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Heterotopic Triplet Pregnancy: A Case Report

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Abstract

Heterotopic pregnancy, the coexistence of intrauterine and ectopic gestations, is rare in spontaneous conceptions but more common with ovulation induction and assisted reproductive techniques. Its diagnosis is often delayed because finding an intrauterine pregnancy can falsely reassure clinicians, and a missed ectopic component can cause life-threatening rupture. A 34-year-old woman (gravida 2, para 1, with a prior cesarean section) who conceived after clomiphene citrate ovulation induction presented at six weeks of gestation with syncope, abdominal pain, and hemodynamic instability. Ultrasound showed an intrauterine twin gestation with free pelvic fluid. Laparoscopy confirmed a ruptured right tubal ectopic pregnancy with hemoperitoneum, treated by right salpingectomy. One intrauterine twin later vanished, and the pregnancy otherwise continued to term, ending in the cesarean delivery of a healthy infant. This case shows that a confirmed intrauterine pregnancy does not exclude an ectopic one. Clinicians should maintain a high index of suspicion for heterotopic pregnancy in any woman who has undergone ovulation induction and presents with pain or instability, since early recognition allows life-saving surgery while preserving the intrauterine pregnancy.

Categories: Obstetrics/Gynecology
Keywords: early pregnancy, heterotopic pregnancy (hp), heterotopic triplet pregnancy, triplet pregnancy, tubal ectopic pregnancy

Introduction

Heterotopic pregnancy, the simultaneous presence of an intrauterine and an extrauterine gestation, is a rare but potentially life-threatening condition. The classic estimate of 1 in 30,000 spontaneous pregnancies derives from a theoretical calculation published in 1948 [1]. Heterotopic pregnancy is rare after natural conception, with estimates ranging from about 1 in 4,000 to 1 in 30,000 pregnancies [2]. Some contemporary series report higher rates, for example, about 1 in 5,000 in a single-center review, possibly because improved ultrasound detects cases that would previously have resolved unrecognized [3]. With ovulation induction or assisted reproductive technology (ART), the incidence rises to about 1.5 in 1,000 to 1 in 100 pregnancies [2,4].

The main risk factors are those for ectopic pregnancy, notably tubal damage and previous ectopic pregnancy, together with ART [4]. Within ART, the risk rises with ovarian stimulation and with the number of embryos transferred [4]. Several mechanisms have been proposed. Ovulation induction with agents such as clomiphene citrate can cause multiple ovulation, increasing the number of conceptuses at risk of tubal implantation [5]. Underlying tubal damage and technical factors during embryo transfer may add further risk [4,5]. Altered tubal function and retrograde migration of embryos have also been suggested [4].

The presence of a viable intrauterine pregnancy poses a major diagnostic challenge because it can falsely reassure clinicians and delay recognition of the ectopic component, which may then present with rupture and hemodynamic instability [2,4]. We report a ruptured tubal ectopic pregnancy coexisting with an intrauterine twin gestation after ovulation induction with clomiphene citrate and discuss its diagnostic challenges.

Case Presentation

A 34-year-old woman, gravida 2, para 1, with a history of one cesarean section seven years ago, presented to the emergency department at six weeks of gestation with a syncopal episode and complaints of lower abdominal pain and vomiting. Her past medical history was significant for hypothyroidism, for which she was taking levothyroxine 75 mcg daily. Her past surgical history included a cesarean section seven years prior for fetal distress and an appendectomy in childhood. She reported a seven-day history of vomiting and a two-day history of loss of appetite. She had experienced a fever that had subsided one week earlier. The current pregnancy was conceived following ovulation induction with clomiphene citrate due to secondary infertility. The cause of infertility was unexplained. She received the clomiphene citrate from another healthcare facility and did not provide further details.

On examination, her vital signs revealed hypotension, with a blood pressure of 82/60 mmHg; the remaining

vital signs were stable. The patient was drowsy but responsive to verbal commands and appeared dehydrated. On abdominal examination, the abdomen was soft, with no guarding or rigidity, though mild suprapubic tenderness was noted. Per vaginal examination revealed a long, posterior cervix with a closed os. No vaginal bleeding was observed. A urinary catheter was inserted, and only a minimal amount of concentrated urine was drained. A urine dipstick test showed no ketones. Two wide-bore intravenous cannulas were inserted, and the patient was started on crystalloid fluids, which improved her blood pressure to 106/70 mmHg. An abdominal ultrasound was performed, revealing a moderate amount of free fluid in the abdomen and pelvis, with internal echogenicity noted within the pelvic fluid. The uterus contained two gestational sacs, each with a fetal pole at seven weeks' size, with fetal cardiac activity present in each. Both ovaries appeared bulky, with the left ovary showing two simple cysts, each measuring approximately 3 cm, and no additional adnexal masses seen on either side (Figure *1*).

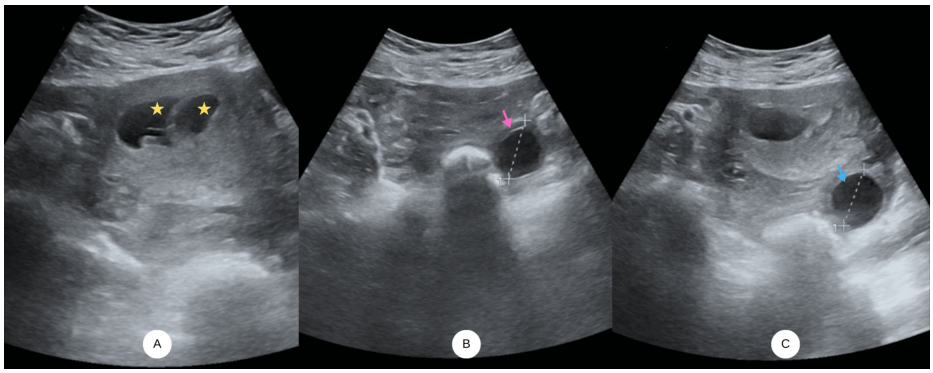


FIGURE 1: Ultrasound imaging of the pelvis showing: (A) Uterus with two intrauterine gestational sacs marked with yellow stars; (B, C) left ovarian cysts measuring 3.07 cm (pink arrow) and 3.09 cm (blue arrow), respectively.

Laboratory investigations obtained on admission revealed a hemoglobin level of 12.3 g/dL and a white blood cell count of 15.7 × 10^3/μL (Table *1*). The patient initially refused any intervention but was admitted to the intensive care unit for close monitoring. Her blood pressure later dropped to 68/48 mmHg, prompting the administration of 2 liters of intravenous fluids and initiation of a noradrenaline infusion. Her blood pressure subsequently improved to 105/60 mmHg. Repeat laboratory investigations showed a drop in hemoglobin to 9.3 g/dL (Table *1*).

Laboratory investigation	Laboratory value (admission)	Laboratory value (repeated)	Normal reference range
White blood cell count	15.7 × 10^3/mcL	26.9 × 10^3/mcL	4.00-10.00 × 10^3/mcL
Red blood cell count	4.04 × 10^6/mcL	3.39 × 10^6/mcL	3.80-4.80 × 10^6/mcL
Platelet cell count	291.00 × 10^3/mcL	246.00 × 10^3/mcL	150.00-450.00 × 10^3/mcL
Hemoglobin	12.30 g/dL	9.30 g/dL	12.00-15.00 g/dL

TABLE 1: Laboratory investigations at admission and repeat testing.

As the hemoglobin fell from 12.3 to 9.3 g/dL and ultrasound showed significant echogenic free fluid in a hemodynamically unstable patient, hemoperitoneum was suspected, and she was counseled for surgery, to which she consented. She was then taken for diagnostic laparoscopy almost eight hours after presentation, a delay that can be attributed to her initial refusal of intervention and ICU stabilization. Intraoperatively, approximately 600 mL of organized blood clots were found in the pelvis, along with an additional 200 mL of free fluid in the pelvis and bilateral paracolic gutters. A right tubal mass was identified at the ampullary portion of the fallopian tube, measuring approximately 4 cm, with a ruptured wall and surface clots, but no active bleeding (Figure *2*).

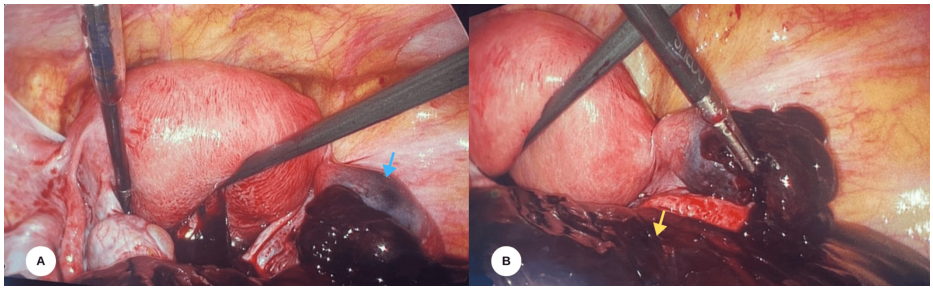


FIGURE 2: Intraoperative images showing (A) a right tubal mass (blue arrow) at the ampullary portion of the fallopian tube, measuring approximately 4 cm, with a ruptured wall and surface clots, and (B) organized blood clots found in the pelvis (yellow arrow).

Both ovaries were enlarged and contained multiple follicular cysts. Moderate filamentous omental adhesions were present. A right salpingectomy was performed. The specimen was sent for histopathology, which confirmed products of conception. No active bleeding was noted following the procedure, but an intraperitoneal drain was placed because of the bleeding risk and the presence of organized blood clots, and it was removed on postoperative day 2. On postoperative day 2, a repeat ultrasound confirmed an intrauterine twin pregnancy with a thick dividing membrane and a lambda sign. Two fetal poles were visualized; however, twin A had fetal cardiac activity, while twin B showed no cardiac activity (Figure 3).

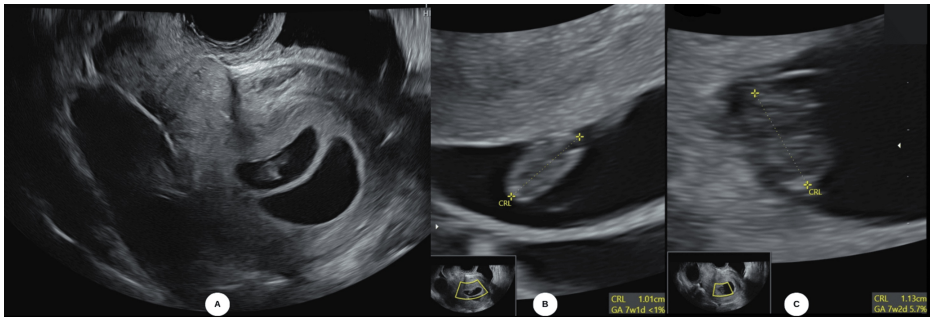


FIGURE 3: Early pregnancy scan showing (A) an intrauterine twin pregnancy with a thick dividing membrane and a fetal pole, (B) the first twin corresponding to 7 weeks 1 day, and (C) the second twin corresponding to 7 weeks 2 days.

CRL: crown-rump length, GA: gestational age, w: weeks, d: days.

The remainder of her postoperative course was uneventful. The intraperitoneal drain was removed, and she was discharged on postoperative day 4. At a follow-up scan one month later, a vanishing twin was confirmed, and the remainder of the pregnancy progressed as a singleton gestation. She eventually delivered a healthy infant via cesarean section at term, as she refused a trial of labor after cesarean section.

Discussion

This case illustrates the diagnostic dilemma posed by heterotopic pregnancy. The presence of an intrauterine pregnancy on ultrasound often leads clinicians not to consider an ectopic pregnancy, which can delay diagnosis and management [6]. In this patient, key indicators such as sudden hemodynamic instability, dropping hemoglobin, and free intraperitoneal fluid were essential clues prompting surgical intervention despite the confirmed intrauterine gestation. Ovulation induction, as in this patient's case, significantly raises the risk of multiple ovulations and thereby multiple gestations, including heterotopic pregnancies. The use of clomiphene citrate has been associated with an increased incidence of twin pregnancies and, albeit rarely, heterotopic gestations [7,8].

The surgical management aimed to stabilize the patient while preserving the intrauterine pregnancy. Laparoscopic right salpingectomy was successfully performed, with minimal disruption to the uterus. Postoperatively, a scan on day 2 showed a dichorionic diamniotic intrauterine twin pregnancy with gestational ages of 7 weeks 1 day and 7 weeks 2 days by crown-rump length, compared with 6 weeks 2 days

by last menstrual period (LMP) (a one-week discrepancy). Also, on the postoperative day 2 scan, twin B showed no cardiac activity, and a follow-up scan one month later confirmed a vanishing twin, a known phenomenon occurring in multiple gestations, especially early in pregnancy [9].

The patient went on to have an uncomplicated pregnancy and delivered at term, underscoring the importance of timely diagnosis and multidisciplinary management involving obstetrics and gynecology, anesthesia, radiology, and histopathology teams in preserving maternal and fetal outcomes in heterotopic pregnancy.

Conclusions

This case highlights the diagnostic complexity of heterotopic pregnancy, especially when an intrauterine twin gestation is already confirmed. The presence of an intrauterine pregnancy can lead to a false sense of reassurance, potentially delaying the recognition of a concurrent ectopic pregnancy. In our patient, the timely identification of hemodynamic instability and declining hemoglobin, along with suggestive ultrasound findings, was critical in prompting surgical intervention. Despite the rupture of the ectopic component, appropriate and timely management allowed preservation of the intrauterine pregnancy, which continued as a singleton following the vanishing of one twin. This case underscores the importance of maintaining a high index of suspicion for heterotopic pregnancy in patients presenting with abdominal pain and risk factors such as ovulation induction, even in the presence of a confirmed intrauterine gestation.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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