Heterotopic Pregnancy: A Case Report

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Abstract

Objective: We report an extremely rare case of a heterotopic pregnancy in a 24 year old female that had a spontaneous conception and no use of assisted reproductive technologies (ART).

Methodology: Case Report and review of related literature

Results: The patient was worked up for her abdominal pain. An intrauterine pregnancy (IUP) was confirmed at bedside by ultrasound and a formal ultrasound demonstrated an ovarian mass, thought initially to be a hemorrhagic cyst. The patient was taken urgently to the OR where the diagnosis of a heterotopic pregnancy was made and confirmed by surgical pathology. The patient recovered well and continues to have a healthy IUP.

Conclusions: Heterotopic pregnancy is a very rare diagnosis, even more so in the absence of ART. However, the diagnosis should not be ignored as it is a surgical emergency and requires surgical resection.

Introduction

Heterotopic pregnancy is rare. In today's world with assisted reproduction techniques the incidence is approximately 1 in 3900. In patients without ART, the incidence is thought to be much lower, approximately 1 in 30,000 pregnancies. Factors that increase a patient's risk include tubal disease, high levels of estradiol/progesterone and high numbers of transferred embryos as can be seen in IVF. Over 90% of heterotopic pregnancies are found in the fallopian tube [1-3]. If ruptured, the treatment is surgical, often a laparoscopic salpingectomy and the condition itself carries a significant rate of spontaneous abortion of the viable IUP.

Case Presentation

In June 2016, a 24 year old, 11 week pregnant, otherwise healthy African American female presented to our emergency department with right-sided abdominal pain that radiated from the lower to upper quadrant. The pain was described as sharp and the patient had associated nausea and vomiting. She had a similar pain (less intense) about a month ago and was treated for cystitis. The patient denied any vaginal bleeding and had no history of reproductive medications and/or procedures. She was G3P1 (spontaneous vaginal delivery x1 and spontaneous, abortion x1).

Her exam was significant for diffuse abdominal tenderness, especially in the RUQ, with no rebound tenderness and a blood pressure of 98/58 and heart rate of 98. Initial work up included a cmp, cbc w/diff, lipase, EKG, urinalysis and UPT followed by a bedside ultrasound. Labs were significant for a hgb of 10 (only previous was 11.4 from five days prior) and sodium of 133. Otherwise all labs were within normal limits. Bedside ultrasound demonstrated an IUP with HR of 180 (Figure 1). Initial management included intravenous normal saline (to which the patient responded well), as well as pain and nausea medicine. After all initial labs were back, formal ultrasounds of the kidneys, uterus and appendix were ordered due to concern for other causes of right sided abdominal pain such as appendicitis, cholecystitis, ovarian torsion, and nephrolithiasis. They were significant for free fluid and an ill-defined 4 cm right adnexal vascular structure (Figure 2).

Obstetrics was consulted and the decision was made to admit the patient for serial exams for the initial concern of a ruptured ovarian cyst and to obtain an abdominal MRI. While still in the ED fluid resuscitation and pain management was continued and the patient remained hemodynamically stable. The abdominal MRI (Figure 3) was significant for 2 cysts of the left ovary, likely right hemorrhagic cyst and lobular mass on the right side of the abdomen within the peritoneal fluid. The patient experienced worsening pain and a drop in hgb to 7.3. Obstetrics then decided to perform a diagnostic laparoscopy in the OR.
During the diagnostic laparoscopy, obstetrics found approximately 500 ml of blood and clot in the abdomen with bright red blood filling in evacuated spaces concerning for active hemorrhage. The right fallopian tube was visualized and an ectopic pregnancy was visualized and found to be actively hemorrhaging. The ectopic pregnancy was removed via a right laparoscopic salpingectomy. The tissue was sent to pathology, which confirmed the diagnosis of an ectopic tubal pregnancy, which in this patient’s setting made the diagnosis a heterotopic pregnancy. The patient was stabilized and discharged later that evening and continues to have a healthy IUP in her second trimester at the time of this submission.

Discussion

Heterotopic pregnancy refers to an intrauterine and extrauterine pregnancy. Most commonly these locations are the uterus and fallopian tube, but this is not always the case, with some cases reporting the ectopic pregnancy in other areas such as the abdomen. Before the age of assisted reproductive technology (ART), the incidence of heterotopic pregnancy was approximately 1 in 30,000. Since ART however, that incidence has become much less, around 1 in 3900. If the patient is undergoing ART the incidence is approximately 1.5 in 1000 pregnancies [1-3].

The patient’s symptoms are often very similar to an ectopic pregnancy and they typically present with abdominal pain that may be localized or diffuse. On pelvic exam the physician may feel an adnexal mass or an enlarged uterus. Vaginal bleeding can also be present. Depending on the stage of illness the patient may also be peritoneal and hypotensive. There are no physical exam/lab findings that are specific for heterotopic pregnancy but this diagnosis should be considered in any hypotensive pregnant patient with abdominal pain and an IUP identified on bedside ultrasound, especially in the setting of free fluid on ultrasound and/or history of ART [4].

The differential of abdominal pain in pregnancy is wide. Once an IUP has been confirmed, diagnoses of appendicitis, kidney stone (especially if infected), pyelonephritis, gallbladder disease, ovarian torsion, endometritis, and heterotopic pregnancy should be considered as these could all have high morbidity/mortality for patients if not diagnosed. The diagnosis of heterotopic pregnancy is especially difficult, as it cannot be easily determined by serial β-HCG. Some literature has suggested ultrasound for the diagnosis, but various case reports, including this one, continue to demonstrate its low overall sensitivity. This may be partially due to the confirmation of an IUP often giving a sense of false security, which can lead to the misdiagnosis of the patient’s abdominal pain. Because of this, late diagnosis and rupture is common in the diagnosis of heterotopic pregnancy [5-6]. Nearly half of the cases present with rupture, hemorrhage, and emergency intervention. Despite this, patients presenting with a viable IUP have a 70% chance of producing a living child if the diagnosis is made and treated appropriately [7].

Figure 1: (a) Bedside ultrasound demonstrating an healthy IUP. (b) Bedside ultrasound demonstrating an intrauterine fetus heart rate of approx 180.

Figure 2: (a) Right adnexal mass seen on formal transvaginal ultrasound in longitudinal and transverse views. (b) Free fluid seen in Morrison’s pouch on formal renal ultrasound.

Figure 3: Coronal view MRI of left ovarian cysts, right ovarian cyst, mass and free fluid.
Treatment for heterotopic pregnancy typically involves laparoscopy and, most often a salpingectomy or salpingostomy. However, if the patient demonstrates hemodynamic instability, a laparotomy would then be indicated. Due to the inherent IUP that is viable, systemic methotrexate plays no role in the treatment of a heterotopic pregnancy. There have been some case reports of use of local injection of potassium chloride and methotrexate as well as case reports of expectant management but there seems to be a high rate of failure and there is little evidence to suggest these interventions currently [8-12].

**Conclusion**

Heterotopic pregnancy is a rare diagnosis, especially in a patient without any ARF history. The diagnosis can also be difficult and has a high risk of misdiagnosis given the presence of an IUP. Correct diagnosis and immediate intervention, often with laparoscopic surgery can be life saving for both the mother and the intrauterine pregnancy.

**References**