Spontaneous Heterotopic Pregnancy: Diagnosis and Management

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Introduction

- **Heterotopic pregnancy:** the presence of an intrauterine pregnancy (IUP) and a concurrent extrauterine pregnancy, both rare and life-threatening
- Risk of having a heterotopic pregnancy from **natural conception** is estimated to be from **1 in 4,000 to 1 in 30,000.** With the emergence of **assisted reproductive technology (ART)**, the incidence has been reported to be as high as **1 in 100**
- Despite its rarity, the presence of a confirmed IUP should not exclude a concurrent extrauterine pregnancy

Case Presentation

- A healthy 27-year-old patient (gravida 4, term 1, preterm 0, abortion 2, living 1) at 5 weeks and 5 days gestation through natural conception presented to the emergency department with **acute lower abdominal pain and vaginal bleeding**

Pertinent Positives

- Nonbilious nonbloody vomiting
- Obstetrical history: one spontaneous vaginal delivery and two spontaneous abortions

Pertinent Negatives

- Past medical history: unremarkable
- Past surgical history: unremarkable
- Medications: denies
- Allergies: no known drug allergy
- Family history: noncontributory
- Social history: noncontributory

Workup and Management

- Vital signs: **tachycardic at 117 beats per minute**, otherwise unremarkable
- Exam significant for: abdominal exam with **rebound tenderness** of the lower abdomen, worse on the right side at McBurney's point; pelvic exam with **blood in the vaginal vault**
- Labs: **hCG at 16,108 mIU/mL** and leukocytosis
- Diagnostic imaging: pelvic ultrasound was ordered
- **Given findings of an acute abdomen and pelvic ultrasound highly suspicious for an ectopic pregnancy, the patient was consented for laparoscopic evaluation.** The patient underwent a laparoscopic right salpingectomy with evacuation of hemoperitoneum. The pathology results confirmed the presence of the right fallopian tube from the ruptured ectopic gestation
- The postoperative course was unremarkable. A postoperative ultrasound confirmed a viable IUP, and the patient was discharged home on postoperative day one. Follow up confirmed an early pregnancy loss at 8 weeks of gestation

Ultrasonography and Intraoperative Findings

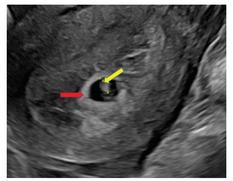

Figure 1: Longitudinal transvaginal ultrasound demonstrates an intrauterine gestational sac (red arrow) with a fetal pole (yellow arrow). Crown rump length measures 0.37 cm which correlates to the gestational age of 5 weeks and 5 days. Fetal heart rate was 128 beats per minute.

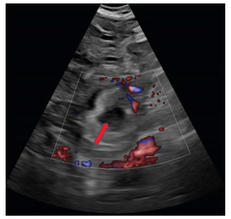

Figure 2: Longitudinal transvaginal ultrasound of the right adnexa demonstrates a thick walled hypoechoic cystic structure (red arrow) with weak peripheral vascularity ("ring of fire"). There is no fetal pole present.

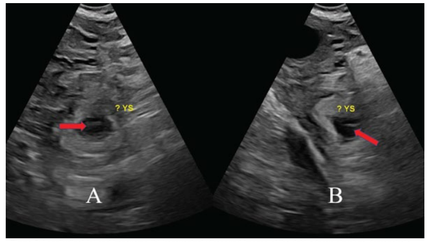

Figure 3: Longitudinal (a) and transverse (b) transvaginal ultrasound images of the right adnexa structure demonstrate possible internal echogenicity or septations (red arrow) which may represent a yolk sac or reverberation artifact.

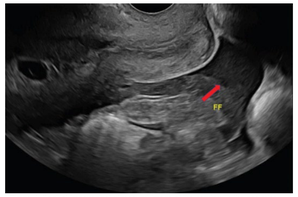

Figure 4: Sagittal transvaginal ultrasound image of the cervix with the posterior cul-de-sac with free fluid concerning for hemorrhage (red arrow).

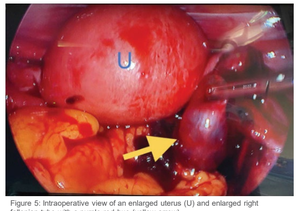

Figure 5: Intraoperative view of an enlarged uterus (U) and enlarged right fallopian tube with a purple-red hue (yellow arrow).

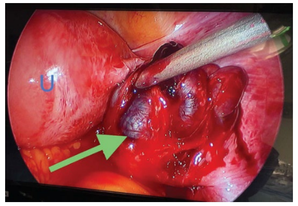

Figure 6: Intraoperative view of an enlarged uterus (U) and enlarged right fallopian tube with hemoperitoneum from the ruptured ectopic gestation (green arrow).

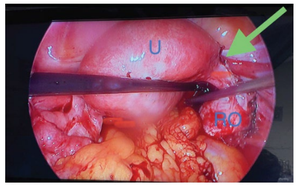

Figure 7: Intraoperative view of an enlarged uterus (U), right ovary (RO), and right salpingectomy (green arrow).

Discussion

- **Presentation:** most common presentation is abdominal pain and vaginal bleeding. A presumptive diagnosis of heterotopic pregnancy can be made if a patient has a combination of abdominal pain, signs of peritonitis, and ultrasound findings showing an adnexal mass with an enlarged uterus
- **Risk factors:** prior tubal diseases or use of ART. There are also heterotopic pregnancy cases without any risk factors and are asymptomatic
- **Workup:** wide variability for hCG concentrations in early pregnancy warranting cautious interpretation of a single hCG value. If clinical presentation and/or sonography findings are not definitive, a diagnostic laparoscopy or laparotomy (if hemodynamically unstable) would be indicated
- **Management:** consider hemodynamic stability, prognosis or desired outcome for the IUP, site of implantation of the ectopic pregnancy, and the least invasive therapeutic approach. The first line of treatment is a salpingectomy. Extra precautions should be taken to avoid cannulation or excessive manipulation of the uterus in order to preserve the IUP. If the IUP is not desired, patients who are hemodynamically stable with definitive diagnosis on ultrasound are candidates for conservative systemic medical management with methotrexate

Conclusion

- Heterotopic pregnancies are rare, but could be life-threatening if missed. Prompt and accurate diagnosis remains a challenge
- Confirmation of an intrauterine pregnancy (IUP) should not preclude the existence of a heterotopic pregnancy. A systematic review of the literature from 2005 to 2010 revealed that as many as 33% of heterotopic cases had prior sonography of a normal IUP which led to false reassurance and misdiagnosis
- Having a high index of suspicion for heterotopic pregnancy allowed prompt diagnosis and management in this otherwise healthy pregnant patient with natural conception

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