

## Heterotopic Pregnancy after Spontaneous Conception: A Diagnostic Dilemma

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### Abstract

**Background:** Heterotopic pregnancy is simultaneous occurrence of intrauterine and extra uterine pregnancy. It is a rare condition, diagnosed in 1 per 30,000 unassisted conceptions. In most cases diagnosis is made after rupture of the extrauterine pregnancy.

**Case summary:** Here we report, a rare case where a 25 years old primigravida at 8 weeks of gestation presented with acute abdomen. She had no risk factors for ectopic pregnancy. She visited multiple health facilities and ultrasound examinations with unsettled diagnosis. Finally the diagnosis of heterotopic pregnancy was considered based on clinical and ultrasound findings and confirmed by laparotomy.

**Conclusion:** We report this case to highlight the possibility of heterotopic pregnancy without any risk factor. The presence of an intrauterine pregnancy should not be taken as evidence to exclude the possibility of ruptured ectopic pregnancy from the differential diagnosis of acute abdomen in reproductive aged women.

**Keywords:** Heterotopic pregnancy; Jimma University

### Introduction

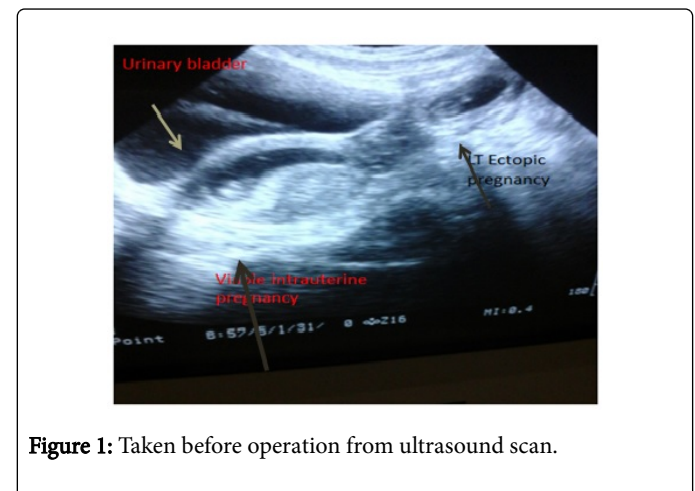
Heterotopic pregnancy is a rare occurrence of extra-uterine and intra-uterine gestation at the same time, and usually follows assisted reproduction. Following spontaneous pregnancy its incidence is reported to be as low as 1 in 30,000 [1-4]. In recent years, several case reports [5-10] revealed that the presence of intrauterine pregnancy on imaging of patient with acute abdomen does not necessarily rule out the possibility of co-existing extra-uterine pregnancy. The diagnosis of heterotopic pregnancy often made late after it has been ruptured even in those patients who have visited health institutions earlier with or without risk factors for ectopic pregnancy. This is because the possibility of extra-uterine pregnancy is overlooked. However, the available body of literature suggests considering it in the differential diagnosis of acute abdomen in early pregnancy [4,6,8,9]. In this case we report a rare case where a 25 years old primigravida at 8 weeks of gestation was diagnosed with heterotopic pregnancy after rupture of extrauterine pregnancy. She visited multiple health facilities and ultrasound examinations but the diagnosis of heterotopic pregnancy was missed. Therefore, we report this case to highlight how could the presence of an intrauterine pregnancy on imaging as an evidence to exclude ectopic pregnancy from the differential diagnosis of acute abdomen lead to life-threatening condition.

### Case Presentation

A-25-year old primigravida married women presented with sudden onset abdominal pain for 2-days at 7-week of gestation from last normal menstrual period. She visited a nearby hospital at the onset of these symptoms, where she had ultrasound examination which showed intrauterine pregnancy and was given treatment for gastritis. On next days the symptoms persisted with the abdominal pain got generalized

and had associated vomiting, fever, weakness and headache. For this she went to a private clinic where ultrasound examination showed an additional finding of free fluid and the patient was transferred to our hospital. Otherwise, the pregnancy was spontaneous and the patient had no known risk factors for ectopic pregnancy and has no vaginal bleeding.

On physical examination she was acutely sick looking BP = 90/60 mmHg, PR = 126, RR = 26, afebrile and was pale. On abdominal examination she had signs of peritonitis. Pelvic examination revealed adnexal and cervical motion tenderness with bulged cul de sac. Ultrasound examination (abdominal) repeated in our hospital and revealed an intrauterine pregnancy with cardiac activity and crown ramp length corresponding to 8-week of gestation. There was another gestational sac on the left adnexa with echogenic tissue inside without cardiac activity (Figure 1).



**Figure 1:** Taken before operation from ultrasound scan.

There was also free fluid in the general peritoneum, which was taped under aseptic techniques and revealed frank blood which did not clot for more than 25 minutes.

After resuscitation and cross match of blood (patient hematocrit was 21%), emergency laparotomy was performed with the provisional diagnosis of ruptured tubal pregnancy with viable intra-uterine (heterotopic) pregnancy. Intra-operatively there was around 1500 ml of hemoperitoneum, enlarged uterus and the left ampullary tubal pregnancy ruptured on anti-mesosalpinx side with attached gestational sac and well-formed fetus. The contralateral tube and both ovaries were normal. Hemoperitoneum sucked out and left side salpingectomy was done and she was transfused with one unit of cross-matched blood. The postoperative period was smooth, and the patient was discharged on her seventh postoperative day after the viability of intrauterine gestation checked.

## Discussion

Heterotopic pregnancy is first recognized by autopsy in 1708 [3,4]. Though it is a rare occurrence following spontaneous conception, with recent advance of infertility treatment, it is reported to occur in as high as 1.5% of pregnancies after assisted reproduction [3-7]. In other case reports and reviews, heterotopic pregnancy following spontaneous conception is reported in patients with history of tubal surgery and pelvic inflammatory disease [1-5,10]. In our patient, on the other hand, none of these risks were identified. Although there are reports intrauterine pregnancies co-existing with cesarean scar, cervical, ovarian and abdominal pregnancies, the most common site for the extra-uterine pregnancies was the fallopian tube [1, 7]. As presented in our case the ampulla of the tube is the most common site of extra-uterine pregnancy. This is also true for isolated ectopic pregnancy as this is the widest part of the tube where natural fertilization occurs mostly.

In previous case reports, an acute abdomen after termination of intrauterine pregnancy, enlarged uterus after management of ectopic pregnancy, hemoperitoneum, presence of two corpora lutea were documented in patients with heterotopic pregnancy [1,3,4]. Because most of these findings are nonspecific, heterotopic is rarely considered in differential diagnosis of acute abdomen [6,10]. Added to this is its rarity (1 in 30,000) making the possibility of further imaging once intrauterine is seen less likely, thereby increasing the possibility that it is overlooked. The fact that our patient's diagnosis was delayed for two days highlights this reality.

Moreover, despite the advances in imaging modality large number of heterotopic pregnancies has been missed with ultrasound [1-6,10]. In one review, for example, definitive ultrasound diagnosis is made in less than half (42%) of 111 confirmed cases [6,10]. If it is pregnant mother with acute abdomen, most consider other surgical conditions after locating the intrauterine pregnancy with imaging. Even when ultrasound abnormality is detected in these women, it is likely to be ascribed to other common conditions, like a hemorrhagic corpus luteum [6,9,10]. In spite of the fact that our patient had ultrasound scan before arriving at our hospital, an ultrasound report did not consider the abnormality found in the pelvis, as it has documented an intrauterine pregnancy. The patient arrived with severe anaemia after significant intra-abdominal bleeding.

This is a call for a high index of suspicion of the possibility of heterotopic pregnancy in pregnant women presenting with an acute

abdomen of otherwise unidentified cause. After the diagnosis of heterotopic pregnancy is made, it can be managed either medically: injecting potassium chloride directly to gestational sac or surgically: laparoscopic or laparotomy. Treatment with potassium chloride was reported to require additional surgery for treatment failure in case reports [1,6]. Other medical treatment option used for management of isolated ectopic pregnancy like methotrexate, are contraindicated in presence of intrauterine pregnancy. Though laparoscopy can be used in most cases, in the presence of hemodynamic instability and interstitial pregnancy laparotomy is the preferred approach in the management of these patients [6,7,10]. The hospital set up is also another important factor in deciding the primary modality of treatment. There is no laparoscopy service in our hospital, for example. In our patient, therefore, considering this fact and the patient's condition, we managed with laparotomy.

In conclusion, the index case highlights the possibility of heterotopic pregnancy without any risk factor. The presence of an intrauterine pregnancy with ultrasound should not be taken as evidence to exclude the possibility of ruptured ectopic pregnancy from the differential diagnosis of women with acute abdomen. Extensive evaluation of the pelvic structures including adnexa should be done at the time of ultrasound to rule out the presence of a heterotopic pregnancy. When diagnosed, the management should be individualized, based on the status of co-existing intrauterine pregnancy, the patient's condition and available resources.

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