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Case Report

A Unique Case of Diagnosis of a Heterotopic Pregnancy at 9 Weeks Managed Laparoscopically and Resulting in Successful Pregnancy Outcome

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Abstract

Spontaneous heterotopic pregnancy is an exceptionally rare condition characterized by the simultaneous presence of at least two pregnancies at different implantation sites, with one being intrauterine. The majority of cases are diagnosed in the first trimester. Heterotopic pregnancy is a rare occurrence, estimated to affect approximately 1 in 30,000 spontaneous pregnancies. However, its prevalence is significantly higher in assisted reproductive techniques, with some reports suggesting an incidence of up to 1 in 100 cases.

We report a case of heterotopic pregnancy in a patient of 27 years who presented to the gynecological emergency department with spontaneous pelvic pain at 9 weeks of amenorrhea, hemodynamically stable.

An ultrasound scan revealed a heterotopic pregnancy, with an extrauterine mass measuring 3.46 cm, an intrauterine gestational sac containing a 9-week embryo with positive cardiac activity accompanied this. The patient underwent a laparoscopic left salpingectomy. Her intrauterine pregnancy progressed to term, and she had a spontaneous vaginal delivery at 37+1 weeks.

The patient's post-partum course was smooth, and she was discharged from the hospital in good condition.

Keywords: *Ectopic Pregnancy; Heterotopic Pregnancy; Laparoscopy; Pregnancy Outcome; Case Report*

Introduction

Heterotopic pregnancy (HP) is the concurrent occurrence of an intrauterine and an ectopic pregnancy. Although rare, it is a potentially life-threatening condition [1]. The incidence has increased, now ranging from 1.5 per 1,000 to 1 per 100 cases, due to the widespread use of assisted reproductive technology (ART) and a rise in pelvic inflammatory disease [2].

The exact cause of heterotopic pregnancy remains unknown. However, studies have identified pelvic inflammatory disease, previous ectopic pregnancy, prior tubal surgery, pelvic adhesions, and assisted reproductive technology (ART) as significant risk factors. Nonetheless, some cases occur without any apparent risk factors. The fallopian tube is the most common site for ectopic implantation (95% - 97%), though other locations, such as the cervix, ovary, and abdomen, have also been reported [3].

The clinical presentation of heterotopic pregnancy is non-specific and may involve abdominal pain, an adnexal mass, peritoneal irritation, vaginal bleeding, and in some cases, acute chest pain radiating to the shoulder [4].

Ultrasonographic examination is crucial in diagnosing heterotopic pregnancy, which is characterized by the presence of an intrauterine pregnancy alongside a distinct adnexal mass or gestational sac [5].

The ideal treatment for heterotopic pregnancy is the removal of the ectopic pregnancy with minimal harm to the intrauterine gestational sac. Surgical options for treating HP typically include laparoscopy or laparotomy [6].

In this case, we present the clinical manifestations and management heterotopic pregnancy at 9 weeks managed laparoscopically and resulting in successful pregnancy outcome, along with a review of the relevant literature.

Case Report

A 27-year-old woman, gravida 3 para 1, at 9 weeks of gestation following a spontaneous conception, presented to the emergency department with acute lower abdominal pain and vaginal bleeding. Her obstetric history was notable for one spontaneous vaginal delivery and one miscarriage at 7 weeks of gestation. She had no significant medical, surgical, or family history. Menarche occurred at age 13, with regular menstrual cycles accompanied by mild dysmenorrhea.

On admission, the patient was hemodynamically stable, with a body temperature of 37°C and a heart rate of 75 beats per minute. Abdominal examination revealed mild tenderness in the left iliac fossa. Bimanual pelvic examination showed a thickened and mildly tender left adnexa. No other abnormalities were noted on physical examination. Her serum β-HCG level was 17,200 mIU/mL.

Trans-abdominal and endovaginal ultrasound showed a viable intrauterine pregnancy of 9 weeks (Figure 1) associated with a 3.46 cm hyperechoic structure with a 1.6 cm internal hypoechoic structure was noted in the left adnexa. Weak peripheral vascularity was noted. No fetal pole was identified (Figure 2).

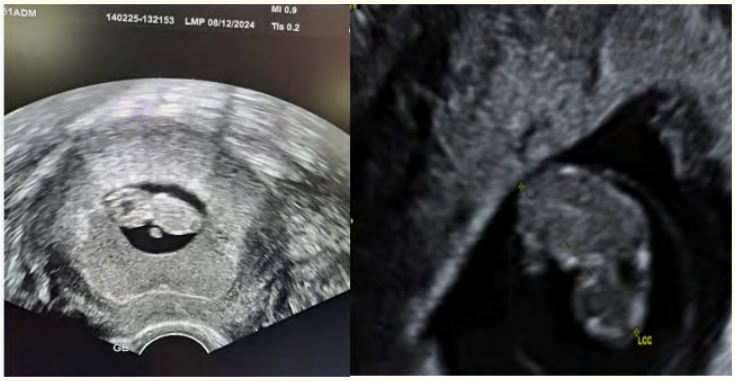

Figure 1: *Ultrasound study shows the intrauterine fetus with craniocaudal length at 9 weeks of amenorrhea.*

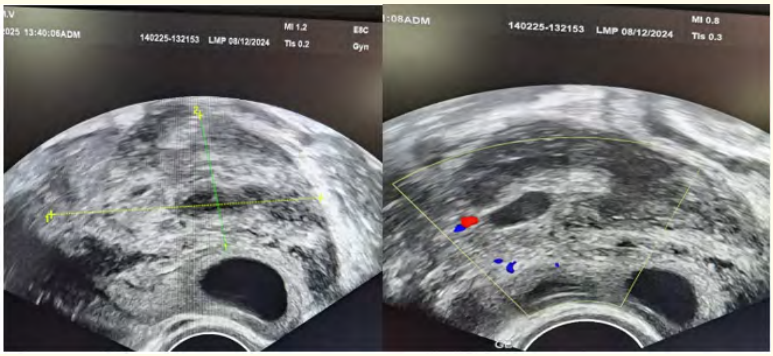

Figure 2: *A left adnexal mass of the ectopic gestation 3.46 cm.*

After obtaining informed consent, the patient was taken to the operating room and placed under general anesthesia. A diagnostic laparoscopy was performed, revealing a distended left fallopian tube consistent with an ectopic pregnancy. The right fallopian tube, left and right ovary, and appendix appeared normal. A left salpingectomy was performed, and the resected specimen was sent for histopathological analysis. The patient tolerated the procedure well.

Histopathological examination revealed a dilated and congested segment of the left fallopian tube. Microscopic analysis showed blood clots, decidual tissue, and chorionic villi with associated trophoblastic cells.

At 39 weeks' gestation, she spontaneously went into labor and delivered a female newborn weighing 3250 g with Apgar scores of 10/10, she had a favorable recovery and was released home with her baby.

Discussion

Early and accurate diagnosis of heterotopic pregnancy (HP) remains difficult and challenging, particularly in cases of natural conception due to its rarity. Delayed or missed diagnosis can result in potentially life-threatening complications, including rupture of the ectopic pregnancy, hypovolemic shock, or even maternal death. Therefore, timely and precise identification of HP is of paramount importance [7].

There has been a growing incidence of heterotopic pregnancy, attributed to both increased rates of genital tract infections and the broader application of assisted reproductive technologies [5].

The presence of an intrauterine pregnancy may provide false reassurance, leading to the potential oversight of a concurrent heterotopic pregnancy. Additionally, the presence of two gestations in separate locations can result in atypical serum β-hCG levels, further complicating the diagnostic process. Moreover, a corpus luteum cyst, commonly associated with normal pregnancy, can be mistaken for a heterotopic pregnancy-and conversely, a heterotopic pregnancy may be misdiagnosed as a benign ovarian cyst [8].

The diagnosis of heterotopic pregnancy is based on a combination of early gestational ultrasound, clinical assessment, and biochemical evaluation, including serum β-hCG levels, along with a high index of suspicion and clinical awareness [9]. In selected cases, magnetic resonance imaging (MRI) can serve as a valuable adjunct to confirm the diagnosis [10].

Management strategies for ectopic pregnancy generally include expectant monitoring, medical therapy, and surgical intervention [11]. In cases of heterotopic pregnancy, management is primarily surgical, medical management with systemic methotrexate is contraindicated due to its potential harmful effects on the viable intrauterine pregnancy [12].

Surgical management of heterotopic pregnancy can be performed via laparotomy or laparoscopy, based on the patient's clinical status [13]. Emergency surgery is strongly recommended for patients who are hemodynamically unstable or show signs of ectopic pregnancy rupture to ensure patient safety. Selective surgical intervention is appropriate only for those with stable hemodynamic status. Surgical options include salpingectomy, salpingostomy, cornual resection, and, in some cases, total abdominal hysterectomy [14]. While surgical management allows for complete removal of the ectopic pregnancy, it may carry an increased risk of miscarriage of the intrauterine pregnancy.

Conclusion

Although heterotopic pregnancy is a rare condition, it should be considered in the differential diagnosis of any pregnant woman presenting with significant abdominal pain and adnexal abnormalities. A thorough evaluation, including ultrasound and, when necessary, MRI, is essential to rule out this uncommon but potentially life-threatening diagnosis and to enable timely and appropriate management.

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