains the primary treatment option. In hemodynamically stable patients, laparoscopic removal of the ectopic pregnancy is preferred due to its minimally invasive nature and quicker recovery time.[12] Methotrexate, a common medical treatment for ectopic pregnancy, is generally contraindicated in HP due to its potential teratogenic effects on the intrauterine fetus. Alternative medical management strategies, such as potassium chloride injection into the ectopic sac, have been explored, but surgical removal remains the preferred standard.[13]

The prognosis for intrauterine pregnancies following HP treatment varies. Studies indicate that up to 70% of intrauterine pregnancies continue to term after surgical intervention. However, there is an increased risk of miscarriage and preterm labor in these cases, requiring careful obstetric monitoring.[14] This case highlights the need for heightened clinical suspicion, particularly in women with risk factors such as ART, tubal pathology, or a previous ectopic pregnancy. Early detection and prompt intervention significantly improve maternal and fetal outcomes, reinforcing the importance of thorough clinical evaluation and imaging in suspected cases of HP.[15]

Conclusion

This case report emphasizes the importance of maintaining a high index of suspicion for heterotopic pregnancy, even in asymptomatic cases. Early diagnosis through ultrasonography and appropriate surgical management play critical roles in optimizing maternal and fetal outcomes. Increased awareness and vigilance in both spontaneous and ART pregnancies are necessary to prevent severe complications.

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