

A “Two-bal” Pregnancy: A Case Report on Heterotopic Pregnancy

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Abstract

Heterotopic pregnancy is defined as the combination of an intrauterine pregnancy and a concurrent pregnancy with an ectopic location, often the fallopian tube. Implantation can also occur in the cervix, ovary, cornua, abdomen, and previous Cesarean scar¹. While heterotopic pregnancy is considered a rare finding, the incidence is increasing due to the increased use of Assisted Reproductive Technology (ART). Heterotopic pregnancy is suspected when an ultrasound reveals an intrauterine pregnancy in addition to a complex adnexal mass. Differential diagnoses include: threatened abortion, ruptured corpus luteum cyst, and isolated ectopic pregnancy. Correct diagnosis can be difficult to attain due to nonspecific symptoms and findings such as: free fluid in the abdomen, abdominal pain, and vaginal bleeding. Patients are often diagnosed later than in an isolated tubal pregnancy due to these nonspecific symptoms and confirmation of an intrauterine pregnancy². Delayed diagnosis often leads to greater risk of rupture, an acute abdomen, and hemodynamic instability. Since the extrauterine pregnancy is non viable, salpingectomy is the surgical standard and first line treatment¹. However, other treatment modalities such as local feticidal injection have been performed depending on the clinical status of the patient and physician expertise. Finally, an ultrasound is to be performed after the procedure to confirm viability of the intrauterine pregnancy. During this case study, the patient presentation, diagnosis, and treatment of heterotopic pregnancy will be discussed in detail. The objective of this case study is to review the events and management of this unique patient presentation and discuss the recommended diagnosis and treatment options, as well as the incidence and prognosis of patients with this rare diagnosis.

Introduction

Heterotopic pregnancy is the occurrence of an intrauterine pregnancy (IUP) and extrauterine, or ectopic pregnancy, concomitantly. Although extrauterine pregnancy is not uncommon with an estimated prevalence of 1% to 2% of pregnancies⁴, heterotopic pregnancy remains both a rare and potentially life threatening obstetrical condition. The estim-

ated prevalence was reported to be 1 in 30,000 spontaneous pregnancies based on a 1948 report^{3,5}. With the advent of assisted reproductive technology (ART), new data has since shown the prevalence to be as high as 0.10% for fresh, non donor cycles⁶.

Clinically, patients present with signs of an acute abdomen including abdominal pain, peritoneal irritation, and hemodynamic instability. A high index of suspicion for heterotopic

pregnancy is required for patients with risk factors including pelvic inflammatory disease (PID), history of ectopic pregnancy, intrauterine adhesions, ovarian hyperstimulation syndrome and use of assisted reproductive technology⁷.

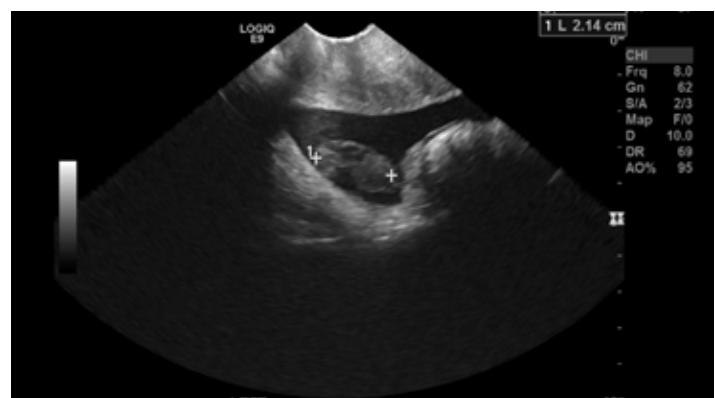
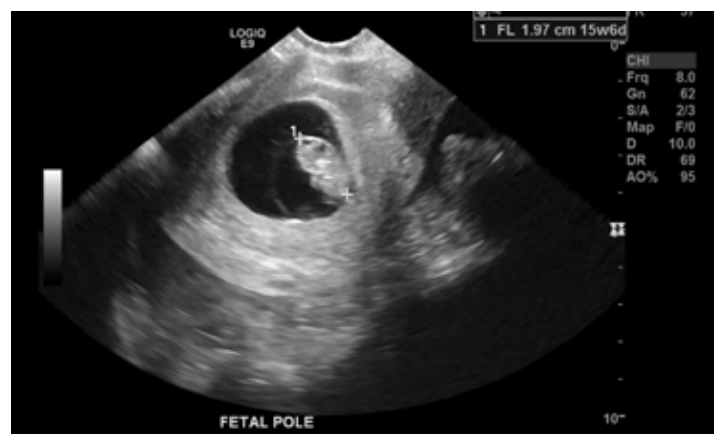
Despite the increased risk of morbidity and mortality, heterotopic pregnancy remains a diagnostic challenge for providers and necessitates immediate diagnosis and intervention to prevent complications including uterine rupture, intraperitoneal hemorrhage, preterm delivery, and miscarriage. Diagnostic laparoscopy remains first line treatment to resolve the ectopic pregnancy and maintain the IUP⁸. Dependent on clinical condition, salpingectomy, oophorectomy, or in extreme circumstances, hysterectomy may be required.

Case Presentation

- Patient is a 23-year-old gravida 2 para 1-0-0-1 who presents at unknown gestational age to the emergency department complaining of upper abdominal pain that began in the morning on the same day as her presentation. The pain is described as sharp with radiation to bilateral shoulders. The pain is made worse by movement, and she denies any alleviating factors. She reports she decided to come to the emergency department because her pain became so severe, she experienced a syncopal episode. Her review of systems is positive for nausea, vomiting, diarrhea, abdominal pain, pelvic pain, syncope, and weakness. She denies vaginal bleeding or vaginal discharge.
- She reports her last menstrual period was approximately 1 month prior but is unsure of the exact date. She had a positive home pregnancy test 1 week ago.
- Her obstetrical history is only notable for 1 prior term vaginal delivery without complication. She denies any history of sexually transmitted diseases or abnormal Pap smears. Her only medical history is anemia, and she denies any prior surgeries. She does report that she smoked cigarettes up until finding out she was pregnant 1 week ago. Prior to that she smoked once a week for approximately 3 years. Denies any alcohol use or illicit drug use.
- Vital signs were notable for hypotension at 97/43 that improved with 2 liters of IV Crystalloid and 1 unit of packed red blood cells to 118/65. She was also tachy-

cardic between 103-122 bpm. The patient was afebrile, respiratory rate was 24, and her SpO₂ was 98%.

- On exam patient was uncomfortable-appearing, lying on her right side holding her abdomen. She was tachycardic on auscultation. Her abdomen was soft, non-distended, with generalized tenderness to palpation, worse in the epigastric region. Otherwise, physical exam was within normal limits.
- Her labs were notable for a hemoglobin of 9.3 and hematocrit of 27.4. She had a leukocytosis of 16.3, and her Beta HCG was 122,454.
- Pelvic ultrasound was completed and showed a single, intrauterine gestational sac and a fetal pole. Crown Rump Length was consistent with 8w2d intrauterine pregnancy. Fetal heart rate was 177 bpm. There was also a large amount of free fluid in the pelvis and posterior cul-de-sac containing amorphous echogenic materi-



(Figures 1 & 2)

al likely representing blood clot. A combined ectopic pregnancy with viable IUP is exceedingly rare but cannot be entirely excluded.

- Due to concern for a ruptured ectopic pregnancy in the setting of heterotopic pregnancy, the patient was emergently taken to the OR for diagnostic laparoscopy with possible salpingectomy.
- In the OR, upon entry into the abdomen, approximately 2 liters of hemoperitoneum was visualized. The left Fallopian tube and ovary appeared normal. The right Fallopian tube was noted to have ruptured in the ampullary portion of the tube with small amount of active bleeding noted. The ectopic pregnancy was able to be visualized extruding through the right tube. The right ovary was normal in appearance. The surgical team proceeded with right Salpingectomy and removal of the hemoperitoneum. The patient was closed and transferred to PACU in stable condition. A bedside ultrasound was performed in PACU following surgery and a live IUP with fetal heart tones in the 130s was visualized.
- Patient's post-operative course was uncomplicated. She was able to be discharged home on post-operative day #1 with plans to follow up in the outpatient setting.
- Patient was seen in the office 4-5 weeks post-op. Patient doing well and reports positive fetal movement. Patient denies vaginal bleeding, leakage of fluid, abdominal pain, or contractions. FHR was 156 beats/minute.
- Patient had additional follow up for her initial prenatal appointment for the current IUP. Dating US showed fetus to be 16w0d at that time.



*Figure 3: Bottom left-hand image on page
Figures 4 & 5: Top two images on right-hand column on page*

Discussion

Differential Diagnosis:

- Threatened abortion, Ruptured Corpus Luteum Cyst, Ectopic pregnancy, Heterotopic pregnancy, Ovarian Hyperstimulation Syndrome, Appendicitis, Nephrolithiasis



Treatment:

- Need for preservation of intrauterine pregnancy, therefore systemic therapy, i.e. Methotrexate, is contraindicated
- Treatment dependent on site of extrauterine pregnancy, patient's clinical status, and physician's expertise
 - Salpingectomy
 - First line treatment
 - Laparoscopy vs Laparotomy
 - Local Feticidal Injection
 - Potassium Chloride⁹; Hyperosmolar glucose¹⁰
 - Selective embryo reduction via aspiration¹⁰

Outcome and Follow-up:

- Ultrasound to confirm cardiac activity of the intrauterine pregnancy (IUP)
- Higher risk of spontaneous abortion of the IUP with heterotopic pregnancy
- There was found to be a favorable outcome for the intrauterine pregnancy in about 60% of cases after laparoscopy if the IUP was viable at time of surgery.¹¹
- 55% of cases of patients treated with KCl failed therapy and required further surgical intervention (laparoscopy)¹²

Conclusion

Careful evaluation, examination, and assessment of patients that present with IUP and severe abdominal pain must be taken to not exclude or miss heterotopic pregnancy. Due to early examination, transabdominal and transvaginal ultrasound, and appropriate and timely treatment with laparoscopic salpingectomy of the concurrent right ectopic pregnancy, the patient was able to be stabilized and the intrauterine pregnancy was able to be preserved.

Early diagnosis and proper conservative treatment of the heterotopic pregnancy with laparoscopic salpingectomy or other appropriate treatment regimens can lead to positive outcomes for the mother and the living intrauterine pregnancy as in this case presentation.

References

1. Molinaro, Thomas A; Barnhart, Kurt T. UpToDate, Dec 2021, www.uptodate.com/contents/cesarean-scar-pregnancy-abdominal-pregnancy-and-heterotopic-pregnancy.
2. Hassiakos D, Bakas P, Pistofidis G, Creatsas G. Heterotopic pregnancy at 16 weeks of gestation after in-vitro fertilization and embryo transfer. *Arch Gynecol Obstet*. 2002;266(3):124.
3. Reece EA, Petrie RH, Sirmans MF, Finster M, Todd WD. Combined intrauterine and extrauterine gestations: a review. *Am J Obstet Gynecol*. 1983;146(3):323.
4. Hendriks E, Rosenberg R, Prine L. Ectopic Pregnancy: Diagnosis and Management. *Am Fam Physician*. 2020 May 15;101(10):599-606. PMID: 32412215.
5. DeVoe RW, Pratt J. Simultaneous intrauterine and extrauterine pregnancy. *Am J Obstet Gynecol*. 1948;56(6):1119-26.
6. Perkins KM, Boulet SL, Kissin DM, Jamieson DJ; National ART Surveillance (NASS) Group. Risk of ectopic pregnancy associated with assisted reproductive technology in the United States, 2001- 2011. *Obstet Gynecol*. 2015;125(1):70-78. doi:10.1097/AOG.0000000000000584
7. Jeon JH, Hwang YI, Shin IH, Park CW, Yang KM, Kim HO. The Risk Factors and Pregnancy Outcomes of 48 Cases of Heterotopic Pregnancy from a Single Center. *J Korean Med Sci*. 2016 Jul;31(7):1094- doi: 10.3346/jkms.2016.31.7.1094. Epub 2016 May 9. PMID: 27366008; PMCID: PMC4901002.
8. Ciebiera M, Słabuszewska-Jóźwiak A, Zaręba K, Jakiel G. Heterotopic pregnancy - how easily you can go wrong in diagnosing? A case study. *J Ultrason*. 2018;18(75):355-358. doi:10.15557/JoU.2018.0052
9. Salomon LJ, Fernandez H, Chauveaud A, Doumerc S, Frydman R. Successful Management of a Heterotopic Cesarean Scar Pregnancy: Potassium Chloride Injection with Preservation of the Intrauterine Gestation: case report. *Hum Reprod*. 2003;18(1):189.
10. Goldberg JM, Bedaiwy MA. Transvaginal local injection of hyperosmolar glucose for the treatment of heterotopic pregnancies. *Obstet Gynecol*. 2006;107(2 Pt 2):509.

11. Louis-Sylvestre C, Morice P, Chapron C, Dubuisson J.B. The role of laparoscopy in the diagnosis and management of heterotopic pregnancies. *Human Reproduction*. 1997;12(5):1100-1102.

12. Goldstein JS, Ratts VS, Philpott T, Dahan MH. Risk of surgery after use of potassium chloride for treatment of tubal heterotopic pregnancy. *Obstet Gynecol*. 2006;107(2 Pt 2):506.

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